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Mongolia



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Second Review



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FOREWORD

The Second Environmental Performance Review (EPR) of Mongolia builds on the substantial experience accumulated by the United Nations Economic Commission for Europe (ECE) and its member States in using the EPR tool to regularly assess progress achieved in reconciling national economic and environmental objectives. Over the past quarter of a century, ECE EPRs have contributed to stronger institutions for environmental governance, management and performance; improved financial frameworks for environmental protection; enhanced environmental monitoring and information systems; better integration of environmental concerns into sectoral policies; strengthened public participation; greater environmental awareness; and increased international cooperation. EPRs bring together good practices and a wealth of experience from ECE member States in a mutually enriching exchange of learning.

Mongolia has made significant progress in strengthening its legal and policy frameworks for environmental protection, including amendments to key legislation such as the Law on Environmental Protection and the Law on Air. The establishment of the Ministry of Environment and Climate Change in 2024 and the creation of subordinate institutions, such as the Water Agency and the Forest Agency, have enhanced institutional capacity. Mongolia has also advanced sustainable finance initiatives, including the Green Taxonomy and the SDG Financing Taxonomy, and has mobilized international funding, including from the Green Climate Fund (GCF), for climate change mitigation and adaptation projects. In addition, it has improved its environmental monitoring and compliance mechanisms, revising the environmental impact assessment process and introducing stricter environmental standards. These efforts have been complemented by the designation of new biosphere reserves, the inclusion of species in international conservation agreements, the recovery of endangered species and enhanced agricultural landscape management with the promotion of sustainable practices. Together, these measures reflect Mongolia's commitment to environmental protection, biodiversity conservation and sustainable development.

Priorities identified in the EPR that require further attention by Mongolia include improving water management to prevent scarcity and ensure access to safe drinking water; diversifying the economy to reduce reliance on mining; strengthening environmental protection through sustainable resource use and climate change mitigation; and enhancing governance and institutional capacity to promote transparency and accountability. Investment in critical infrastructure and integration of climate adaptation into national planning are also crucial. In addition, expanding green finance initiatives, promoting public-private partnerships for sustainable projects, and advancing social development through improved education, healthcare and social services are essential to achieving Mongolia's Vision 2050 goals.

I would like to highlight the depth of the Second EPR of Mongolia, which addresses 59 Sustainable Development Goal (SDG) targets and makes 101 recommendations (a total of 287 recommendations including sub-recommendations). I trust that this review will serve as a powerful tool to support decisionmakers and policymakers as well as representatives of civil society, in their efforts to improve environmental governance, management and performance, and to achieve the SDGs in Mongolia.

ECE wishes the Government of Mongolia every success in pursuing its environmental objectives, including through the implementation of the recommendations set in this second review. It is also hoped that the lessons learned from the peer review process in Mongolia will benefit other countries within the ECE region and beyond.



Tatiana Molcean
United Nations Under-Secretary-General
Executive Secretary
United Nations Economic Commission for Europe

PREFACE

The Second Environmental Performance Review (EPR) of Mongolia takes stock of the progress made in environmental governance and management since 2017 and provides recommendations for further implementation. Additionally, the Review examines developments related to Mongolia's achievement of relevant targets under the 2030 Agenda for Sustainable Development.

The Review covers legal and policy frameworks as well as regulatory and compliance assurance mechanisms. It focuses on green development, addresses climate change issues and evaluates the country's participation in international agreements. It also assesses Mongolia's efforts to integrate environmental considerations into its policies in the education, forestry, risk management and health sectors. Furthermore, the EPR addresses issues of particular importance to Mongolia, including air protection, water management, waste and chemicals management, land management, *dzud* management and biodiversity and protected areas. Finally, the Review includes an assessment of 59 SDG targets.

The Second EPR of Mongolia commenced in May 2024 with a preparatory mission to agree on the report's structure and timeline for completion. A team of international experts conducted the country review mission from 15 to 25 September 2024. During its meeting in Geneva on 6–8 May 2025, the ECE Expert Group on Environmental Performance Reviews discussed the draft report with a delegation from Mongolia, focusing on the conclusions and recommendations made by the international experts. The recommendations, incorporating suggested amendments from the Expert Group, were subsequently submitted for peer review to the ECE Committee on Environmental Policy at its 30th session in Geneva on 26–28 November 2025. The Committee adopted the EPR recommendations.

The ECE Committee on Environmental Policy and the ECE secretariat express their gratitude to the Government of Mongolia and its experts, who collaborated closely with international experts and contributed their knowledge and expertise. The ECE also wishes to convey its deep appreciation to the Federal Ministry of Agriculture and Forestry, Climate and Environmental Protection, Regions and Water Management of Austria and the Federal Office for the Environment of Switzerland for their financial support to the EPR Programme.

Sincere thanks are also extended to France, the Netherlands and the United Nations Environment Programme (UNEP) for providing their experts to this review. In addition, ECE is grateful to the United Nations Development Programme (UNDP) for having provided substantive and logistical support, and to the United Nations Country Team (UNCT) in Mongolia for its support of the Review.

Finally, ECE expresses its deep appreciation to Estonia, Germany, North Macedonia, Romania, Switzerland and Uzbekistan for providing their experts for the ECE Expert Group on Environmental Performance Reviews, which undertook the expert review of this report.

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EXECUTIVE SUMMARY

The Second Environmental Performance Review (EPR) of Mongolia assesses progress made in environmental governance, management and sustainable development since 2017. It evaluates achievements in strengthening the legal and institutional frameworks for environmental protection, mainstreaming environmental concerns across sectors and advancing the implementation of the 2030 Agenda for Sustainable Development. The Review recognizes Mongolia's considerable progress in legislative reform, environmental monitoring and the mobilization of green finance. At the same time, it identifies persistent challenges in enforcement, intersectoral coordination and adaptation to climate change. Moreover, the report addresses 59 Sustainable Development Goal (SDG) targets and provides 101 recommendations designed to support the Government in achieving its environmental and development objectives under the Vision-2050 framework and relevant international agreements.

Mongolia's legal and institutional framework for environmental protection rests on the 1992 Constitution, which guarantees citizens the right to live in a healthy environment and places all natural resources under State ownership. The period from 2017 to 2024 saw several key legal reforms and institutional developments. Amendments to the Constitution in 2019 strengthened environmental governance by affirming long-term, intergenerational rights and establishing the National Resources Fund (now the Future Heritage Fund) to ensure equitable distribution of mining revenues. Numerous environmental laws were revised or introduced, including the Laws on Environmental Protection, Waste, Air, Genetic Resources and Environmental Impact Assessment (EIA). A regulatory impact assessment (RIA) system became mandatory, though implementation remains uneven due to capacity constraints. In addition, the establishment of the Ministry of Environment and Climate Change in 2024 has improved institutional coherence.

The Review highlights the complexity of Mongolia's environmental legislation, identifying more than 90 overlaps and gaps among 30 environmental laws. While new standards and amendments have aligned national policies with international frameworks, weak coordination among ministries, limited enforcement and frequent legislative changes undermine continuity and compliance. The recommendations include improving RIA capacity, strengthening strategic environmental assessment (SEA) implementation and enhancing inter-ministerial coordination. The integration of biodiversity conservation and climate change priorities across all sectors and acceleration of the adoption of the Environmental Target Programme have also been recommended.

Mongolia's environmental regulatory system has been strengthened through amendments to the Law on EIA and the introduction of cumulative and social impact assessments. Nevertheless, implementation of EIA procedures is inconsistent, and follow-up on environmental management plans is insufficient. The 2017 Law on Infringements and subsequent regulations strengthened the legal basis for environmental control, introducing administrative sanctions and penalties for violations. In 2023, with the dismantling of the General Agency for Specialized Inspection, inspection services across line ministries have been fragmented, reducing their efficiency and effectiveness. Moreover, environmental inspections are constrained by limited staff, inadequate training and outdated monitoring technologies. Environmental liability and compensation mechanisms exist in law but are rarely applied effectively, and penalties often fail to deter non-compliance, especially by large mining operators.

Overall, Mongolia's compliance system is evolving towards modern environmental governance standards but still requires robust institutional backing and greater deterrence capacity to be fully effective. The Review recommends consolidating inspectorates into a unified platform, improving data sharing and inspection coordination across ministries, upgrading complaint mechanisms and enhancing collaboration between the National Human Rights Commission and the Compliance Advisor Ombudsman for better grievance handling. The report also recommends strengthening biodiversity protection as well as increasing transparency in mining rehabilitation through audits and stricter monitoring.

Since the adoption of the Green Development Policy in 2014, Mongolia has pursued initiatives such as the Green Taxonomy (2023) and the Sustainable Development Goals (SDG) Financing Framework, both designed to mobilize public and private investment for environmentally responsible projects. The Government has introduced fiscal incentives for renewable energy, sustainable agriculture and eco-innovation, alongside green bonds and sustainable finance guidelines. International cooperation remains vital, with support from GCF, the Global Environment Facility and bilateral partners. Despite progress, financing gaps remain significant, particularly in water management, waste treatment and climate adaptation.

While the Ministry of Finance and the Ministry of Environment and Climate Change have introduced environmental budgeting tools, the scale of green investment is still insufficient to achieve Mongolia's Vision 2050 objectives. Private sector participation is growing, particularly through ESG (Environmental, Social and Governance) frameworks, but barriers

include limited domestic capital markets and weak project evaluation capacity. The review recommends improving green economy governance, reforming environment-related taxes and subsidies, strengthening green finance and supporting green jobs. Furthermore, accelerating energy transition through targeted programmes, renewable energy subsidies, transparent auctions and infrastructure investment is also recommended.

Mongolia's environmental monitoring system is coordinated by the National Agency for Meteorology and Environmental Monitoring (NAMEM), under the Ministry of Environment and Climate Change. The 1997 Law on Hydrological, Meteorological and Environmental Monitoring provides the legal foundation for monitoring, though a major revision is scheduled for 2025 to modernize its scope and strengthen data integration. NAMEM operates extensive networks measuring air, water, soil and biodiversity indicators; however, these networks face persistent challenges such as ageing infrastructure, limited calibration capacity and inconsistent data quality. The Environmental Information Centre consolidates monitoring results, and efforts have been made to digitize and disseminate information through online platforms and the Shared Environmental Information System.

Despite these advances, environmental data in Mongolia remain fragmented and underused in policymaking. Many datasets are not regularly updated or publicly accessible, hindering evidence-based governance. The Review highlights the need for comprehensive national environmental indicators aligned with the SDGs and for improved cross-sectoral data exchange between the Ministry of Environment and Climate Change, NAMEM and relevant ministries. It recommends strengthening human capacity by increasing the number of experts and improving training; upgrading the monitoring network; improving data quality and use; and supporting policymaking by aligning environmental data with national planning.

While Mongolia has made legislative progress, effective realization of the Aarhus Convention's principles requires stronger institutional capacity, inclusive participation at all governance levels and a cultural shift towards transparency and accountability in environmental decision-making. The right to environmental information and participation is enshrined in the country's Constitution and relevant laws, including the 1995 Law on Environmental Protection and the 2012 Law on EIA. The Government has taken steps to expand access to environmental information, such as online databases and public consultations during EIAs. Civil society participation has grown, with NGOs playing a crucial role in monitoring projects and advocating for transparency. The National Human Rights Commission of Mongolia and environmental NGOs, such as the Mongolian Environmental Civil Council, have also promoted environmental rights awareness. However, engagement remains uneven, particularly in rural areas where internet access is limited and local authorities lack capacity for meaningful consultation.

The access to justice in environmental matters is still constrained by procedural complexity, high litigation costs and limited judicial expertise in environmental law. While administrative and civil courts can hear environmental cases, few reach resolution due to evidentiary challenges and a lack of environmental lawyers. The report recommends specialized training for judges and prosecutors, simplified complaint mechanisms and expanded legal aid for affected communities. It also stresses the importance of proactive information disclosure and greater NGO participation in environmental planning processes.

Mongolia has made substantial progress in integrating Education for Sustainable Development (ESD) into its national education system, reflecting commitments under the United Nations Educational, Scientific and Cultural Organization (UNESCO) ESD Framework and the 2030 Agenda for Sustainable Development. The 2023 Law on Pre-School and General Education strengthened the institutional basis for environmental learning by embedding sustainability topics across school curricula. The Ministry of Education and Science, in collaboration with the Ministry of Environment and Climate Change and universities, has expanded teacher training and developed educational materials on climate change, biodiversity and sustainable resource management. The Information and Training Centre for Nature and Environment plays a pivotal role in public awareness campaigns, while universities have introduced new degree programmes in environmental science, renewable energy and green technologies.

Despite strong policy support, Mongolia lacks a formal institutional framework and a coherent national action plan for ESD. The Technical Advisory and Coordination Group, which played a key role during the ESD Project, is no longer operational. Monitoring of SDG targets 4.7, 12.8 and 13.3 shows promising scores, but data gaps and budgetary constraints hinder full implementation. Mongolia is part of the UNESCO Greening Education Partnership, but has yet to establish an accreditation system for green schools. To overcome these bottlenecks, the report recommends mandating the Ministry of Education to oversee ESD, establishing a National Council on ESD, and developing and implementing a national action plan for ESD. It also recommends monitoring and reporting on SDG targets, fulfilling commitments under the Greening Education Partnership and establishing a national accreditation system for green school quality standards.

Mongolia is experiencing rising temperatures, increased droughts, desertification, glacial melt and water scarcity, which threaten ecosystems, agriculture, livestock, forests and human health. Climate change is intensifying natural disasters such as floods and *dzuds* and exacerbating vulnerabilities in rural and peri-urban communities. The agriculture sector, particularly livestock herding, is highly exposed, while forestry faces growing threats from fires and pests. Climate-related health risks include respiratory infections, vector-borne diseases and mental health issues. Economic sectors such as energy, transport and tourism are also affected, with infrastructure damage and shifting climate conditions impacting productivity and resilience.

Mongolia's greenhouse gas (GHG) emissions have increased significantly since 1990, with agriculture and energy being the largest contributors. The country has committed to reducing emissions by 22.7 per cent by 2030 (unconditionally) and up to 44.9 per cent (conditionally), but lacks a comprehensive climate law and long-term low-emission strategy. While the Nationally Determined Contribution (NDC) and National Adaptation Plan have been submitted, climate change is not yet fully integrated into sectoral policies or education. Institutional coordination remains fragmented, and climate-related data is not widely accessible. Key recommendations include finalizing and adopting the draft law on climate change; developing a long-term low-emission strategy and the NDC 3.0; mainstreaming climate objectives into sectoral policies and budgets; and using nature-based solutions. Moreover, the report recommends establishing a robust GHG measurement, reporting and verification system, improving access to climate-related and gender-disaggregated data and integrating climate change into formal and non-formal education systems.

Mongolia has ratified and actively participates in numerous multilateral environmental agreements (MEAs), including the United Nations Framework Convention to Combat Desertification, the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC). The Ministry of Environment and Climate Change serves as the national focal point for most MEAs, coordinating with relevant ministries to ensure compliance and reporting. Progress has been made in biodiversity conservation, climate change mitigation and desertification control, supported by international funding and technical assistance. The country has submitted periodic reports to international bodies, including its Sixth National Report to the CBD and its Third National Communication to the UNFCCC.

Despite this progress, the EPR notes that Mongolia faces challenges in meeting its international obligations due to limited human and financial resources and fragmented institutional responsibilities. Many MEA commitments are implemented through donor-funded projects, which may lack long-term sustainability once external funding ends. The Review recommends streamlining coordination among focal points, integrating MEA obligations into national development strategies and ensuring adequate domestic financing for implementation. It also recommends enhancing data collection to improve the accuracy of international reporting and participation in global environmental monitoring initiatives.

Air pollution remains one of Mongolia's most pressing environmental and public health challenges, particularly in Ulaanbaatar, where wintertime concentrations of particulate matter (PM_{2.5} and PM₁₀) often exceed World Health Organization (WHO) guidelines by more than tenfold. The principal sources of pollution are coal burning in ger districts, power plants and vehicle emissions. The 2012 Law on Air and the 2010 Law on Air Pollution Fees, both extensively amended in recent years, form the legal framework for air quality management. Reforms between 2017 and 2023 included the establishment of air quality improvement zones, restrictions on low-grade coal and incentives for cleaner heating technologies. The Government launched targeted action plans to promote green energy and electrification in ger areas, supported by the Environment and Climate Fund and international donors such as the Asian Development Bank. In 2023, the Government doubled CO₂-related vehicle emission fees to encourage cleaner transport choices.

While significant policy initiatives are underway, implementation remains uneven and heavily centralized. Monitoring and enforcement capacity outside Ulaanbaatar are limited, and local air quality stations often suffer from data gaps. Moreover, behavioural change among residents has been slow due to the high cost of cleaner fuels and limited infrastructure for electric heating. The EPR recommends developing a comprehensive air emission inventory covering all pollutants and sectors, enhancing air quality monitoring through the expansion of automatic monitoring stations nationwide and strengthening regional and local air protection policy implementation.

Mongolia's water resources are scarce, unevenly distributed and highly vulnerable to climate variability. The country's total renewable water availability is estimated at about 35 billion cubic metres per year, but the majority is concentrated in the north, while the Gobi and southern regions face chronic shortages. The 2012 Water Law, together with the 2017 Law on Water Pollution Fees, provides the legal foundation for water management, supported by the National Water Agency and river basin authorities (RBAs). Since 2017, 29 RBAs and 21 river basin councils have been established, reflecting Mongolia's commitment to integrated water resource management. The Government has also adopted basin management plans, water-use permits and pollution charges.

Despite progress, Mongolia's water governance remains fragmented. Coordination between ministries is weak, and enforcement of water abstraction and pollution permits is inconsistent. Many RBAs lack technical and financial capacity, and monitoring systems are outdated. The mining sector continues to exert significant pressure on groundwater resources, while untreated wastewater from urban areas and industries contributes to river contamination. The Review calls for the expansion of wastewater treatment plants and of the surface and groundwater monitoring network. It also recommends improving the water information system, developing basin management plans with clear targets and adjusting water fee legislation to incentivize reuse.

Mongolia has made progress in municipal solid waste collection, with urban collection rates rising to over 87 per cent by 2023. However, recycling remains low—only 6.5 per cent of waste was recycled in 2023. Waste separation at source is rare, and informal waste pickers play a major role in recycling, especially in Ulaanbaatar. Landfills are nearing capacity and lack environmental safeguards, contributing to soil and groundwater pollution. Hazardous waste, including medical, mining and industrial waste, is poorly managed, with limited data and enforcement. Mongolia lacks a comprehensive legal framework for radioactive waste, despite small-scale generation from medical and research activities.

The country has introduced strategic documents like the Vision 2050 Long-term Development Policy and the National Waste Management Improvement Strategy, aiming for zero waste by 2050 and improved recycling infrastructure. However, institutional capacity is weak, with only one full-time staff member dedicated to hazardous waste at the Ministry of Environment and Climate Change. Recycling infrastructure exists but is underutilized due to insufficient waste separation. Specific waste streams—plastic, batteries, construction, mining and food waste—are addressed through pilot projects and donor-supported initiatives, but national coordination and data systems remain fragmented. The Review recommends improving the usability and validation of waste databases, strengthening technical expertise and coordination within the Ministry of Environment and Climate Change, and supporting municipalities in developing their waste management plans. It also calls for developing a radioactive waste management strategy and legislation, and further developing the recycling sector.

Mongolia's vast and ecologically diverse territory hosts over 15,000 species, including globally significant wildlife such as snow leopards and saiga antelope. The 1995 Law on Special Protected Areas and the 2012 Law on Environmental Protection provide the legal basis for conservation, complemented by the National Biodiversity Programme and the National Biodiversity Strategy and Action Plan (NBSAP). As of 2024, protected areas cover approximately 21 per cent of the national territory, including strictly protected areas, national parks, nature reserves and natural monuments. Mongolia has also designated six UNESCO Biosphere Reserves under the Man and the Biosphere Programme, and participates in transboundary conservation initiatives with China and the Russian Federation. Recent successes include the recovery of key species and the expansion of community-based conservation through Local Protected Areas and community-based organizations.

Despite these achievements, biodiversity faces mounting threats from overgrazing, mining expansion and climate change. Habitat fragmentation, illegal hunting, and the spread of invasive alien species exacerbate ecological degradation. The report identifies weak coordination among conservation agencies and insufficient funding as major constraints. Many protected areas lack management plans, and monitoring remains limited. The report recommends finalizing and implementing NBSAP (2025–2030) aligned with the Global Biodiversity Framework, developing national plans for wetlands conservation and updating Red Lists of animal species. It also highlights the need for establishing wildlife corridors to support migration during extreme weather events (e.g., *dzud*).

Mongolia's forests cover about 8.28 per cent of the land area in 2023, with boreal forests dominating the north and saxaul forests in the south. Despite being a "low forest cover" country by the standards of the Food and Agriculture Organization of the United Nations (FAO), Mongolia has a high forest area per capita. Forests face degradation from fires, pests, overgrazing and illegal logging, with over 1.8 million hectares affected. The One billion Trees National Movement is Mongolia's flagship afforestation initiative, aiming to plant one billion trees by 2030, though concerns remain about survival rates and long-term sustainability.

Forest management is largely centralized, with the National Forest Agency coordinating policy and inventory efforts. However, implementation is fragmented, and local forest units lack capacity and equipment. Forest User Groups and Professional Forestry Enterprises play key roles in participatory forest management, but their legal status, tenure security and access to financial resources remain weak. Sustainable Forest Management (SFM) is not fully integrated into policy or practice, and thinning operations—critical for forest health—are underutilized. The forest sector's contribution to GDP is minimal and value chains for non-wood forest products (NWFPs), such as pine nuts, are underdeveloped. There is a lack

of forest certification, and forest inventories are not consistently used for decision-making. Key recommendations include developing national SFM criteria and certification systems, standardizing decisions on annual allowable cuts and permit processes, expanding forest inventories, strengthen co-management, enforcing laws protecting forest areas from mining, increasing funds for SFM and enhancing NWFP value chains.

Land is Mongolia's most valuable and contested resource, underpinning agriculture, mining and urban development. The 2002 Law on Land, repeatedly amended since 2017, governs land use, ownership and protection, while the Agency for Land Administration and Management, Geodesy and Cartography oversees implementation. Reforms have introduced electronic land registration and improved cadastral mapping, while special-use zones for water basins, health areas and economic development have been delineated.

Mongolia faces significant challenges from land degradation, desertification, overgrazing, mining and urban expansion. Pasture degradation is critical, with 70 per cent of rangelands affected, largely due to excessive livestock numbers and weak pasture governance. Crop yields remain low and integration between crop and livestock farming is limited. Soil degradation, wind erosion and pollution from mining and urbanization further threaten land productivity. Urban planning, especially in Ulaanbaatar, suffers from poor coordination, leading to traffic congestion, inadequate infrastructure and expanding ger districts. The legal framework is extensive but fragmented, with gaps in enforcement, coordination and sustainable land use practices. Climate change exacerbates these pressures, with rising temperatures, shifting vegetation zones and increased droughts and *dzuds*. The report recommends consolidating land-related legislation, enhancing inter-ministerial coordination and developing a unified land management information system. It also urges Mongolia to implement *aimag*-level plans to combat land degradation and incentivize land users, develop a law to protect soils and ensure transport infrastructure is planned and financed for new urban areas.

Dzud — Mongolia's term for catastrophic winter disasters that cause mass livestock mortality — remains one of the most severe environmental and socioeconomic challenges facing the country. *Dzud* events are increasingly frequent and intense due to climate change, with the 2023–2024 *dzud* affecting 90 per cent of the country and resulting in the death of 8.1 million livestock (12.5 per cent of the national herd). These disasters have devastating impacts on herder livelihoods, rural economies and ecosystems, often triggering migration to urban areas and exacerbating poverty. Vulnerable groups, especially women-headed households, face disproportionate challenges due to limited resources, access to aid and decision-making roles. Environmental consequences include land degradation, biodiversity loss and water contamination from decomposing carcasses.

The Government has responded with improved early warning systems, notably the *dzud* risk map and impact-based forecasting, and launched initiatives like the New Cooperative–Wealthy Herder Programme and the One Health Joint Plan of Action. However, gaps remain in sustainable pasture management, disaster data collection, cross-sector coordination and gender-inclusive resilience strategies. The legal framework includes laws on disaster protection, livestock insurance and climate adaptation, but enforcement and integration across sectors need strengthening. The Review recommends developing disaster risk reduction manuals, mainstreaming disaster risk management into sectoral and local development plans, providing herders with alternative income sources and monitoring *otor* pasture conditions using remote sensing. Moreover, the report calls to improve disaster data collection, sharing using GIS and IT tools and expand livestock vaccination and biosecurity.

Mongolia's exposure to natural and technological hazards has increased significantly due to climate change, rapid urbanization and industrial expansion. The country faces frequent *dzuds*, droughts, wildfires, floods, earthquakes and mining-related incidents, with economic losses averaging 51 billion tugriks annually between 2017 and 2023. Mongolia has made progress in hazard identification, risk assessment and policy development, including the adoption of the 2017 Law on Protection against Disasters and the implementation of the Sendai Framework for Disaster Risk Reduction (DRR). The institutional framework for DRR is coordinated by the National Emergency Management Agency (NEMA). International cooperation plays a key role in capacity building and emergency response.

However, gaps remain in disaster risk management. Technological hazards, such as chemical spills and mining accidents, are increasing. Natech (natural-hazard-triggered technological) risks are not adequately addressed. Early warning systems are outdated and lack full national coverage, especially in rural areas. Data collection and sharing between institutions is fragmented and the Integrated National Disaster Information System (E-NEMA) remains unimplemented. While community participation and training have improved, local capacities and financial resilience are still limited. The Review recommends developing impact-based forecasts for all hazards, expanding radar and hydrometeorological station coverage, and ensuring that industrial risk assessments include natural-hazard-triggered technological accidents. It also calls to improve disaster data systems, apply nature-based flood management methods and update fire risk strategies.

In Mongolia, air pollution, unsafe drinking water, poor sanitation and chemical contamination continue to pose major public health risks, particularly in urban areas. Non-communicable diseases, especially cardiovascular diseases and cancer, are the leading causes of mortality, with air pollution significantly contributing to respiratory illnesses. Mongolia has one of the highest air pollution-related death rates in the region, particularly in Ulaanbaatar. Although efforts to reduce coal use and improve heating systems have been made, indoor and outdoor air pollution remains a major health concern. Water and sanitation access has improved, but rural areas and ger districts still face significant challenges, including unsafe drinking water and inadequate sanitation infrastructure.

Food safety is undermined by fragmented legislation, weak enforcement and limited public awareness. Nutrition-related issues persist, with undernourishment decreasing, but overweight and anaemia remaining concerns. Mongolia also faces a high burden of tuberculosis and antimicrobial resistance, exacerbated by poor ventilation and overcrowding in schools and kindergartens. Environmental health risks such as lead, asbestos, mercury and chemical exposure are insufficiently monitored, and occupational health and safety enforcement is inconsistent. The country lacks comprehensive data systems and intersectoral coordination to address these challenges effectively. While several national programmes and international partnerships are in place, implementation gaps remain, especially in integrating health into climate and environmental policies. Key recommendations include incorporating health into climate policies, strengthening climate-resilient health systems and improving climate-health data integration. The Review also recommends developing a national environmental health policy and a national strategy on mining and health, raising public awareness on water and air pollution risks, and eliminating lead and asbestos use.

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Peer review by the ECE Committee on Environmental Policy

The Second EPR of Mongolia and associated recommendations (information paper No. 3) was presented and peer reviewed at the 30th session of the ECE Committee on Environmental Policy (Geneva, 26–28 November 2025). The Committee adopted the recommendations of the EPR of Mongolia and encouraged the country to develop a road map to implement the recommendations of the Review.¹

In advance of the Committee session, the EPR had been examined by the ECE Expert Group on Environmental Performance Reviews together with experts from Mongolia and subsequently agreed upon by the Expert Group at its meeting held in Geneva on 6–8 May 2025.

The Chair of the Expert Group on Environmental Performance Reviews (Estonia) informed the Committee on Environmental Policy at its 30th session the main outcomes of the Expert Group's work in 2024–2025. He also highlighted the richness of the Second EPR of Mongolia, which includes 101 recommendations and addressed 59 SDG targets, shared key findings in selected areas of the review and underlined the steps necessary to address the identified challenges.

¹ The report of the Committee on Environmental Policy at its thirtieth session (ECE/CEP/2025/2) is available on the ECE website at <https://unece.org/environment/documents/2026/02/reports/report-committee-environmental-policy-its-thirtieth-session>.

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Abbreviations and acronyms

3R	Reduce, Reuse, Recycle
ADB	Asian Development Bank
ALAMGC	Agency for Land Administration and Management, Geodesy and Cartography
ASGM	artisanal and small-scale gold mining
ASM	artisanal and small-scale mining
BAU	business-as-usual
BR	biosphere reserve
BRI	Belt and Road Initiative
CBD	Convention on Biological Diversity
CBM	Central Bank of Mongolia
CCAC	Climate and Clean Air Coalition
CCRCC	Climate Change Research and Cooperation Centre
CHPP	combined heat and power plant
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMREC	China-Mongolia-Russian Federation Economic Corridor
CO	carbon monoxide
CO₂	carbon dioxide
CO_{2e}	carbon dioxide equivalent
COP	Conferences of the Parties
CSO	civil society organization
CSR	corporate social responsibility
DEIA	detailed environmental impact assessment
DRM	disaster risk management
DRR	disaster risk reduction
EBRD	European Bank for Reconstruction and Development
ECE	United Nations Economic Commission for Europe
EHS	environment, health and safety
EIA	environmental impact assessment
EIC	Environmental Information Centre
EITI	Extractive Industries Transparency Initiative
EMP	environmental management plan
EPR	Environmental Performance Review
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ESD	education for sustainable development
ESG	environmental, social and governance
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
FMP	forest management plan
FRDC	Forest Research and Development Centre
FUG	forest user group

GASI	General Agency for Specialized Inspection
GBD	Global Burden of Disease
GBF	Global Biodiversity Framework
GCF	Green Climate Fund
GDP	gross domestic product
GEF	Global Environment Facility
GEIA	general environmental impact assessment
GGGI	Global Green Growth Institute
GHG	greenhouse gas
GIS	geographical information system
GIZ	German Corporation for International Cooperation
GMO	genetically modified organism
HDI	Human Development Index
HIA	health impact assessment
IAEA	International Atomic Energy Agency
ICT	information and communication technology
IFC	International Finance Corporation
IFI	international financial institutions
IFRC	International Federation of Red Cross and Red Crescent Societies
ILO	International Labour Organization
IPPU	industrial processes and product use
ISO	International Organization for Standardization
ITCNE	Information and Training Centre for Nature and Environment
IUCN	International Union for Conservation of Nature
IWMP	integrated water management plan
JCM	Joint Crediting Mechanism
LPA	local protected areas
LULUCF	land use, land-use change and forestry
MAB	UNESCO Man and the Biosphere Programme
MAS	Mongolian Academy of Sciences
MASM	Mongolian Agency for Standardization and Metrology
MEA	multilateral environmental agreements
MICS	Multiple Indicator Cluster Survey
MNS	Mongolian National Standard
MPNFI	Multi-Purpose National Forest Inventory
MSFA	Mongolian Sustainable Finance Association
NAMEM	National Agency of Meteorology and Environmental Monitoring
NBP	National Biodiversity Programme
NBS	nature-based solution
NBSAP	National Biodiversity Strategy and Action Plan
NCD	non-communicable disease
NCPH	National Centre for Public Health
NDC	Nationally Determined Contribution

NEC	Nuclear Energy Commission
NEMA	National Emergency Management Agency
NFA	National Forest Agency
NGO	non-governmental organization
NHRCM	National Human Rights Commission of Mongolia
NM	natural monument
NO₂	nitrogen dioxide
NOA	National Ozone Administration
NO_x	nitrogen oxides
NP	national park
NR	nature reserve
NSO	National Statistics Office
NWFP	non-wood forest product
O₃	ozone
OBTNM	One billion Trees National Movement
ODS	ozone-depleting substance
PA	protected area
PAGE	Partnership for Action on Green Economy
PFE	Professional Forestry Enterprise
PFI	partner financial institutions
PFM	participatory forest management
PM	particulate matter
PM₁₀	particulate matter of 10 micrometres or less in diameter
PM_{2.5}	fine particulate matter of 2.5 micrometres or less in diameter
POP	persistent organic pollutant
PUG	pasture users' group
RBA	river basin administration
RBC	river basin council
RBMP	river basin management plan
RES	renewable energy sources
RIA	regulatory impact assessment
SAICM	Strategic Approach to International Chemicals Management
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goal
SEA	strategic environmental assessment
SFM	sustainable forest management
SLCP	short-lived climate pollutant
SMART	Spatial Monitoring and Reporting Tool
SME	small or medium-sized enterprise
SNR	CBD Sixth National Report
SO₂	sulfur dioxide
SPA	special protected area
StrPA	strictly protected area

TACG	National Technical Advisory and Coordination Group
TB	tuberculosis
TDS	total dissolved solids
TPP	thermal power plant
TUK	Municipal Service Company
TVET	technical and vocational education and training
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
USUG	Water Supply and Sewerage Authority of Ulaanbaatar City
VNR	Voluntary National Review
WASH	water, sanitation and hygiene
WHO	World Health Organization
WHS	World Heritage Site
WRG	Water Resources Group
WSA	Whole School Approach
WWF	World Wildlife Fund
WWTP	wastewater treatment plant

Signs and measures

..	not available
-	nil or negligible
°C	degree Celsius
µg	microgram
€	euro
cm ³	cubic centimetre
d	day
dB	decibel
eq.	equivalent
g	gram
Gg	gigagram
GW	gigawatt
GWh	gigawatt-hour
ha	hectare
kg	kilogram
km	kilometre
km ²	square kilometre
kWh	kilowatt-hour
L	litre
m	metre
m ²	square metre
m ³	cubic metre
mg	milligram
mm	millimetre
Mt	megaton
MW	megawatt
s	second
t	ton (1,000 kg)
\$	United States dollar
y	year

Currency conversion

Exchange rate (period average)

Year	Tugriks per US\$
2016	2 140.29
2017	2 439.78
2018	2 472.48
2019	2 663.54
2020	2 813.29
2021	2 849.29
2022	3 140.68
2023	3 465.74

Source: World Bank Database (accessed June 2025).

INTRODUCTION

1 PHYSICAL CONTEXT

Mongolia is a landlocked country in East Asia, with a total area of 1,564,116 km², of which only 10,560 km² are covered by water. The country is roughly oval in shape, measuring 2,392 km from west to east and 1,259 km from north to south. It has two neighbouring countries: the Russian Federation to the north (3,543 km of shared border) and China to the south (4,677 km of shared border).

The country's topography varies from mountainous regions in the north and west to the Gobi Desert in the south. Generally, the land inclines from the mountains towards the plains and depressions in the east and south. From north to south, the country has four broad natural zones: mountain-forest steppe, mountain steppe and, in the extreme south, semi-desert and desert. These four zones can be further divided into seven more distinct natural zones. The average elevation of the country is 1,580 m, while the lowest point (518 m) is located in the eastern Mongolian plains.

There are two major mountain ranges, the highest and the longest of which is the westernmost Altai Mountains, stretching about 600–650 km from the northwestern tip of the country south-eastward. The country's highest point, the 4,374-meter-high, permanently snow-capped Khüiten Peak, is part of the Tavan Bogd peaks in the Altai Mountains range and is located near the westernmost tip of the country, at the tri-border junction with China and the Russian Federation. There is substantial glaciation in the Tavan Bogd area, where the shrinking Potanin Glacier extends for about 11 km.

The Khangai Mountain range, also extending from the northwest to the southeast, covers much of central and north-central Mongolia. These older, lower and more eroded mountains are forested and feature alpine pastures. The 4,008 m Otgontenger Mountain, which is the highest peak of the Khangai Mountains, is one of Mongolia's sacred mountains. The mountainous regions of northern and western Mongolia are seismically active, with experiencing frequent earthquakes and contain many hot springs and extinct volcanoes.

About 30 per cent of Mongolia is covered by steppe and meadow steppe, while the desert steppe, barren lands and sand account for about 60 per cent of the land. Arable land constitutes less than 1 per cent of the total land area and forests cover 7.73 per cent.²

The southern part of Mongolia is covered by the Gobi Desert. Its name gobi can mean desert, depression, salt marsh or steppe, but it is used to refer to an arid rangeland. The local population makes a proper distinction between a gobi and a desert, though the difference is not always apparent to those unfamiliar with the Mongolian landscape. Gobi rangelands are very fragile and can be ruined by overgrazing, which results in expansion of the true desert, a stony waste land.

The lakes are unevenly distributed, with many, including some of the largest, located in the Great Lakes Depression between the Altai, Khangai and Tagnyn Nuruu mountain ranges in the west. Despite only covering 0.67 per cent of the country's territory, Mongolia is home to some of Asia's largest freshwater lakes. Lake Khövsgöl, notable for its depth, holds 70 per cent of Mongolia's freshwater, while Lake Uvs, the largest lake by surface area, is located in the Great Lakes Depression. Most other lakes are small and shallow.

The Selenge River and its tributaries, draining via Lake Baikal to the Arctic Ocean, form the country's major river system in the central northern part of Mongolia. The Onon River in northeastern Mongolia, drains first through Russian Federation and then through the border River Amur or River Heilong Jiang into the Pacific Ocean. Many rivers in western Mongolia drain into lakes in the Central Asian Internal Drainage Basin, while the few streams in southern Mongolia do not drain into the sea but run into lakes or deserts.

Mongolia has an extreme continental climate with long, cold winters and short summers. Most of the country is covered by discontinuous permafrost, which at high altitudes changes to continuous. On average there are 257 cloudless days a year since the country is generally at the centre of a high atmospheric pressure region.

Average temperatures over most of the country are below freezing from November through March, with temperatures around freezing point in October and April. Winter nighttime temperatures often drop to -40°C, while summer extremes can reach as high as 38°C in the southern Gobi region and 33°C in Ulaanbaatar (elevation: 1,351 m). The capital's annual average temperature is -2.9°C, with a frost-free period lasting from mid-May to late August.

² Wang (2022).

The majority the precipitation occurs during the summer months, with northern regions receiving on average 200–350 mm of precipitation per year and the southern areas getting 100–200 mm. Some Gobi Desert regions in the south receive no precipitation at all in most years.

The weather during the summer months has extreme variability and short-term unpredictability, while the wide variations in precipitation, frosts and occurrences of blizzards and spring dust storms are disguised by multiyear averages. Weather like this causes a severe challenge to human and livestock survival. About one-third of Mongolia's population depends entirely on pastoral farming and their livelihood is affected by *dzud* – a term for a severe winter in which large numbers of livestock die due to starvation because they are unable to graze, or in some cases, directly from the cold.

Photo I.1: Mongolian cashmere goat



Photo credit: LimeSky/stock.adobe.com.

2 POPULATION, GENDER AND POVERTY ERADICATION

Demographic context

With a population of 3.4 million people in 2023 and a density of 2.2 inhabitants per km², Mongolia is the world's most sparsely populated country. The country experienced significant demographic growth, had an 8.64 per cent population increase between 2017 and 2023. Mongolia has undergone rapid urbanization, with its urban growth rate stabilizing after 2017 following previous high increases. As of 2023, around 2.48 million people (70.1 per cent of the population) live in urban areas (see Table I.1).

Mongolia's demographic indicators show sustained population growth, with a 2023 fertility rate of 2.70, slightly below 2017 levels but remaining above the total 2.1 replacement threshold. The crude birth rate stood at 19 per 1,000 population in 2023. The life expectancy of both males and females increased between 2017 and 2023, while the mortality rate declined slightly. The infant mortality decreased by 14.3 per cent during the review period, from 14 deaths per thousand live births to 12 deaths per thousand live births.

Table I.1: Demographic indicators, 2017–2024

	2017	2018	2019	2020	2021	2022	2023	2024
Population (millions)	3.13	3.19	3.20	3.25	3.31	3.37	3.40	3.54
Birth rate, crude (per 1,000)	23.90	24.50	24.40	23.40	21.60	19.50	19.00	16.90
Total fertility rate	2.80	2.90	3.00	2.90	2.80	2.70	2.70	..
Life expectancy at birth: total (years)	69.89	70.19	70.41	70.71	71.01	71.28	71.50	71.77
Life expectancy at birth: female (years)	75.44	75.78	75.96	76.22	76.47	76.70	76.85	77.10
Life expectancy at birth: male (years)	65.88	66.11	66.38	66.71	67.05	67.33	67.62	67.92
Population under 15 years old (%)	30.46	30.94	31.48	31.87	32.12	31.95	31.58	30.94
Population above 65 years old (%)	3.86	3.95	4.11	4.28	4.45	4.69	4.98	5.30
Death rate, crude (per 1,000 people)	5.50	5.60	5.60	5.10	6.20	5.60	5.50	..
Mortality rate, infant (per 1,000 live births)	14.00	13.00	13.00	12.00	12.00	12.00	12.00	..

Source: NSO, 2025.

The migration to urban centres has most dramatically affected Mongolia's capital, with Ulaanbaatar's population growing nearly threefold, from 571,000 inhabitants in 1990 to 1.67 million by 2023. This growth means Ulaanbaatar now accounts for 70.23 per cent of the country's urban population and represents 48.48 per cent of the country's total population. As Mongolia's cultural, industrial and financial centre, Ulaanbaatar also serves as the country's primary transportation hub due to its central location within the national road network and its rail connections to both the Russian Trans-Siberian Railway and the Chinese railway system.

The United Nations Development Programme (UNDP) Human Development Index (HDI), measures the progress of human development, combining several indicators such as life expectancy, educational attainment and income in an index which is expressed as a value between 0 and 1, where higher values indicate greater development. According to the 2023/2024 Human Development Report, Mongolia achieved a HDI value of 0.741 in 2022, placing it in the high human development country group and ranking it 96th out of 193 evaluated countries with comparable data.³

Gender balance

The 1992 Constitution explicitly guarantees gender equality by prohibiting discrimination against based on sex. This principle was reinforced through the 2011 Law on Promoting Gender Equality, which requires gender mainstreaming into law and policy development across government agencies. The progress towards equality, as defined in the Law on Promoting Gender Equality, is reflected in the relevant provisions of several laws such as the 1999 Law on Families, the 1999 Labour Code, and the 2011 Law on Promoting Employment. However, sectoral laws such as the 1995 Law on Environmental Protection and the 2012 Law on Environmental Impact Assessment incorporate the constitutional principles of equality but do not address gender-specific needs or provide mechanisms for gender mainstreaming.⁴ This issue applies to other laws. The 2002 Law on Land applies gender-neutral principles but lacks specific gender equality provisions. The 2011 Law on Promotion of Gender Equality similarly mandates equal land access, however government regulations have not actively promoted gender-equal land ownership.⁵

There have been two National Programmes on Gender Equality for the period 2012–2015 and 2017–2021. The latter aimed to improve gender statistics and analysis, mainstream gender at sectoral and local development policy-levels, and strengthen gender responsive budgeting processes. Furthermore, many policies and programmes such as the State Policy on population Development for the period 2016–2025, the National Programme on Child Protection and Development for the period 2017–2021, the National Programme for Supporting Disabled Persons and Development for the period 2018–2021 are all designed to reflect the concept of gender equality.

³ UNDP (n.d.).

⁴ ADB (2022a).

⁵ Daley (2018).

Mongolia ratified the United Nations Convention on the Elimination of all Forms of Discrimination against Women in 1981 and accepted its Optional Protocol in 2022. Mongolia has provided regular information on the progress of its commitments under the Convention, the latest of which, the tenth periodic report, was submitted to the Convention in May 2020. Following the tenth periodic report, the Government adopted an Action Plan (2022–2026) to implement the Convention Committee’s recommendations.

The World Economic Forum’s Global Gender Gap Index assesses evolution and progress of gender parity with a composite index which is compiled from four sub-indices. A 2024 Report ranked Mongolia 85th out of 146 reviewed countries.⁶ The country’s performance in the more detailed sub-index categories was mixed. In women’s educational attainment Mongolia ranked 1st place. Girls have higher completion rates of lower secondary school in comparison to boys and women outnumber men in higher education. This has created an inverse education gap and a female dominated professional class. On the Health and Survival Index Mongolia also achieved top rankings. Mongolian women live longer and are healthier than men (see Table I.1). In Economic Participation and Opportunity sub-index Mongolia ranked 43rd. Economic equality is hindered by several factors. First, the traditional expectation is that women are the primary childminders which lowers their labour force participation rate. Secondly, women in general tend to occupy low salary level jobs. Lastly, women retire earlier and live longer than men, which limits not only their lifetime earnings but also their contribution to the society.

Women’s political empowerment remains particularly weak, with Mongolia ranking 133rd. Although about 60 per cent of the civil servants are women and women outnumber men in higher education, women are underrepresented in the country’s political life. Between 2020 and 2024, women held 17.1 per cent of the seats in Parliament; out of 16 ministers, only 3 were women; out of 32 vice ministers, only 3 were women and out of 30 governors only two were women. The 2023 electoral quota, mandating a minimum of 30 per cent female candidates on party lists, increased women’s parliamentary representation to 25 per cent in 2024.

The Gender Equality Index (GEI) of the National Statistics Office (NSO) reflects persistent regional disparities across the *aimags* (provinces). In 2023, the GEI reached 0.246, decreasing by 0.035 points from the previous year, due to an increase of the female reproductive health index by 0.031 points.

Photo I.2: Temple in Mongolia



Photo credit: Marije Schouwstra.

⁶ Mongolia (2024b).

The Gender Development Index (GDI) quantifies gender disparities across three fundamental dimensions of human development: (i) health, as measured by sex-disaggregated life expectancy at birth; (ii) education, assessed through expected years of schooling for children and mean years of schooling among adults aged 25+; and (iii) economic empowerment, measured via estimated earned income. Calculated using the HDI framework, Mongolia's 2023 GDI scores are 0.830 for men and 0.307 for women. These findings are based on statistics from the Ministry of Health's annual birth and death reports, while complementary statistics on gender-based violence are provided by the NSO.

Poverty eradication

Mongolia recorded a national poverty rate of 28.4 per cent in 2018, a figure that would have likely declined without the COVID-19 pandemic's economic disruptions. In response to the crisis, the government created aid- and relief packages, including the Child Money Programme, which ultimately led to a slight decrease of the national poverty rate to 27.4 per cent by 2020.

The post-pandemic period saw Mongolia's economy rebound strongly, driven by a mineral exports boom that propelled the country to upper-middle-income status in 2024. This changed the international benchmark for poverty measurement in Mongolia, and the country is now being evaluated against the upper-middle-income poverty line of US\$6.85 per day in US\$ 2017 at purchasing power parity.

In 2022, Mongolia updated its national poverty line to reflect improved living standards, establishing a new monthly threshold of 418,090 tugriks per adult. This is a 40 per cent real increase from the 2010 baseline that closely aligns with the World Bank's upper-middle-income poverty line. Despite continued economic growth since 2022, poverty rates measured against this same benchmark remain stable at 27.1 per cent, compared to 2020 levels.

The combination of strong wage growth and declining inflation has contributed to rising real household incomes and consumption. The World Bank's October 2024 projections anticipate that the poverty rate will fall to 20.1 per cent in 2024. However, these gains are going to be unevenly distributed across the country, with significant disparities between Ulaanbaatar and the countryside.

3 ECONOMY

Mongolia experienced steady economic expansion in the period 2017–2023, with Gross Domestic Product (GDP) per capita rising from 19,042.54 tugriks (US\$3,705) to 20,823.99 tugriks (US\$6,008), culminating in its classification as an upper-middle income country. Mongolia's economy remains distinctly divided into two sectors: the traditional animal husbandry and the modern, large scale mining operations.

The agriculture sector is predominantly based on nomadic animal husbandry producing animal origin products, such as meat, hides and skins. Limited crop cultivation, primarily wheat, occurs in the valleys of the Selenge River system. The annual yields of the agricultural sector fluctuate widely and unpredictably due to two key factors: unpredictable precipitation patterns and the occurrence of severe winter weather events called *dzuds* (see Chapter 15).

Mongolia's mineral wealth including substantial deposits of copper, coal, gold, molybdenum, tin and tungsten, form the foundation of its modern economy. The mining industry's impact is visible on every aspect of Mongolia's economy. In 2023, the mining and quarrying sector accounted for 28.13 per cent of the GDP and 86.6 per cent of exports. A single mine, like the Oyu Tolgoi copper and gold mine, is expected to account for as much as 33 per cent of Mongolia's GDP once full production starts.

The scale of the mining industry and its importance to the Mongolian economy exposes country to several risks. Mongolia is dependent on few commodities and therefore vulnerable to the volatile mineral markets and the world prices of copper, coal and gold. In addition, to the lack of diversification of export products is also dependent on few trading partners.

Mongolia's GDP grew between 5.6 and 7.7 per cent a year between 2017 and 2019, before contracting by 5.54 per cent in 2020 due to COVID-19 impacts. The subsequent trajectory saw growth rebound to 1.6 per cent in 2021 and accelerate to 7.02 per cent in 2023. Both the Asian Development Bank (ADB) and the World Bank project sustained (though moderating) growth through 2025 and 2026.

The consumer price index reached 139.4 per cent in 2023 (2020=100), increasing by 7.9 per cent from the previous year, and the growth rate decreased by 5.3 percentage points from 2022. The annual average inflation rate stood at 10.4 per cent, indicating a decrease of 4.8 percentage points from 2022.

According to the World Bank, the net inflow of foreign direct investment (FDI) was at 11.31 per cent level of GDP in 2023. On surface it looks like FDI is on a diminishing trend after the top year of 2019 when FDI reached 17.20 per cent of GDP. However, the growth of GDP by 24.07 per cent between 2017 and 2023 hides the fact that the net inflow of the FDI in US\$ terms increased by 50 per cent during that period.

4 POLITICAL AND ADMINISTRATIVE CONTEXT

The President serves as the head of state, commander of the armed forces and head of the National Security Council. The President is elected using the two-round system for a six-year term and may only serve one term. The President nominates a Prime Minister. The Prime Minister can initiate legislation and dissolve the Cabinet. The President and Prime Minister also have limited veto power over legislation but the State Great *Khural* (The Parliament) can overrule President's veto by two-thirds majority vote.

The Prime Minister is the head of the executive branch and with the Deputy Prime Ministers are nominated for a term of four years by the ruling party and the nomination is confirmed by the president. The Prime Minister chooses the Cabinet members who are then approved and appointed by the Parliament.

The Cabinet is the highest executive body of Mongolia. The Cabinet and its ministries are accountable to the parliament. The cabinet is in place for a four-year term or a shorter term if it is dissolved by the resignation of the Prime Minister, or simultaneous resignation of half of the Cabinet, or a parliamentary vote for dissolution.

The State Great *Khural* is a unicameral parliament with 126 members who serve for a four-year term. The members of parliament are elected by parallel voting, with 78 seats elected by multiple non-transferable votes in 13 multi-member constituencies, and 48 by closed list proportional representation at the national level. Party lists must adhere to the zipper system, while the overall gender ratio of candidates for a party—as of 2024—must include 30 per cent of women, a ratio which will rise to 40 per cent in 2028. A voter turnout of 50 per cent is required for the election results in a constituency to be considered valid, or another round of voting must be held for that constituency. The Speaker and Vice-Speaker of the parliament are elected by members of parliament by an open vote.

At the top of the Mongolia's judicial system is the Constitutional Court which reviews the conformity of various acts and decisions with the Constitution. The Court consists of nine members – three members nominated by each the President, the State Great *Khural* and the Supreme Court. Upon nomination members are appointed by the State Great *Khural* for a term of six years, and the Court elects its Chairperson among its members.

Below the Constitutional Court, Mongolia's judicial system has a three-tiered court system divided into the Supreme court, and the court of first instance and the appellate courts, all of which have three separate chambers for civil, criminal and administrative cases.

The Supreme Court has a Chief Justice and 16 judges. The Supreme Court Chief Justice and judges are appointed for life by the president upon recommendation to the State Great *Khural* by the General Council of Courts, which is a 14-member body of judges and judicial officials.

Appellate and first-instance courts are at every administrative level: capital city, provincial (*aimag*), *soum*, inter-*soum* and district levels. For administrative issues, administrative courts are divided into all administrative levels.

Administratively Mongolia is divided into 21 *aimags* and the capital, Ulaanbaatar. Provinces are subdivided into 330 *soums* which are further divided into smaller administrative units called *baghs*. The difference between them is that *soums* always have a permanent settlement as their administrative centre but many *baghs* do not. Ulaanbaatar is divided into nine districts (*düüregs*), which are further subdivided into 173 subdistricts called *khoroos*.

PART I:

ENVIRONMENTAL GOVERNANCE AND FINANCING

CHAPTER 1

LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT

1.1 LEGAL FRAMEWORK AND ITS IMPLEMENTATION

The hierarchy of the legal framework has the 1992 Constitution of Mongolia as its foundation, on which are built the laws enacted by Parliament (the State Great *Khural*), followed by presidential decrees and resolutions of the State Great *Khural*. Additional layers of regulation, which implement adopted laws, are provided by Government resolutions and ministerial orders. The provincial (*aimag*) and district (*soum*) authorities (and their capital city equivalents) can issue regulations and orders that are limited by their competences and the national legal framework.

The Unified Legal Information System (<https://legalinfo.mn>) of the National Legal Institute of Mongolia, which is affiliated with the Ministry of Justice and Internal Affairs, provides free access to a comprehensive and up-to-date collection of laws, resolutions of the State Great *Khural* and administrative acts. It also includes Presidential decrees, decisions of the Constitutional Court, Government resolutions and ministerial orders. The system also provides information on proposed laws and commenting. A minor limitation is that the original text of a legal provision prior to an amendment is not always identifiable in the periodic consolidated text provided. Further listings, with varying degrees of completeness, are available on the websites of different authorities, such as line ministries. Moreover, (<https://d.parliament.mn/>) also provides the same information and accepts online petitions to the State Great *Khural*.

The process of drafting legislation, prior to submission to the State Great *Khural*, includes making a regulatory impact assessment and cost estimate of the legislation, discussing the draft with representatives of legal entities and the public whose rights and legal interest will be affected, receiving proposals from Government and non-governmental organizations (NGOs) and professional and research organizations and discussing the draft in a Cabinet meeting. Reports on the implementation of laws, resolutions and decisions are submitted to the Cabinet Secretariat every month and should be uploaded to the website of the respective ministry. As of October 2024, annual reports for 2019–2021 are posted on the website of the Ministry of Environment and Climate Change (<https://mecc.gov.mn>); more recent reports are not available.

According to the 2015 Law on Legislation and 2016 Government Resolution No. 59, regulatory impact assessment (RIA) is mandatory for all legal documents. The Resolution provides for the methodology for RIA. However, a United Nations Independent Expert undertaking a mission to Mongolia in 2019⁷ observed that RIAs are not carried out regularly and are not common practice, due in part to a lack of technical capacity. The expert recommended strengthening technical capacities and data availability in support of RIA. The Ministry of Urban Development, Construction and Housing reports that the draft new law on construction was subject to RIA.

Environment

From 2019 to 2023, the 1992 Constitution underwent a series of amendments regarding judicial independence, governance and parliamentary representation. Regarding the environment, the 2019 amendment made clear that land not privately owned and the associated resources (subsoil, minerals, forests, water and wildlife) are State property and added that “The State policy for the use of natural resources is based on a long-term development policy, and aims to guarantee the right of every citizen of the present and future generations to live in a healthy and safe environment, and to ensure that the benefits of underground resources are concentrated in the National Resources Fund and receive them equitably and fairly. As part of their right to live in a healthy and safe environment, citizens have the right to know about the environmental impact of using subsoil resources. In accordance with the principle that natural resources are in the hands of the people when using strategic mineral deposits, the law shall determine the legal basis for most of its benefits to be shared with the people.”

⁷ United Nations Independent Expert on the effects of foreign debt and other related international financial obligations of States on the full enjoyment of all human rights, particularly economic, social and cultural rights (2019).

The National Resources Fund has been established as the “Future Heritage Fund” through the adoption in April 2024 of the Law on Sovereign Wealth Fund, with the aim of distributing fairly and equitably the benefits from mining the country’s natural resources.

In the period since 2017, many environmental laws have been amended but few new ones have been adopted. The Law on Waste was adopted in 2017 (as reported in the First EPR), along with a Law on Animal Genetic Resources, and a Law on Genetic Resources was adopted in 2021. In addition, the Law on Infringements was adopted in 2017. Further, the period also saw the adoption of a series of over 45 Mongolian National Standards on the environment and occupational safety and health (see Chapter 2). Many amendments bring about alignment with new laws such as the 2017 Law on Infringements, 2017 Law on Protection against Disasters, 2020 Law on Development Policy and Planning and its Management, 2022 Law on Permits, 2022 Law on Public-Private Partnership, and 2023 Law on Pre-school and General Education. Many laws have also been amended in early 2024 to allow for electronic communications.

The Ministry of Environment and Climate Change routinely provides input to laws being drafted by other ministries and institutions, which must justify their rejection of such input. It encounters resistance from stronger institutions, for example, regarding the 2002 Law on Land. When it is itself drafting legislation, the Ministry takes into account the opinions of other governmental and non-governmental organizations, citizens and enterprises, and reviews them with authorized persons, in accordance with the Law on Legislation.

Further, the Ministry notes certain challenges within the legal framework for the environment. Regulations are insufficiently coordinated with general laws and, while common norms serve as legal sources, they may not adequately address the practical and social situations faced. In addition, when amendments are made to laws, those amendments do not always adequately reflect provisions in related laws or, conversely, the amendments are not properly integrated into the related laws, leading to inconsistencies and delays in implementation.

Besides these general observations, a detailed analysis in 2023 of 30 laws in the field of the environment identifies overlaps (96, according to the study), contradictions and inconsistencies between regulations and laws and found that many regulations were missing (65 missing out of 234).⁸ The analysis concludes by recommending codification and/or consolidation of the environmental legislation, besides resolving the problems identified.

Environmental protection

The 1995 Law on Environmental Protection has been amended repeatedly in the period under review, including to:

- Replace reference to the Environmental Protection Fund with the Environment and Climate Fund;
- Reference the 2017 Law on Investigation and Resolution of Violations;
- Remove some documentation requirements for State inspectors;
- Add supervision of water transport in their territory to the responsibilities of environmental rangers;
- Remove financial rewards to those detecting environmental crimes;
- Add genetic resources and related traditional knowledge to the environmental database;
- Also add the State competent authority’s responsibilities in policymaking and regulating the protection of the ozone layer, regarding public-private partnership projects and (together with the Ministry of Justice) approval of the methodology for calculating environmental damage;
- Remove the requirement that Government adopt rules to entitle certified organizations to carry out and regulate nature use, protection and restoration activities;
- Also remove provisions on environmental education with the adoption of the 2023 Law on Pre-school and General Education.

The 1997 Law on Hydrological, Meteorological and Environmental Monitoring has undergone minor amendments since 2017. A major revision is planned for 2025 and has been included in the parliamentary schedule for that year.

⁸ Ministry of Environment and Tourism (2023).

Photo 1.1: Panorama of Mongolia's capital city

Environmental assessment and audit

The 2012 Law on Environmental Impact Assessment (EIA) has also seen several changes in the period under review, including a provision to allow public feedback on documentation by electronic means. The list of projects subject to EIA in the annex to the Law was supplemented in 2022 by cooling and ventilation system projects (specifically those containing ozone-depleting substances and substances with a high global warming potential). In 2023, Government Resolution No. 58 adopted new procedures for (i) strategic and cumulative environmental impact assessments and (ii) EIA. The procedures introduce a social impact assessment in detail and further clarify the EIA procedure. The arrangements for the professional council that evaluates EIAs were also updated. NGOs are concerned about proposals for further changes that would narrow the definition of the affected public to those residents in the project area or its area of impact.

The Minister of Environment and Tourism adopted Order No. A/809 of 2019 to validate procedures and methods for conducting environmental audits.

Air protection

Both the 2012 Law on Air and the 2010 Law on Air Pollution Fees have been amended since the First EPR. The Law on Air has been amended every year in the period 2017–2023, with these changes:

- Replacing specific provisions with reference to the Law on Investigation and Resolution of Violations and the 2022 Law on Permits;
- Introducing then dropping the Anti-Air Pollution Fund;
- Establishing *aimag* and capital city level offices on air pollution reduction;
- Prohibiting the sale of lower-quality motor fuels in an air quality improvement zone;
- Empowering the Government to organize activities to expand and improve the capacity of electricity transmission and distribution networks in ger districts in an air quality improvement zone;
- Adding an article on the protection of the ozone layer and including the phase-out of hydrofluorocarbons (having high global warming potential);
- Removing liability provisions for violations;
- Also removing financial incentives for homeowners who have insulated their homes to the required standard.

The Ministry of Environment and Climate Change is expecting to revise the law further to address emissions from the energy, transport and construction sectors and the need for the responsible ministries to adopt measures to limit such emissions. In March 2025, the Government approved the air pollution reduction action plan, including green zones in Ulaanbaatar (Government Resolution No. 133).

The 2010 Law on Air Pollution Fees was amended in 2018 to redirect payment of compensation for excess pollution from the State budget into the Anti-Air Pollution Fund, which was changed again in 2019 to the Environment and Climate Fund. In 2023, the fee rates imposed on carbon dioxide (CO₂) emissions from transport and vehicles were doubled.

The 2016 Law on Construction was amended in 2022 to require that any cooling and ventilation system in the building design use substances that replace ozone depleting substances.

Climate change

There is still no law dedicated to climate change, mitigation or adaptation, though a draft was being prepared as of September 2024. However, the Law on Air was amended to phase out hydrofluorocarbons and, in 2024, the Law on Mitigating the Negative Effects of Climate Change on Traditional Livestock Husbandry was adopted. Generally, sectoral legislation, such as the laws on health, land, water and tourism, and laws on energy and industry, do not refer to climate change mitigation or adaptation. The 2012 Law on Forest and the 2024 Law on Public Health Care and Services each make brief reference to climate adaptation.

Land, soil and subsoil

The legal framework for land, soil and subsoil has been updated. The Law on Land was amended repeatedly since 2017. Land use or possession by citizens or legal entities in special protection zones of water basins and in health zones of water supply was prohibited. Land degraded by human activity and then abandoned can now, with the approval of the *aimag* or capital city environmental department, be transferred to those who rehabilitated the land. Various non-environmental protection zones and the special economic zone of the capital city were added to the list of land for special State needs. The article on human settlements in the Law on Land was revised in 2021 and again in 2023 to provide for zoning by a Meeting of Representatives of the Municipal Citizens, for example.

In 2023, Government powers were extended to include approving procedures on the integrated electronic system for the management of the unified land fund and the procedure for issuing certificates of land ownership and use rights. In addition, the powers of the State administrative body in charge of land issues were updated, including the authority to develop and approve the country's general land management plan and provide opinions on the general land management plans of the *aimags* and capital city and monitor their implementation, as well as to establish a unified land fund database. As of September 2024, amendments are being proposed to extend the forest fund. The frequency of changes to this critical law makes it difficult for the responsible authorities to keep up regarding inspections, for example.

The 1997 Law on Land Fees, the 1999 Law on Cadastre Maps and Land Cadastre, the 2002 Law on Allocation of Land to Mongolian Citizens for Ownership and the 2002 Law on the Procedure for Application of the Law on Allocation of Land to Mongolian Citizens for Ownership continued to be amended in the period under review.

Minor changes were made to the 2012 Law on Soil Protection and Prevention of Desertification since 2017; a revision is being developed as of September 2024. In 2022, the 1988 Law on Subsoil was amended, and an article was added on the powers of citizens' general meetings and governors of *baghs* (villages) and *khoroos* (sub-districts in Ulaanbaatar) with respect to the survey, use and protection of subsoil. In addition, the right of business entities, organizations and citizens to mine common minerals and use groundwater without obtaining a mining permit was withdrawn in 2022. It was reported in 2024 that draft legislation on pasture was being prepared that might include the imposition of taxes on cattle breeders.⁹

The Ministers of Environment and Tourism, of Food, Agriculture and Light Industry and of Public Health adopted Joint Order No. A/125, A-69 and A/143 of 2020 validating the list of pesticides and fertilizers and the amount thereof authorized for use for agricultural purposes.

Nature protection

The 2012 Law on Fauna has been amended since 2017, including changes to align its provisions with new laws. The earlier 1995 Law on Natural Flora was also amended in 2021 to align its provisions with new laws. In 2022, it was revised to delegate powers on the protection and quarantine of plants to the *soum* level, to be paid from the local budget. It was further amended in 2024 to align it with the new 2024 Law on Plant Health and Plant Protection. Further, the 2002 Law on the Regulation of International Trade in Endangered Species of Wild Fauna and Flora and Derivatives Thereof has been updated since the First EPR to align its provisions with new laws. Provisions on biodiversity protection are absent from sectoral laws.

⁹ Bertelsmann Stiftung (2024).

The former Minister of Nature, Environment and Tourism adopted several orders on nature protection, including in relation to the collection of *shilajit* (a traditional medicine) (Order No. A/86 of 2017), antlers (No. A-97 of 2017) and plant species (No. A/43 of 2018). In addition, Order No. A/603 of the Minister of Environment and Tourism of 2022 regulates the procedure for ecological-economic assessment, including the classification of wild flora species and plant varieties as rare, endangered or abundant.

Protected areas

The 1994 Law on Special Protected Areas (SPAs) has undergone multiple amendments since 2017. In 2022, new powers were given to *soum* and *düüreg* (Ulaanbaatar municipal district) governors to take measures to protect against disasters and respond to natural and climate-related disasters, as well as to protect nature reserves, monuments and local SPAs. The year 2023 saw a more extensive revision of the law. Additional sources of revenue were introduced, new articles on the management and use of land in these areas were added and the powers of the State central administrative body in charge of SPAs were expanded. Further changes were made in 2023 to align with the 2023 Law on Tourism. Only minor changes have been made to the 1997 Law on Special Protected Area Buffer Zones.

As of September 2024, proposed amendments to the Law on Special Protected Areas put forward by the Ministry of Environment and Climate Change are being rejected by Parliament and lack full government support, as they are viewed as incompatible with the Law on Land. The Ministry, however, considers that SPAs should take precedence over other land uses. The Ministry of Environment and Climate Change established a working group to revise the law (2024 Order No. 808). A revised draft law is being prepared and a concept note has been developed that sets out: the purpose, structure, regulatory relationships and scope of the law; the potential economic, social and legal implications arising after the approval of the law and measures to address those consequences (with the law expected to yield positive benefits); and a list of laws needing amendment to align with the new law.

Genetic resources

Recent innovations in environmental law have been focused on genetic resources with the 2021 Law on Genetic Resources and the earlier 2017 Law on Animal Genetic Resources. The 2021 Law regulates the registration, preservation, protection, research, development, use and benefits of genetic resources derived from plants, animals and microorganisms and related traditional knowledge. It is implemented by the 2022 Orders No. A/282 of the Minister of Food, Agriculture and Light Industry (validating the Animal Genealogy Assessment Registration Procedure), and No. A/324 of the Minister of Environment and Tourism validating the procedure for creating, maintaining, using, storing and protecting genetic resources and traditional knowledge related to genetic resources. The law was amended in 2023 to include additional documentation requirements for permitting.

The 2017 Law on Animal Genetic Resources regulates the identification, preservation, protection, sustainable use and development of livestock genetic resources. It is implemented by the 2022 Order No. A/405 of the Minister of Food, Agriculture and Light Industry validating the regulation on livestock registration procedures. The Law has been amended repeatedly, including to link it to the 2021 Law on Genetic Resources, reflect amendments to the 2017 Law on Livestock and Animal Health, require additional documentation for permitting and add stricter controls on the use of animal genetic resources. The earlier 2007 Law on Living Genetically Modified Organisms (GMOs) has been amended, including to shift responsibility for inspecting use and transboundary movement of GMOs from the state inspector to the customs agency. The link was made to the 2021 Law on Genetic Resources and the Law on Living Genetically Modified Organisms amended to reflect the abolition of the General Agency for Specialized Inspection (GASI). The law applies to the transboundary movement, transit, handling and use of all living modified plants that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health. Recommendation 7.2 (a) of the First EPR of Mongolia is implemented.

Waste and chemicals

The Law on Waste was adopted in 2017, as reported in the First EPR of Mongolia, and has since been amended to update the provision on liabilities to be imposed on those violating this law; remove adoption of a national programme on waste management improvement, in line with amendments to the Law on Development Policy and Planning and its Management; align it with the 2022 Laws on Permits and on Public-Private Partnership; and remove a provision on public awareness in educational establishments. Numerous orders by the minister responsible for the environment have supplemented the law, in 2017 and 2018, on:

- Classification and registration of waste (No. A/349 of 2017);
- The methodology for determine normative quantities of ordinary waste (No. A/368 of 2017);

- Procedures for the transportation, collection, storage and recycling of hazardous waste (No. A/18 of 2018);
- The form of documents accompanying hazardous waste (No. A/21 of 2018);
- The State register of waste (No. A/428 of 2018);
- General requirements for the classification, collection, transportation and recycling of ordinary waste (No. A/443 of 2018);
- Reporting forms related to waste management (No. A/444 of 2018);
- Establishment, operation and closure of centralized waste collection sites (No. A/445 of 2018).

The ministers responsible for environment and finance also issued two joint orders: on the methodology for calculating the waste service fee (Nos. 192 and A/243 of 2018) and on the list of business entities responsible for waste collection, recycling and disposal (Nos. A-429 and 257 of 2018).

The 2006 Law on Toxic and Hazardous Chemicals has been updated too, including to reference the 2017 Law on Waste and, from 2023, additional information requirements for obtaining a permit for the export, import, trans-border transportation and production of toxic and hazardous chemicals.

Separately, Government Resolution No. 189 of 2018 imposes a ban on single-use plastic bags.

Water

The 2012 Law on Water has been amended since 2017, including in 2020 to establish the National Water Council, set out the powers of the State administrative organization responsible for water issues and shift responsibilities to that organization and away from the central state administrative body in charge of environmental issues. In 2023, the duties of a professional water organization were elaborated. Further to this law, the Minister of Environment and Tourism issued Order No. A/376 of 2018 on re-approving the Model of Water Use Certificate and Service Fee for Issuing Water Use Opinion.

The 2012 Law on Water Pollution Fees was amended in for example, 2019, to increase the range of charges possible for pollution, remove the need for an ecological-economic assessment of water for each water basin to determine the exact charge and specify that at least half of the income should be spent on the renovation and maintenance of treatment facilities. The First EPR noted that this law was not being implemented as no subsidiary legislation had been adopted. This gap was filled in 2019 with the Government Resolution No. 316 on approval of the Rate of Water Pollution Payments, the List of Business Units and Organizations to be Discounted from Water Pollution Payments, and the Procedure for Determining the Discount Rate.

In addition, the 2022 Government Resolution No. 416 regarding amendments to the appendix of decisions updated water resource usage rates and amounts, set further to the 2012 Law on Payment for the Use of Natural Resources. In addition, several ministerial orders have been adopted since the First EPR to address water pollution:

- Order No. A/543 of the Minister of Environment and Tourism of 2019 validating the List of Water Polluting Hazardous Substances.
- Order No. A/634 of the Minister of Environment and Tourism of 2019 validating the Form of Model Contract for Water Pollution Fees for Effluent Wastewater Discharge in accordance with Water Pollution Payment Agreement.
- Order No. A/719/189 of the Minister of Environment and Tourism of 2019 validating Model Permit for Wastewater Disposal.
- Joint Order No. A/816/218 of the Minister of Environment and Tourism and the Minister of Construction of 2019 establishing the Standard Level of Pollutants in Wastewater.
- Order No. A/59 of the Minister of Environment and Tourism of 2020 validating the Methodology for Assessing Damage to Water Resources and Calculating Compensation.
- Joint Order No. A/406/226 of the Ministers of Environment and of Finance of 2021 validating the Procedure for Determining the Amounts of Pollutants in Wastewater based on the Volume of Wastewater and the Concentration of Pollutants.

The 2011 Law on the Use of Urban and Rural Settlement Water Supply and Sewage Systems has been revised since 2017 vis-à-vis, among other provisions, the settlement of disputes and the abolition of GASI. In late 2022, a larger amendment added to the powers of the State central administrative body in charge of urban and rural settlements' water supply and sewerage and the approval of procedures, safety rules and instructions on transporting, processing, utilizing and disposing of sludge, jointly with the Cabinet member in charge of environmental matters. It also entrusted the governors of *aimags*, *soums* and Ulaanbaatar with ensuring the safety of drinking and household water and enforcing sanitation standards, and

it expanded the powers of the regulatory committee in charge of utilization and services of urban and rural settlements water supply and sewage. The Ministers of Nature, Environment and Tourism and of Public Health issued Joint Order No. A/82/128 of 2018 validating Regulations on Separation of Sewage Water. In addition, the Government validated the boundaries of the sanitary zone of the capital city's water supply (Government Resolution No. A/02/01 of 2018). Several water quality-related standards have been updated, including MNS 6461:2024 ((Classification code 13.060.70 Water quality. Sulfite decomposition, enumeration and detection of anaerobic microorganisms (clostridia). Part 1. Enrichment method in liquid medium) and (Water quality. Enumeration and detection of sulfite-degrading anaerobic microorganisms (clostridia). Part 2. Plate filtration method)) and MNS 6734:2025 (Treated water for reuse. General technical requirements.).

Noise and vibration

There is no specific regulation on noise or vibration, but there are several Mongolian National Standards (see Chapter 2).

Environment and climate funds

A new 2019 Law on Special Government Funds replaced the preceding law of the same name. It lists the special funds, with the first one being the Environment and Climate Fund. The Law sets out how the Environment and Climate Fund is to be financed and spent. The Law has since been amended repeatedly, including in relation to genetic resources and the Environment and Climate Fund and to provide reference to the Future Heritage Fund.

Environmental crimes

The 2015 Criminal Code has been amended several times a year since 2017. However, Chapter 24 on environmental crimes has not been revised since the May 2017 amendment reported in the First EPR.

Environmental offences

As mentioned briefly in the First EPR, a Law on Infringements was passed in 2017 and includes Chapter 7 on violations against environmental, wildlife and plant protection regulations, though some other provisions also have an environmental dimension, such as for toxic chemicals and dangerous substances, water supply and sewerage, hygiene, subsoil, petroleum, land, construction and motor transport. The Law has been amended repeatedly since, sometimes impacting the environmental provisions, for example, by reflecting new provisions in environmental law, and thus new offences, such as the sale of lower-grade fuels in an air protection zone.

The Law on Investigation and Resolution of Violations was adopted in 2017, too, to establish the grounds and procedures for the investigation and resolution of violations and to punish persons and legal entities that have committed violations, while protecting the legal interests of persons and legal entities during these proceedings. The Law has since been amended repeatedly. The role of a state inspector of environmental control was introduced in 2023, with responsibilities related to waste (in part), air pollution, EIA, soil protection and combatting desertification, fauna, flora and plant protection, forests, subsoil (in part), petroleum (in relation to environmental protection), water and water pollution (in part), SPAs, tourism and standardization.

Sustainable development

There is no legislation on sustainable development as such, though numerous laws refer to sustainable development and, for example, the Law on Development Policy and Planning and its Management provides a policymaking framework based on the country's vision of sustainable development.

Environmental-related provisions in sectoral legislation

Besides specific amendments identified below, the sectoral legislation has been amended to reflect new laws on programming, permits, inspection and violations, among others.

Tourism and leisure

In 2023, a new Law on Tourism was adopted, with the aim of developing sustainable tourism based upon cultural heritage and nature, particularly in SPAs. Tourism operators are forbidden to carry out tourism activities in a manner that has a negative impact on the environment and are obliged to take the necessary measures to protect natural heritage. In 2018, the Government adopted a mechanism for approving main tourism destinations (Government Resolution No. 171). The following year, the Government designated the region of Lake Khuvsgul Natural Park as an Eco-tourism and Tourism Zone and approved the Lake Khuvsgul Eco-tourism Zone Development Plan for 2019–2023 (Government Resolution No. 332 of 2019).

Forestry

The key law on forestry remains the 2012 Law on Forest, which has been repeatedly amended in the period since the First EPR. Some of these changes were limited, for example, to an updated reference to the Environment and Climate Change Fund. One amendment added powers of the State administrative body in charge of forest issues regarding forest protection, restoration and use and included provisions on the preparation of propagation material. In 2023, the law was amended to empower the minister responsible for environmental issues to approve procedures for harvesting contracts, licences and certificates of origin. The Forest Agency hopes to amend the forestry legislation further because the fees for afforestation are very low, regulations are generally outdated, and the agency wishes to exert greater control over local-level forestry units.

In addition, at the level of the Minister of Environment and Tourism, several forestry-related orders have been adopted since 2017, including those validating ecological and economic assessment of forests (Order No. A/176 of 2020), determination of payments for the use of forest resources (Order No. A/290 of 2022) and validating the regulation on conservation and use of forest resources (Order No. A/450 of 2023).

Industry

The legal framework for industry includes the 2011 Law on Companies, the 2021 Law on Labour, the 2013 Law on Investment and tax legislation, with no “law on industry” as such. Industrial policy is set out in policy documents. There are, nonetheless, laws on important industrial sectors such as mining, petroleum and food. The ministry responsible for light industry plans to draft a sectoral law in 2025.

For the food industry, the 2012 Law on Food addresses ensuring food security and access to quality, nutritious and safe food, and food business operations. It was amended in 2024 to require such operations to have a waste management plan and, for public food production and services, to establish an agreement for the transfer of waste to an authorized organization for its recycling and reuse.

The 2014 Law on Common Minerals provides the legal framework for mining of common minerals such as sand and gravel. This law was updated in 2021 to prohibit exploration or mining for common minerals within 1 km of a settlement or green area. For other minerals, the 2006 Law on Minerals has been revised repeatedly. In 2017, the revised documentation when applying for an exploration licence included environmental protection measures and, in 2019, the reasons for revocation of a licence included a failure to fulfil environmental rehabilitation duties set out in the environmental protection plan or harm caused to the environment. The powers of local administrative and self-governing bodies were updated in 2022 to include, for example, the monitoring of compliance by license holders with their obligations with respect to environmental rehabilitation; in addition, the governor of a *soum* is empowered to conduct reviews of environmental management plans for mineral exploration licenses.

The First EPR of Mongolia noted concerns that agreements concluded by mining licence holders and local administrative bodies on issues including environmental protection, mine exploitation and infrastructure development were not publicly disclosed. In 2022, the Law on Minerals was amended to add a provision effective as of 1 January 2023 requiring that such agreements be open and transparent to the public (art. 42.4), fulfilling Recommendation 1.1 (a).

The 2009 Law on Prohibition of Mineral Exploration and Mineral Mining at Headwaters of Rivers, Protected Zones of Water Reservoirs and Forest Fund Areas and the accompanying 2009 Law on the Regulation for Compliance with the main law are largely unchanged.

On petroleum, there are two key laws: the 2014 Law on Petroleum and the earlier 2005 Law on Petroleum Products. The former includes provisions on environmental protection and rehabilitation or restoration, as well as EIA. It was amended to align it with the new 2021 Law on Supporting Oil Refinery, which was adopted to regulate the establishment of a State-owned oil refinery; the 2021 law does not mention the environment. In addition, and as with the Law on Minerals, the powers of local administrative and self-governing bodies set out in the Law on Petroleum were updated in 2022 to include, for example, supervision of environmental protection and local development requirements on licence holders and monitoring the fulfilment of obligations to protect and restore the environment and protect the health of the population. The environmental provisions of the 2005 Law on Petroleum Products have not been amended since the First EPR.

Energy

The key law in the energy sector remains the 2001 Law on Energy. Amendments to the law since 2017 do not contain a specific environmental dimension. The same situation prevails with respect to the 2007 Law on Renewable Energy and the 2015 Law on Energy Efficiency. However, as of September 2024, a parliamentary working group is preparing amendments

to these laws that would, for example, mainstream environmental considerations and sustainable development into the Law on Energy Efficiency. The 2009 Law on Nuclear Energy, too, has been amended, including in 2023 when the procedure for submitting a nuclear-power-related licence application was revised and multiple new documents were required to support the application. These documents now include, for example, information about waste generated from mining, processing and energy production operations.

Health

The 2024 Law on Public Health Care and Services has been adopted to fill a large gap in the legal framework and in practice. The law aims to monitor, assess and respond to population health and factors affecting it. It also aims to prevent diseases, provide health education and organize health promotion activities. It addresses the protection of the population from diseases and poisoning caused by the living environment, air quality, climate change (i.e., through adaptation), water supply, waste and soil pollution. Following the adoption of this law, the Ministry of Health anticipates the consideration of climate change and public health in regulations.

Other relevant laws have been amended in the period since 2017. The basic 2011 Law on Health has seen almost 20 amendments but without strengthening the limited references to the environment. The 2016 Law on Hygiene, which aims to prevent, mitigate and eliminate negative environmental impacts on human health, has been amended since its adoption, but again without strengthening its environmental provisions or referring to climate change; the same can be said for the related 2008 Law on Occupational Safety and Health. In 2024, the 2012 Law on Ensuring the Safety of Food Products, in line with the 2024 Law on Plant Health and Plant Protection, was revised so that the state central administrative body responsible for food safety was entrusted with approving a control plan for pesticide and fertilizer residues in plants and plant products.

Photo 1.2: Sukhbaatar Square (Chinggis Square), Ulaanbaatar



Photo credit: beibaoke/stock.adobe.com.

Orders in relation to pests are:

- Order No. A/74 of 2020 of the Minister of Health on the procedure for registration of household insect and rodent extermination, sterilization and disinfection substances in the state register;
- Joint Order No. A/96, A/104, A/81 of 2024 of the Ministers of Environment and Tourism, of Food, Agriculture and Light Industry and of Health on approval of the list of domestic pests and rodenticides and disinfectants that can be used in Mongolia in 2024 (and similar orders in preceding years).

In relation to health impact assessment (HIA), the Minister of Health adopted in 2023 orders on the new approval of the selection procedure of the HIA and assessment organization (No. A/142) and on the new approval of the HIA methodology (No. A/350).

Further, the Minister of Health adopted orders in 2017 on approval of instructions for risk assessment in water supply and sanitation networks (No. 149), methodological instructions for developing population drinking water safety plans for water supplies in small settlements and conducting risk assessment (No. 150) and the appropriate daily amount of drinking and household water (No. 333). Further, the Minister approved working procedures of the Chemical Safety and Poison Management Regulatory Council (No. 153 of 2017).

Finally, Joint Order No. A/34, A/43 and A/50 of 2023 of the Ministers of Environment and Tourism, of Food, Agriculture, Light Industry and of Health approves lists and quantities of (i) pesticides that can be used for plant protection purposes in agriculture, (ii) chemical fertilizers, (iii) substances that can be used for veterinary sterilization and disinfection and (iv) chemical substances to be used for household purposes.

Other relevant laws

Many other laws are important for the environmental realm, including several new laws. The 2017 Law on Protection against Disasters was adopted to regulate efficient risk assessment and disaster management and to organize an emergency disaster management system. It has since been amended repeatedly and heavily, notably in 2020–2021 in response to the COVID-19 pandemic. The 2016 Law on Organic Food and the 2012 Law on Payment for the Use of Natural Resources have undergone minor amendments.

In 2020, the Law on Development Policy and Planning and its Management was introduced, reforming policymaking and planning (as provided for previously by the 2015 Law on Development Policy and Planning), with the purpose of ensuring the sustainability and consistency of development policymaking and planning processes in Mongolia. Illustrative of the problems that the new law aims to address is the 29 per cent implementation rate of the Ulaanbaatar City Master Plan to 2020; the plan was also poorly aligned with other plans. This critical law begins by defining many types of policy document, while specifying who produces them, what period they cover and which key elements they should include, and sets out a series of principles, including ensuring the involvement of all stakeholders. The Law defines the hierarchy of policy and planning documents, the system of policymaking and planning and the stakeholders, their rights and roles. Later chapters set out the preparation phases, timeline and amendments; monitoring and evaluation of implementation; and an integrated data system. Other features of relevance to this chapter include: (i) the requirement that various policy documents maintain “environmental balance”, among others; and (ii) the carrying out of a preliminary environmental impact assessment, which must also look at alternative policies to address a given problem, as a step in the preparation of a policy document. One of the results of this law was that provisions in other laws shifted policymaking and programming away from sectoral authorities, leaving them with more detailed planning.

Implementing measures, supplementing the law include: the Procedure for Developing Development Policy and Planning Documents (Government Resolution No. 470 of 2022) and methodologies for developing the Annual State Development Plan, Medium-Term Development Target Programmes and Annual Development Plans of Provinces, Municipalities and the Capital City (Orders of the Minister of Economy and Development No. A/167 of 2022, No. A/25 of 2023 and No. A/26 of 2023, respectively).

The 1993 Law on Government was amended in 2017 to align it with the Law on Protection against Disasters within the article setting out the powers of Government to protect the environment and to ensure rational use of natural resources and to reflect ongoing changes in the structure of the Government. Most significant in the context of this EPR are the creation of the Ministry of Economy and Development in November 2021 and of the Ministry of Environment and Climate Change in July 2024.

The Law on Legislation regulates the initiation and drafting of laws and other decisions of the State Great *Khural*, including the preparatory process, public participation, publication, promotion and assessment of outcomes. It was amended heavily in the period since 2017 to reinforce its provisions.

The 2021 Law on the Legal Status of Human Rights Defenders was adopted to define the legal status of human rights defenders, to encourage, respect, protect and provide conditions for their activities and to regulate the structure, organization and activities of the Human Rights Defenders Committee. There is no reference to environmental or other specific rights in the law. The 1997 Law on Non-governmental Organizations has been amended to require compliance with the revised Law on Archives and Recordkeeping in 2020 and the 2021 Law on the Protection of Personal Information. A revised Law on Administrative and Territorial Units and Their Governance was adopted in 2020 and came into force on 1 January 2022; it has been amended repeatedly since with the goal of enhancing the autonomy of local governments and reducing reliance on the central authority.¹⁰

Most recently, in 2022, the 2001 Law on Special Permits for Business Activities was replaced by the 2022 Law on Permits (effective 1 January 2023), which regulates the issuance, extension, suspension, restoration and revocation of permits and their registration and control, as well as the determination of the classification and list of permits by competent persons. Permits are for certain types of activities that pose a risk to national security, financial stability, public interest, health or the environment, as well as to restrict the use of natural resources and state public property. The law establishes a unified system of 31 special permits and 16 ordinary permits, primarily related to environmental matters. Of these, the Ministry of Environment and Climate Change issues 16 special and 8 ordinary permits, streamlining citizen interactions with government agencies. The law has been revised every two months on average since its adoption.

The 2003 Law on State Inspections underwent a major revision in November 2022, in effect on 1 January 2023, when GASI was dissolved. Other changes included the addition of preventive inspections, carried out to prevent, detect and stop illegal activities and risks to human life, health, public and environmental safety.

1.2 POLICY FRAMEWORK AND ITS IMPLEMENTATION

The year 2020 marked a turning point in policymaking in Mongolia with the adoption of the new Law on Development Policy and Planning and its Management and the Vision 2050 Long-term Development Policy.¹¹ The new law introduced a structured and integrated policy framework, illustrated in Figure 1.1.

Vision 2050 (approved by State Great *Khural*/Resolution No. 52 of 2020) replaced the 2016 Mongolia Sustainable Development Vision 2030,¹² and constitutes the foundation of the new policy framework. It is being implemented in three decadal stages (to 2030, to 2040 and to 2050) and envisages, among much else: halting the negative impacts of pollution on human health and the economy; creating a healthy, green environment in cities; exporting organic foods; maintaining a balance with the environment and ecosystems; preventing biodiversity loss and water scarcity; and accumulating sufficient water reserves and a sufficient supply of potable water.

Figure 1.1: New framework for State policies and programmes at national and sub-national levels

	Development planning documents to implement in a short-term or in a year includes an annual development plan of the State, State budget, annual development plan of aimag, capital and city, and local budget
	Development planning documents to implement in a short-term or in a four-year period are action programmes of Government and Governors
	Mid-term development planning documents or documents to implement in a five-year period are the five-year development guideline of Mongolia and five-year development guidelines of aimag, capital and city
	Development policy documents to implement in the mid-term or over a 10-year period are seven development target programmes on: human development, social development, economic and infrastructure development, environment, governance, regional development and to increase national competitiveness
	Development plan of the population's distribution and settlement and city's master plan (not strictly one of the State policies)
Foundation	Vision – long-term development policy up to 30 years (State policy), i.e., Vision 2050 Long-term Development Policy

Notes: Based on the Law on Development Policy and Planning and its Management. Disaster- and security-related policy documents do not belong to this hierarchy.

¹⁰ Bertelsmann Stiftung (2024).

¹¹ Mongolia (2020).

¹² Mongolia (2016).

Goal 6 of the Vision is on green development: “Promote an environmentally friendly green development, maintain balance of ecosystem, ensure an environmental sustainability, create conditions for present and future generations to reap its benefits, and improve the quality of human life.” It includes four objectives: evaluate and protect the value and benefits of nature and maintain a balance of primary ecosystems; rehabilitate natural resources, reduce scarcity, create productive resources and pass on to future generations; prevent water scarcity, accumulate surface water and create conditions to fully meet needs; and contribute to international efforts to mitigate climate change by developing a low emission, productive and inclusive green economy. The Vision includes a series of broad actions for each objective for each of the three stages.

In line with this framework, older policy documents have been annulled, based on a list of 392 policy documents that are not in line with the new law. For example, Government Resolution No. 314 of 2021 annulled 62 policy and planning documents and State Great *Khural* Resolution No. 89 of 2021 cancelled 17 policy documents, including on the environment and climate change. As new policies are developed, the new law on planning requires that each be subject to regulatory impact assessment against checklists, though it is observed that the checklists are superficial regarding environment and assessment are not done.

The new law envisages seven 10-year development target programmes, including one on environment. The 10-year economic and infrastructure development target programme has been adopted as the New Recovery Policy (approved by State Great *Khural* Resolution No. 106 of 2021) for the period to 2030, though it was being updated to include green economy as of September 2024. The policy document aims to set basic conditions and unblock bottlenecks for effective implementation of long-term economic and infrastructure goals, including through public-private partnerships. It addresses six constraints on the country’s development, with one dimension being the Green Development Recovery (“Preserve and promote national traditions on environmental protection and define the national model of green development following global sustainable development trends”). It functions as an accelerator, coordinated by the Ministry of Economy and Development and supported by the New Recovery Policy Accelerator Centre, with its 30 staff (established by Government Resolution No. 55 of 2022).

Adoption of the other target programmes, which are expected to be submitted to Parliament together, was postponed as they needed to be revised to include an integrated results-based management approach and align sectors with Sustainable Development Goals (SDGs). As of September 2024, the plans were to be resubmitted shortly.

The five-year plan at the national level is the Five-year Development Guidelines 2021–2025, including the State Investment Programme, approved in August 2020 (State Great *Khural* Resolution No. 23). It echoes the goals set out in Vision 2050. The four-year Government Action Plan is for the period 2020–2024 and is the result of inputs by ministries and other agencies that have been shared between them. The Ministry of Economy and Development coordinates cross-sectoral functions.

The shortest-term plan, at the national level, is the 2024 Development Plan for Mongolia, adopted in May 2023. The State Great *Khural* Resolution (No. 39) includes three annexes: the priority directions of the country’s development policy, the development plan itself and the monitoring and analysis framework.

Short-term and medium-term policy reports are submitted to the Ministry of Economy and Development, which then reports to the Government Supervisory Authority (previously the Cabinet monitoring and evaluation unit) before the report goes to Cabinet.

Local-level development plans mirror the national ones, whether annual or short-term, with, for instance, Governor’s Action Plans having been established for the period 2020–2024.

Environment

Many environmental plans and programme were annulled following the adoption of the Law on Development Policy and Planning and its Management, including:

- 1998 National Programme on Special Protected Areas, with a third phase from 2015.
- 1999 National Ozone Layer Protection Programme for 1999–2030, with a last stage for 2015–2030.
- 2005 Green Belt National Programme for 2005–2035.
- 2010 National Water Programme for 2010–2021, with a second phase in 2016–2021.
- 2011 National Action Programme on Climate Change for 2011–2021, which had a second phase 2017–2021.
- 2011 National Programme for the Protection of Extremely Rare and Rare Species for 2011–2021.
- 2011 State Policies and Programme on Disaster Prevention.

- 2012 Khatan Tuul National Programme and Action Plan, addressing management of the Tuul River basin, with a second phase in 2017–2020.
- 2013 State Integrated Water Resources Management Plan for 2014–2021.
- 2014 National Implementation Plan for the Convention on Persistent Organic Pollutants, of two phases (2014–2020 and 2020–2030).
- 2014 Waste Management Improvement Programme for 2014–2022, with a second phase for 2018–2022.
- 2015 National Biodiversity Programme for the period 2015–2025.
- 2017 National Programme on the Reduction of Air and Environmental Pollution (Government Resolution No. 98), which was to be implemented in two phases (2017–2019 and 2020–2025).
- 2018 National Programme on Education for Sustainable Development for 2018–2022 (Government Resolution No. 209).
- 2019 Mongolia's National Determined Contributions for 2019–2030 (Government Resolution No. 407).
- 2019 National Programme for Soil Protection and Land Degradation Reduction for 2019–2023 (Government Resolution No. 318).
- 2019 National Programme to Reduce Mercury Pollution Caused by Small-scale Gold Mining for 2019–2023 (Government Resolution No. 317).

Following the adoption of the new law, these plans were to be integrated into whole-of-Government plans. However, the mid-term development target programme on environment has yet to be adopted. Besides the need to integrate results-based-management, there was criticism of the quality of data presented in the programme. Nonetheless, the 2020–2024 Government Action Plan has 12 objectives for environment and includes, for example, the development of a legal framework for climate change. The Government Action Plan, combined with rules, regulations and standards, provides a framework for the activities of the Ministry of Environment and Climate Change. Further, Vision 2050 itself includes environmental protection and green development and has targets on topics such as forest area and particulate matter for each of the decadal stages. In addition, the 2024 Development Plan foresees, for example, the reduction of air pollution.

The new law led to the cancellation of seven programmes for the implementation of multilateral environmental agreements, in contradiction with the provisions of the agreements and/or national laws implementing the agreements (e.g., on climate change, biodiversity, chemicals and waste) that require distinct programmes. It has not been possible to integrate the programmes fully into the national plans as of September 2024, though some provisions might be included in the international chapter of national plans.

Among plans and programmes outside of the framework set out in Figure 1.1, the 2010 National Action Programme to Combat Desertification for 2010–2020 (Government Resolution No. 90), implementing the United Nations Convention to Combat Desertification, was not annulled. An Order of the Deputy Prime Minister adopted the Medium-term Strategic Plan for Implementation of the Sendai Action Framework for Disaster Risk Reduction in Mongolia for 2021–2025 (No. 51 of 2021). Further, the 2024 Annual Inspection Plan was adopted in 2023 (Government Resolution No. 420). The 2020 Blue Horse infrastructure programme is a controversial water management programme that envisions regulation, storage and transfer of water and its use in hydroelectric power production.¹³

Development of a long-term low-emission strategy has started, with targets to be aligned with other policies. Table 1.1 presents implementation rates of the programme of the Ministry of Environment and Climate Change.

At a lower level, river basin management plans were adopted in 2012, with two phases: 2012–2017 and 2018–2021. The water basin authorities, with the help of the Water Agency, are drafting updated plans for eventual approval by the Minister of Environment and Climate Change. At the level of the capital city, the local water management plan is part of the national water management programme, and a five-year forest management plan has been drafted and is in the process of approval as of September 2024. Desertification and land management assessments have been carried out to inform planning in these areas.

¹³ Simonov (2021).

Table 1.1: Implementation rates of the national programme of the Ministry of Environment and Climate Change, 2015–2025, percentage

<i>Area</i>	<i>Implementation rate</i>
1. Education	24
2. Database	68
3. Genetic resources	41
4. Rare species	45
5. Protected areas	82
6. Pollution	63
7. Forest	95
8. Partnerships and hunting areas	89
9. Pasture	50
10. Farming	40
11. National accounts	74
12. Heating subsidy	48
13. Ecosystem services	70
14. Funding	30
Overall	59

Source: Ministry of Environment and Climate Change (presentation, September 2024).

Economic and social development

The Government declared 2024 as the Year to Support Regional Development (Government Resolution No. 481 of 2023), with regional and local development having been identified as a limiting factor in sustainable development in the 2023 Voluntary National Review. A new Regional Development Concept was approved in June 2024 (State Great *Khural*/Resolution No. 64). One of the goals common to all six of the regions identified is to use, protect and restore natural resources.

The national general land management plan is normally for a period of 16–20 years. The one in force in September 2024 was approved in 2018 (Government Resolution No. 384), replacing that adopted in 2003. It includes components for the development of the agricultural, tourism, forestry and water sectors, urbanization and infrastructure development. There are mid-term *aimag* development guidelines, which mainstream climate change and land rehabilitation. Local general land management plans, being developed since 2015, focus on land use and its economic feasibility. Plans at *aimag* level are for 12–16 years. About 100 *soums* have a general land management plan in place.

In terms of green economy, the 2014 Green Development Policy for 2014–2030 (State Great *Khural* Resolution No. 43) was annulled in 2021, though the action plan for its implementation for 2016–2030 (2016 Government Resolution No. 35) remains in effect. Goal 6 of Vision 2050 promotes an environmentally friendly green development and includes indicators (from environmental – in terms of protected area extent – to more economic – with recycling rates and green public procurement), with targets for 2025, 2030 and 2050. The Prime Minister has ordered the Ministry of Environment and Climate Change to include in its annual action plan the development of a green development strategy, which has since been circulated among other ministries. Ulaanbaatar and 13 *aimags* have approved green development goals with targets.

Sectoral development with a possible impact on environment

Many sectoral plans and programmes were also annulled following the adoption of the Law on Development Policy and Planning and its Management, resulting in adjustments in sectoral planning also. The Ministry of Mining and Heavy Industry notes that national mining or industry policies have been integrated into Vision 2050 and other national policies, which now incorporate environmental considerations. Nonetheless, there remain a number of signature initiatives, with examples identified below.

In tourism and leisure, these annulments included the 2016 National Tourism Development Programme for 2016–2025 (Government Resolution No. 324 of 2015) and the 2019 Policy on Tourism Development for 2019–2026 (Government Resolution No. 333). The Khuvsgul Lake Eco-tourism Zone Development Plan for 2019–2023 was retained.

In forestry, annulments included the 2014 National Programme on Forest Tending (Government Resolution No. 30), which was designed for a four-year period; the 2015 State Policy on Forestry 2016–2030 (State Great *Khural* Resolution No. 49); and the 2019 National Strategy and Action Plan for Reducing Greenhouse Gas Emissions from Deforestation and Degradation (REDD+) for 2020–2025 (Order of the Minister of Environment and Tourism No. A/533). A new element in forestry was introduced by the 2021 Presidential Decree No. 58 that initiated the One billion Trees National Movement (OBTNM). The movement is intended to be a contribution to combating desertification and soil degradation and protecting forests and water resources at the national level, as well as to climate action globally. The objectives of the initiative, besides afforestation, include limiting sand movements, planting trees in urban areas and forest strips as windshields for pastures, environmental education and raising awareness. It was followed by Government Resolution No. 350 of 2021 on Some Actions to be Taken by the OBTNM, which required six-monthly reporting on the annexed implementation plan. The plan identifies measures, responsible and associated organizations and a timeline for each measure. The decree declares that at least one per cent of the country's GDP is to be spent on measures to combat climate change and desertification, while also committing part of the State and local budgets to green buildings. The decree also foresees the creation of a forestry enterprise, a forest fund and parks at the *soum* or *duureg* level, together with quarterly reporting to the President and the public.

In industry, annulments included the 1998 Policy for the Revitalization and Development of Industry, the 2010 State Policy on High-Tech Industry, the 2014 State Policy on Mineral Resources, the 2015 State Industry Policy and the 2018 National Programme for Industrialization (Government Resolution No. 36). The 2019 National Heavy Industry Development Programme (Government Resolution No. 214) was not annulled. Industrial policies are still adopted. For example, the President's White Gold National Campaign (State Great *Khural* Resolution No. 63 of 2024), which aims to increase the export of agricultural products and support agribusinesses, also promotes environmentally friendly products and traceability.

In energy, the following were annulled: 2015 State Energy Policy; 2017 National Energy Saving Programme (Government Resolution No. 274); and 2018 National Programme for the Implementation of the State Energy Policy for 2018–2023 (Government Resolution No. 325). The 2009 State Policy on Radioactive Minerals and Nuclear Energy remains.

Finally, in the health sector, the following were annulled: the 2010 National Health Programme, the 2017 National Programme for the Prevention and Control of Infectious Diseases (Government Resolution No. 11), the 2017 State Health Policy (Government Resolution No. 24) and the 2017 National Programme for Combating Non-communicable Diseases for 2017–2021 (Government Resolution No. 289). Some policies have survived the annulment process, such as the Fifth National Programme of Occupational Safety and Health (Government Resolution No. 243 of 2017), though the programme only ran until 2020, and the National Environmental Health Programme (Government Resolution No. 225 of 2017), which has been followed by an updated action plan (Minister of Health Order No. A/349 of 2021). The Ministry of Health notes that there were about 40 health programmes in place before 2021, though they suffered from funding constraints. The Government Action Plan now includes tackling the risks of common communicable diseases and the improvement of water and sanitation services. The Ministry expects that there will be a focus in the future on preventive health care with a programme to reduce health impact risks related to, for example, nutrition, exercise, tobacco, alcohol and climate change. Planning processes in the Ministry of Health follow a health science approach, with the National Public Health Centre developing a concept paper that includes a baseline assessment, studies and existing scientific papers. The Ministry of Health has led on the mainstreaming of the One Health approach, with a focus on communicable diseases, in ministries including those responsible for construction and urban development and for environment and climate change.

Strategic environmental assessment

In a 2017 report,¹⁴ the CEE Bankwatch Network deplored the lack of strategic environmental assessment (SEA) for what was then the State Energy Policy (approved in 2015) and for an infrastructure priority plan released in 2016. The principal concerns included the lack of adequate public consultation about the future energy mix. Only one SEA has been reported in the period since the First EPR, for the regional development of residential areas, carried out in 2023 by the then-Ministry of Construction and Urban Development and with donor support.

SEA remains unimplemented, despite the strengthened legal requirements. Recommendation 1.2 on this topic of the First EPR remains unfulfilled. Generally, ministries consider the requirements too technical, though the Ministry of Mining and Heavy Industry observes that its new Green Development Division will be responsible for carrying out SEA within the Ministry.

¹⁴ CEE Bankwatch Network (2017).

2030 Agenda for Sustainable Development

Overall framework for implementation, follow-up and review

The Composition of the National Committee on Sustainable Development under the Prime Minister was renewed in January 2017 (2017 Government Resolution No. 27, Annex 14) and again in 2021. Nine sub-working groups were established to identify national targets under the global goals (Order of the Prime Minister No. 44, 2016).

The National Development Agency was entrusted with, among other tasks, coordinating the work on SDG implementation and monitoring. The Agency also provided the secretariat of the National Committee on Sustainable Development and led the preparation of the first Voluntary National Review (VNR) 2019, under the Committee's mandate. In the lead up to that publication, the Agency undertook – with the support of UNDP – a coherence assessment between the SDGs and the Sustainable Development Vision 2030, which revealed that about 50–60 per cent of SDGs were reflected in the Vision. This was a main trigger for the review of policy coherence and the update from Vision 2030 to Vision 2050.¹⁵

The preparation of the first VNR included 10 consultations with stakeholders. It includes a chapter on air pollution, used as a detailed example of a development challenge (more than a quarter of the main text), and a focus on leaving no one behind. The drafting process was itself considered valuable in bringing together stakeholders, building awareness, capacity and consensus. The review includes an examination of progress – and sometimes regress – made on each of the SDGs. Further, the first VNR notes the frequent changes in national responsibility for development policy and planning, with four different institutions mandated in the previous decade. This also reflected the very frequent changes in Government in Mongolia, which have slowed since 2017.

A shadow report produced by the Mongolian National CSOs Network on SDGs, “Mongolian Civil Society Joint Report on Implementation of Sustainable Development Goals”,¹⁶ accompanied the VNR 2019. The Report includes the status of implementation of each SDG and how it has been included in policy, state actions and challenges since the implementation of the 2030 Vision policy. It noted, among other challenges, that SDGs and targets were yet to be integrated fully into national, sectoral and local policies and programmes, as well as a lack of budget and planning for SDG implementation. Civil society organizations (CSOs) also suggested the need for an authority with the power to implement an integrated approach; the passing of the Law on Development Policy and Planning and its Management and the creation of the Ministry of Economy and Development are important steps in this direction. Generally, the conclusions in the official and shadow reviews are aligned.

The National Development Agency was dissolved in 2022 by Government Resolution No. 350 and its functions transferred to the Ministry of Economy and Development. The Ministry prepared the second Voluntary National Review 2023,¹⁷ with the support of United Nations entities. The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) supported an alliance of Mongolia, Tajikistan and Uzbekistan in their VNR work. The responsible minister tasked a working group with preparing the VNR (Order No. A/92 of 2022); many stakeholders participated in meetings of the working group. The review reports that “80 per cent of the SDGs are included in the national development policy and planning documents”.¹⁸ Civil society and multistakeholder assessments of progress on the SDGs, carried out in 2022, concurred that there was no overall change in the implementation of SDGs, but their conclusions on individual SDGs differed sharply. An SDG Dashboard was set up in 2019 (<http://sdg.gov.mn>).

The VNR 2023 recognizes the need to continue to improve the SDG monitoring and reporting system, clarify the financing and investment context, stimulate multistakeholder engagement, strengthen the economic base to ensure resources, expand partnerships and cooperation, and address geographic disparities. The last of these topics is addressed in a dedicated chapter in VNR 2023. A next VNR is anticipated in about 2026–2027.

In the State Great *Khural*, under the Standing Committee on Economic Policy, the Subcommittee on Sustainable Development Goals ensures the implementation of the SDGs. Within the period under review, the Subcommittee met in 2017, 2018, 2019 and 2022.¹⁹ In 2022, the Subcommittee established the Multi-stakeholder Council for Sustainable Development to support its work, expand the cooperation framework to include Parliament, Cabinet, development partners, the private sector, civil society and academia, and inform the public.

¹⁵ Mongolia (2019a).

¹⁶ Mongolian National CSOs Network on SDGs (2019).

¹⁷ Mongolia (2023b).

¹⁸ UNDP (2021).

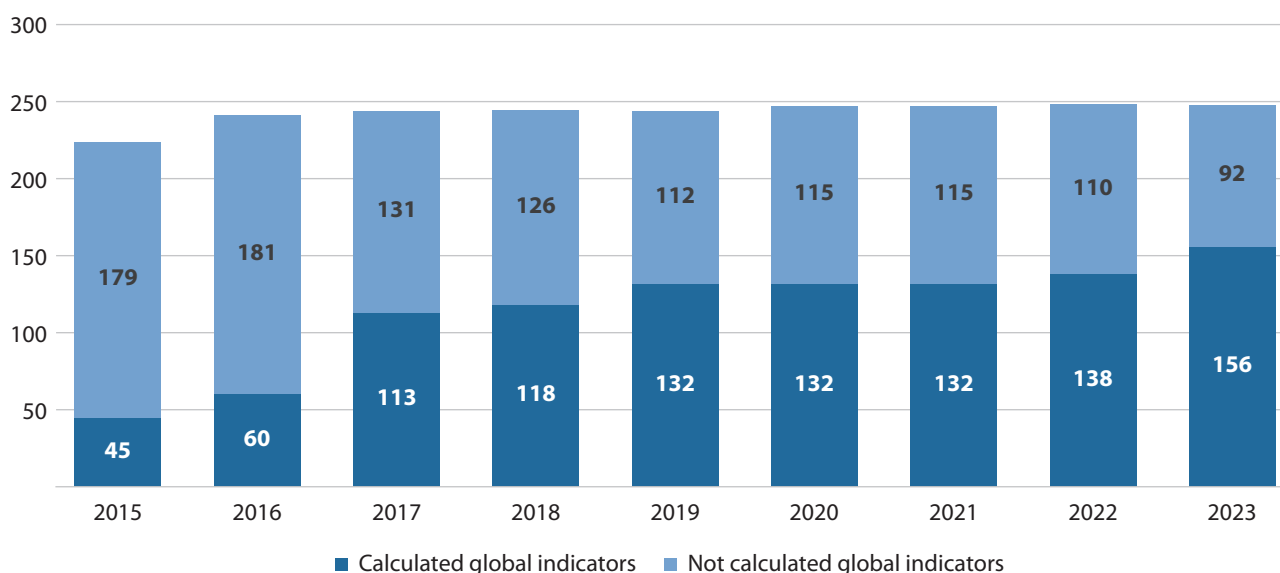
¹⁹ Subcommittee on the Sustainable Development Goals.

Nationalization of SDGs

In 2019, eight Government sub-working groups were set up under the National Committee on Sustainable Development to identify national SDG indicators and targets. In 2022, the groups refined and approved SDG target levels and indicators, producing a draft that included 16 goals (not SDG 14 on life below water), 154 targets and 253 indicators with targets set for 2025 and 2030. The resulting National SDG Indicator Framework, developed with support from the Ministry of Economy and Development, the National Statistical Office (NSO), ESCAP and the United Nations Resident Coordinator's Office, includes both global SDG indicators and 35 national indicators where the global indicators were unsuitable. Formal adoption of the framework remains pending as of September 2024. The sub-working groups no longer meet.

Since 2023, of the total indicators, 156 indicators are available, 13 are not relevant to Mongolia and 78 are not available (see Figure 1.2.) Of the 156 indicators available, 89 values are statistical data from the NSO, 49 derived using administrative data and 18 are from the global SDG database (i.e., calculated by custodian agencies). The NSO leads on data coordination, gathering data formally from the central bank, ministries and agencies. The responsible staff in the NSO and the Ministry of Economy and Development work together closely. The NSO encounters difficulties because of the rapid turnover of staff in other organizations, especially in the ministry responsible for the environment, from which the data are of the lowest quality. The NSO also observed that the ministry fails to respond to questionnaires sent by global indicator custodian agencies.

Figure 1.2: Number of indicators readily available, according to NSO readiness criteria



Sources: 2023 VNR, NSO, 2023.

Note: The number of not calculated indicators includes 11–13 indicators that are not applicable to Mongolia, and some indicators that required additional calculation in 2015–2016.

The NSO is looking to expand its use of non-traditional sources, moving beyond administrative data to remote sensing and big data. The NSO has one staff member working on SDG indicators and one dedicated to remote sensing. The legal framework for SDG monitoring is provided indirectly by the Law on Development Policy and Planning and its Management. The Law on Statistics is scheduled for amendment in the Spring 2025 session of Parliament.

The Ministry of Economy and Development leads in developing policy and coordination for the SDGs. The delayed medium-term development policy, comprising the target programmes, was to be aligned with the SDGs and accompanied by annexes setting out (i) criteria and target levels for monitoring and evaluation of national and sectoral results and (ii) indicators and target levels for reporting on the implementation of the SDGs. In 2020, Vision 2030 was replaced by Vision 2050, which is better aligned with the SDGs. Of the 169 global targets, 116 are fully aligned and 24 are partially aligned, while 12 are not reflected. About 20 of the 73 indicators in Vision 2050 are SDG indicators.

The second VNR recognizes the weakness of mechanisms for reporting, monitoring and evaluating progress on the SDGs. The Ministry of Economy and Development has since introduced a “leave no one behind” analysis into its evaluation processes.

Cross-cutting issues

In terms of progress towards on the 2030 Agenda, there is 36.7 per cent implementation of global SDG targets, leading to the country being ranked ninety-ninth out of 167 countries as of September 2024. 36.8 per cent of targets are on track, progress towards 39.7 per cent of targets needs to be strengthened or accelerated and in 23.5 per cent of cases the country is moving away from the target. Action on SDG 17 is going well, there is progress on SDGs 1, 3, 4, 6, 9 and 10, less progress on SDGs 2, 7, 12, 8, 5, 11, 15 and 16, and regression on SDG 13.

The first VNR examines how development finance is directed towards sustainable development and noted a recommendation to introduce an Integrated National Financing Framework. As of September 2024, the Ministry of Finance and the Ministry of Economy and Development were working together towards the adoption of an Integrated National Financing Framework, which will also be linked with the multi-stakeholder Council for Sustainable Development. In addition, the Green Taxonomy was approved in 2018, the Sustainable Finance Taxonomy in 2019 and the National Sustainable Finance Roadmap in 2022. The development of an SDG Financing Taxonomy is underway (see Chapter 3).

Awareness raising on SDGs

One conclusion of the first VNR shadow report was the lack of stakeholder consultation and of a framework for such consultations; the creation of the multi-stakeholder Council for Sustainable Development is a step in this direction. As of September 2024, however, the council is not yet operational and no technical working groups have been set up. The second VNR describes an expansion of civil society and private sector engagement in promoting the SDGs, but also acknowledges the lack of public awareness and engagement with the 2030 Agenda and its goals. It recommends increasing SDG awareness among citizens, particularly children and youth. Since its establishment, the Ministry of Economy and Development has convened several national stakeholder meetings to identify priority areas for accelerating SDG implementation.

Enhancing policy coherence for sustainable development

With respect to SDG 17 (Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development) and its target 17.14 (Enhance policy coherence for sustainable development), the indicator 17.14.1 is international: it measures the number of countries with mechanisms in place to enhance policy coherence of sustainable development. No data are available for this indicator for Mongolia as of September 2024. The methodology recommends that governments convene a stakeholder group for self-scoring.

The First EPR of Mongolia noted horizontal coordination mechanisms at the national level, while underlining the absence of non-governmental stakeholders in these bodies and the rarity with which they met. It also observed a good level of coherence between policy documents, with consistent goals, targets and objectives, but identified that the lack SEAs undermined coherence of sectoral policies with environmental and sustainability objectives. Since then, considerable efforts have been put into policy coherence through, Vision 2050 as the basis for shorter-term planning, the shift back to a powerful Ministry for Economic Development and the setting up of a multistakeholder council. However, that council is not active, there is still a lack of SEA of plans and programmes and a lack of regulatory impact assessments of law. The National Human Rights Commission of Mongolia does not explicitly function as an ombudsperson for future generations. The financial mechanisms for the 2030 Agenda are still evolving.

Therefore, several parts of Recommendation 1.1 of the First EPR of Mongolia have been fulfilled, such as the operationalizing the National Committee on Sustainable Development, working with international organizations to enhance the availability of SDG indicators, continuing efforts to raise awareness among stakeholders and reporting on SDG implementation (1.1 (a), (d), (e) and (f), respectively). Other parts are progressing but await resolutions at Government or parliamentary level: the setting of national targets and the integration of SDGs into subnational development and sectoral policy documents (1.1 (b) and (c), respectively).

Belt and Road Initiative²⁰

China is the dominant destination for Mongolian exports (86.4 per cent in 2023) and the main foreign investor in the country, in both cases with a focus on mineral resources. At the same time, the Government aspires to reduce dependence on the export of natural resources (with minerals representing 92.4 per cent of exports in 2023). The Chinese President

²⁰ Alekberli-Museyibova (2023). Bayarlkhagva (2024). Dream Zhou (2024). Global Times (2022). Government of the People's Republic of China (2020). Graceffo (2020). Judge (2018). Kaleji (2023). Kenderdine (2017). Khishgee (2023). Li (2021). Mendee (2020). National Development and Reform Commission (2015). NSO (2024a). OECD (2019). Oidov (2024). Oil Capital (2023). Elston (2024). Ulagan (2021). World Bank (2019). Zoi Environment Network (2020).

launched the Belt and Road Initiative (BRI) in 2013. In 2014, the Mongolian Government presented its own Steppe Road Plan to link China and the Russian Federation through Mongolia with roads, railways, pipelines and power lines, and this has been Mongolia's focus ever since: mitigating the disadvantages of its being landlocked.

In 2015, the Chinese Government released a paper explaining the purpose and priorities of the BRI, which was to follow six economic corridors, one of which was labelled the China-Mongolia-Russian Federation Economic Corridor (CMREC). The three countries agreed to an outline for the construction of CMREC in 2016, including a list of 32 projects, 13 of which are for transport and infrastructure (7 rail, 4 road and 2 others) and 3 for environment and ecology. In 2017, China and Mongolia signed a memorandum of understanding aligning the countries' initiatives and a trilateral working group was established with the Russian Federation. CMREC task forces first met in late 2020. In 2022, the three countries extended the outline development plan for CMREC by five years.

Chinese banks have financed several infrastructure and construction projects in Mongolia, including a cross-border economic cooperation zone and two new railways linking Mongolian coal mines to China. Four main corridors are foreseen, each with at least a railway line and most with roads, mines, cross-border trade zones and other infrastructure. A wastewater treatment plant is foreseen for Ulaanbaatar. The central rail corridor from Erenhot, through Ulaanbaatar to Naushki, is operational; the double-track electrified railway is expected to be operating fully by 2030. The Russian Federation has influence in rail and energy sectors with, for example, Mongolia committing to continue to use the Russian railway gauge (for cross-country).

Mongolia has not welcomed Chinese investment in mining and has demonstrated concerns about increasing its large external debt, illustrating some mismatch between the ambitions of the two countries. Nonetheless, China initially anticipated channelling investments of US\$30 billion into CMREC and related projects, but the pandemic interrupted work and the BRI has since been refocussed away from purely construction projects. After many delays, work within Mongolia on the Power of Siberia-2 gas pipeline from the Russian Federation to China was expected to begin in 2024, following signature of project documents between the Russian Federation and Mongolia. However, China has yet to agree on the pipeline continuing into China. The development of road transit has been slow.

No strategic environmental assessment or cumulative impact assessment has been undertaken for CMREC, its four corridors, or the sectors in which it intervenes. No information is readily available on EIAs as of September 2024. Irrespective of whether the BRI invests directly in mining, much of the planned infrastructure will strengthen the mining sector, which is itself often harmful to the environment.

The planned 90-megawatt Erdeneburen hydropower plant in western Mongolia will mean building the country's largest dam and displacing a large population of herder families, with the loss of their pastures and cultural artefacts, within a national park and impacting a Ramsar-listed wetlands site, and in the face of local opposition. The dam – with an estimated cost of US\$266 million – will be largely paid for through a loan. It would satisfy local energy needs, but also much more.

1.3 INSTITUTIONAL FRAMEWORK FOR THE ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

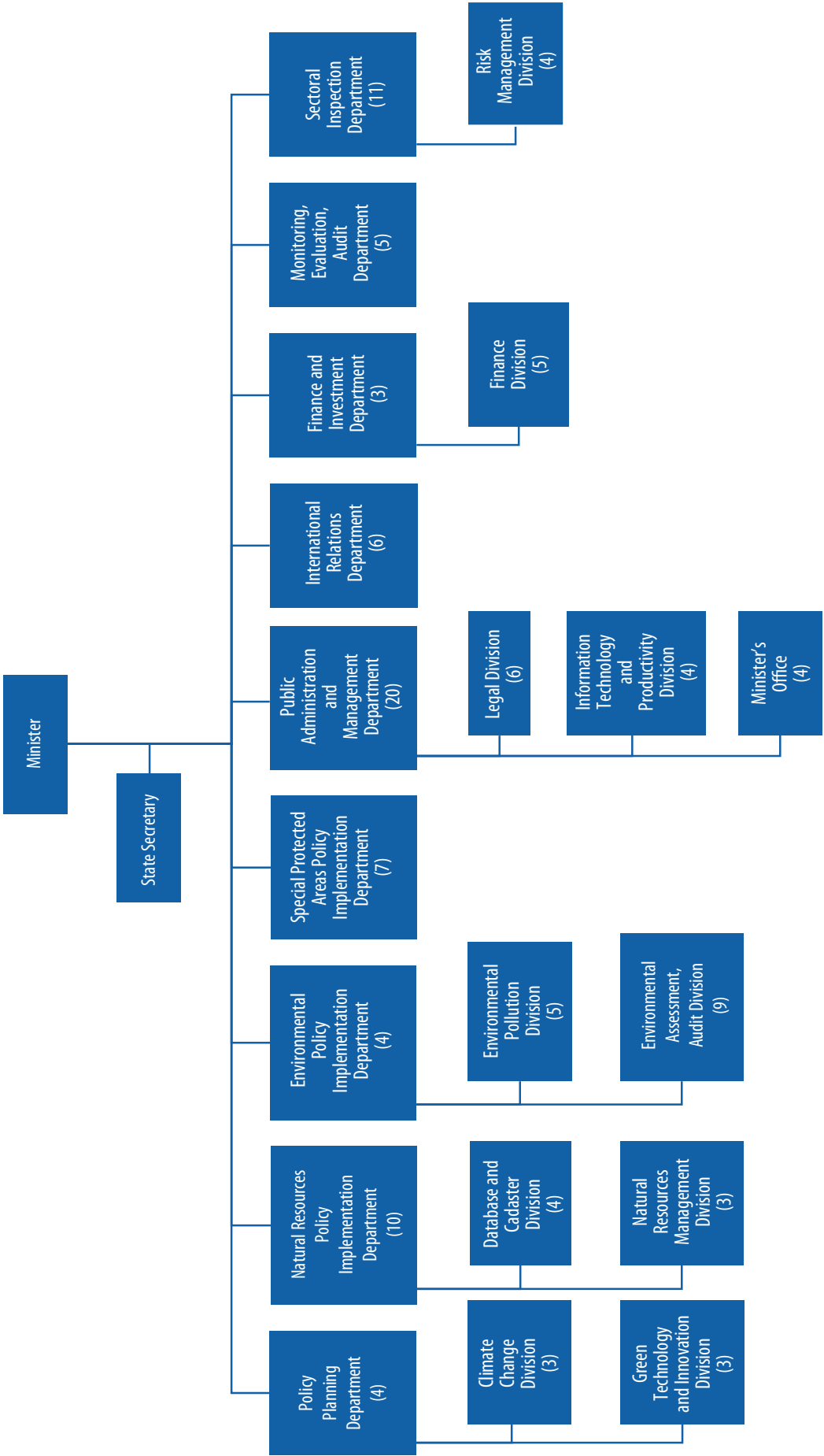
Functions of environmental authorities at various levels

Ministry of Environment and Climate Change

The central environmental authority, the Ministry of Environment and Tourism since 2016, became the Ministry of Environment and Climate Change in July 2024, with the tourism department shifted to join culture, sports and youth in the Ministry of Culture, Sports, Tourism and Youth. This resulted in the loss of four posts and a commensurate drop in the budget of the central apparatus. Earlier, the termination of GASI saw the return to the Ministry about 15 posts at the start of 2023; this reversed the departure of staff to GASI in 2003. Earlier still, in 2020, the water functions were moved from the Ministry to the Water Department, with a loss of staff. The structure of the central apparatus as of September 2024 is shown in Figure 1.3, with 9 departments and 11 divisions. The count of 122 posts is a slight increase over the 113 posts in 2017.²¹ Counting staff in subsidiary institutions and at the local level, there are approximately 3,000 posts in total. The variation in the budget of the Ministry of Environment and Tourism since 2017 is shown in Figure 1.4.

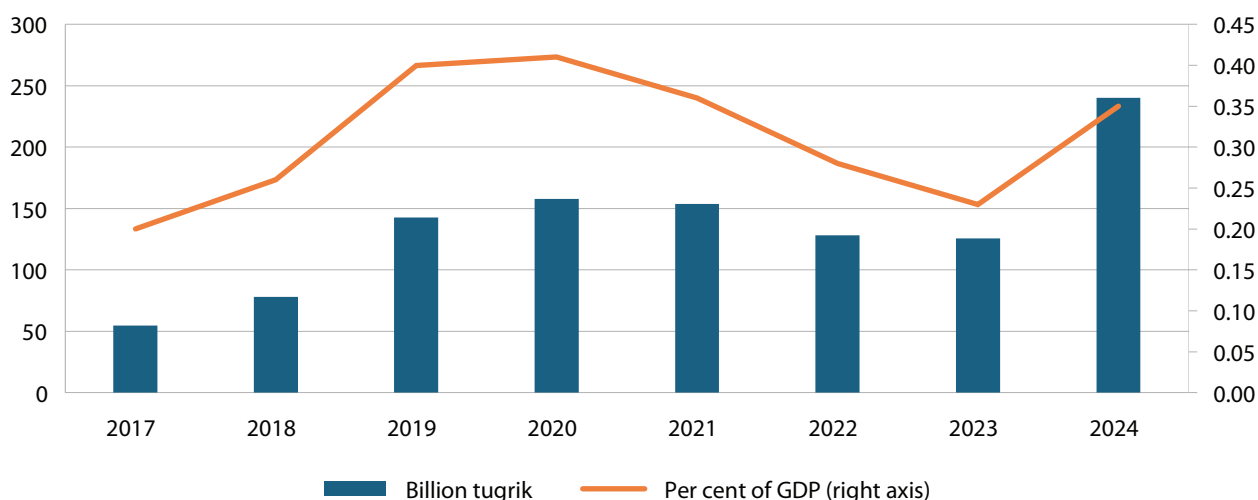
²¹ Dombrowsky (2018).

Figure 1.3: Organizational chart of the central apparatus of the Ministry of Environment and Climate Change (with numbers of posts)



Source: Order of the Minister of Environment and Climate Change No. A/329 of 2024.

Figure 1.4: Budget of the Ministry of Environment and Tourism, 2017–2024, billion tugrik and as percentage of GDP



Source: Ministry of Environment and Climate Change (presentation)

The Ministry's responsibilities, according to the 10 July 2024 amendment to the Law on Government, cover:

- Green development policy;
- Environmental protection, appropriate use, restoration and ecological policy;
- Integrated water policy;
- Desertification and afforestation issues;
- Increasing water resources and improving their use;
- Plant and animal resources protection and database;
- Environmental analysis, prevention of water, climate and potential natural disasters, and ecological security issues;
- Biosecurity policy issues;
- Issues of professional supervision of industry;
- Ensuring the transparency of government activities;
- Implementation of activities against air pollution.

According to the Law on Government, all ministries now have responsibility for air pollution, though it may be a typographic error. The July 2024 amendment moved tourism policy from the Ministry of Environment and Tourism (as reflected in the change of name of the ministry) to the Ministry of Culture, Sports, Tourism and Youth, but also land administration policy to the Agency for Land Administration and Management, Geodesy and Cartography (ALAMGC).

Within the central apparatus of the new ministry, only two of the senior staff remain from the old ministry and only about one fifth of the staff have been there for more than three years. There were many appointments during the previous administration and at all levels, from department head to technical staff, who were seen as political. This is despite the 2017 Law on Civil Service limiting political appointments to the ministerial level. The state secretary is not in a political position and there are no deputy ministers across Government. Recommendation 1.6 of the First EPR of Mongolia has therefore not been fulfilled as staff have not built experience in their specialization while remaining in their post or thus established institutional operational memory.

This high turnover leads to a decrease in organizational memory, continuity, leadership and professional competence. Nonetheless, the vacancy rate is about 10 per cent. Though Government policy is to disperse departments from the centre, the location means that managers have difficulty reaching Government-level meetings in the city centre and fear being marginalized.

The Policy Planning Department includes the Climate Change Division and the Green Technology and Innovation Division. As of September 2024, about half of the 10 posts in the main department were occupied, as the ministry's structure was approved in late August 2024. Within the Climate Change Division, the three additional staff focus on policymaking

and planning, intersectoral coordination and assessing impacts of climate change for projects; mitigation measures are a responsibility of economic sectoral ministries, while the Climate Change Research and Cooperation Centre prepares technical documents and the inventory. The Division works with donors on drafting a law on climate change for the spring 2025 session of Parliament. Climate change was previously handled at department level. The Green Technology and Innovation Division has three more posts.

The desertification and land degradation unit in the main Policy Planning Department coordinates planning with the Ministry of Food, Agriculture and Light Industry, the ALAMGC, the three institutions subordinate to the Ministry of Environment and Climate Change and with five *aimags* where desertification is intensifying and to which the unit advises on planning.

The Natural Resources Policy Implementation Department has 10 posts in it, plus two divisions: the Database and Cadastre Division and the Natural Resources Management Division. The latter deals with, among other issues, community-based protection of natural resources.

The Environmental Policy Implementation Department has two divisions, on Environmental Pollution and on Environmental Assessment and Audit. The former has five posts, with one staff member working on waste. The latter has nine positions, including its head, and has experienced an increased workload. According to the Law on EIA, it reviews EIAs and makes recommendations to a professional council; it maintains a database of EIA (see Chapter 2).

There are seven positions in the Special Protected Areas (SPAs) Policy Implementation Department, but just three are occupied as of September 2024. The Department oversees 42 SPA administrations, of which 34 are State funded, with the budget coming from the ministry, and 8 are NGO funded (see Chapter 12). Each SPA administration manages one or more of the 120 SPAs in Mongolia. The Department encourages self-sufficiency and NGO management of SPAs, with two candidate NGO managers being considered as of September 2024. The Department recommends a particular methodology in designing a protected area management plan and a model plan, provides support in the drafting, reviews the resulting plan and facilitates approval by the ministry.

The head of the Public Administration and Management Department leads the largest department, with 20 posts at its core, and is new in her post. The Department includes the Legal Division, the Information Technology and Productivity Division and the Minister's Office. The Information Technology and Productivity Division's responsibilities include green jobs and permits.

The Monitoring, Evaluation and Audit Department now has five posts, down from seven prior to the new ministry. The Cabinet secretariat is promoting monitoring and evaluation and a commensurate increase in staffing.

The Sectoral Inspection Department, including its Risk Management Division, has 15 state inspectors in total. There are 600 environmental, water and protected area inspectors across the country. The department provides guidance including to prosecutors. The Cabinet secretariat helps to organize joint inspections and other coordination. Details are provided in Chapter 2.

The central apparatus also includes the International Relations Department and the Finance and Investment Department, which includes in turn the Finance Division.

Subordinate to the Ministry at the national level are the Water Agency, Forest Agency and National Agency for Meteorology and Environmental Monitoring. There are also three State-budgeted enterprises: the Climate Change Research and Cooperation Centre, the Freshwater Resource and Nature Conservation Centre and the Environment and Climate Change Fund. Finally, there are two State-owned enterprises: an environment and tourism promotion centre that is being dissolved and the Mongolia-Kuwait Centre on Environmental Conservation.

The Climate Change Research and Cooperation Centre was established in 2020, as a self-funded state-owned enterprise operating under the guidance of the then Ministry of Environment and Tourism, with the mandate to implement Mongolia's state climate policies. This work includes preparing large project proposals for funding by the Green Climate Fund (GCF), for example, and drafting reports under the United Nations Framework Convention on Climate Change (UNFCCC), such as national communications and biennial update reports.

The Freshwater Resources and Nature Conservation Centre works in the field of environmental education, research and information, having been established in 2011. For example, a water analysis laboratory provides an environment in which trainees can develop practical skills in water and soil analysis and testing.

Water Agency

The Water Agency was established in 2020 and absorbed the relevant responsibilities of the Department for Policy Implementation and Coordination in the ministry responsible for the environment, which had been set up in 2012. It has three substantive departments dealing with works, resources and monitoring. There are 38 posts, with four vacancies as of September 2024. The agency aims to develop new water resources to meet growing needs, protect water resources and use them efficiently, and collaborate in the delivery of public services. It gives methodological guidance to the 21 water basin authorities and cooperates with the ministries responsible for agriculture, energy, construction, mining, economy, finance and foreign affairs. The agency and the water basin authorities receive their budget through the ministry.

Forest Agency

The Forest Agency was established in 2022. It replaced the Department of Forestry Policy and Regulation in the then Ministry of Environment and Tourism, with responsibility for policy matters remaining in the ministry, and the Forestry Research and Development Centre, which was a State-owned enterprise. The Agency implements the One billion Trees National Movement of the President, which led to the Agency's creation (see Chapter 13).

The Agency has two main substantive departments, focusing on forest resources and restoration (reforestation and afforestation), with 10 and 11 staff respectively, out of a total of 38 positions in the agency. There is also a public administration division (13 staff) and a division handling audit and evaluation (3 staff). There are no vacancies as of September 2024. The Agency works with its parent ministry, but also the ministries responsible for agriculture, economy and other matters. The local level forestry units are not directly under the Agency's supervision, a situation that the Agency aims to change through an amendment of the Law on Forest (see Chapter 13).

National Agency for Meteorology and Environmental Monitoring

The goal of the National Agency for Meteorology and Environmental Monitoring is to monitor and analyse weather, environmental and water conditions, provide society with up-to-date information and warn of anticipated natural disasters. The Agency has branches in each of the *aimags*; the main office serves as the capital city branch. There are 77 posts in the central office and 1,893 across the headquarters, subsidiary bodies and local branches, of whom 1,841 are civil servants and 69 per cent are female. Staff express concern about the lack of social security provisions within the Agency.

The Agency's departments include weather forecasting and monitoring and environmental monitoring (see Chapter 16). Its management aspires to a higher status for the agency, as well as enforcement powers to tackle pollution, for example. Warnings produced by the Agency are shared with the National Emergency Management Agency (NEMA). That system is used to distribute warnings through, for example, the emergency agency's local branches, leading to some duplication given the meteorological agency's use of its network too, but this is considered a net benefit.

The three subsidiary organizations are the Information and Research Institute of Meteorology (98 posts, down from 119 in 2017), Hydrology and Environment, the Central Laboratory of Environment and Meteorology (36 posts) and the Aviation Weather Centre (58 posts, up from 47 in 2017).²² The Institute provides real-time and forecast information on water, climate and the environment. Among the functions of the Institute are acting as the National Centre for Remote Sensing and the Environmental Information Centre. The Laboratory undertakes monitoring and analysis, calibrates instruments and trains personnel, among other functions. The Aviation Weather Centre provides weather information for flight safety. In addition, there are meteorological centres in each *aimag* and the capital city, together with 318 sites forming the weather observation network. In total there are 1,623 posts outside Ulaanbaatar.

Environmental authorities at subnational levels

Mongolia has 21 *aimags*, each with a governor and a *Khural* (assembly of elected representatives); similar arrangements are in place at the next level below, in the approximately 346 *soums*. In the approximately 1,480 *baghs*, there is also a governor and a general meeting of citizens. There are analogous arrangements in the capital city, though with 9 *duuregs* (municipal districts) and 204 *khoroos* (sections of municipal districts). At the *aimag/city* and *soum/duureg* levels, the governor's office serves as the local administration. Most environmental authorities at subnational levels are associated with the local level administration and often with the governor's office and therefore overseen by the *Khural*.

²² Ibid.

Vertical coordination on environmental matters is ensured through agreements between ministries and *aimag* governors, instructions or guidance (as appropriate) coming from ministries and national agencies to their local branches or to departments of governors' offices and, conversely, inputs from the lower levels to the ministries on policy, plan and legal drafts.

In each *aimag* there is a department dealing with environment and climate change, whose name follows that of the supervising ministry. The department is funded through the governor's budget. This brings together the local inspectors and representatives of the Forest Agency, for example. Staff are administratively under the governor's office but operationally work for the Ministry of Environment and Climate Change. The heads of *aimag* branches are proposed by the *aimag* governor and approved by the Minister. There are 600 environmental inspectors countrywide, all of them civil servants paid from the local budget and at least one inspector per *soum*. There are also at least two environmental rangers per *soum*.

For example, in Darkhan-Uul *aimag*, the Department for Environment and Climate Change has 16 positions (all filled), including two environmental state inspectors and three environmental rangers; the department issues permits. The *aimag* comprises four *soums*, with one having a state inspector. In Khongor *soum*, one inspector supervises three more rangers, all being employees of the *soum* governor's office while operationally under the Ministry of Environment and Climate Change. When tackling poaching the inspector cooperates with the Ecological Police, which handles criminal cases. The ecological police officer is in the *soum*, as part of an inter-*soum* police force; across the country, there are one or two ecological police officers per *aimag*.

The *aimag* department coordinates with the *aimag* Water, Meteorology and Environmental Analysis Centre and the river basin authority, but does not supervise them or assign them tasks. For example, there is cooperation with the river basin authority on inspection, national celebrations of World Water Day, the water source inventory and other issues. There is also cooperation with the Water, Meteorology and Environmental Analysis Centre on the inventory of air emissions and in response to public complaints about pollution, for example, and the Department's inspectors inspect the local (accredited) laboratory under the Centre. Another function of the Department for Environment and Climate Change is running public awareness campaigns, as well as activities such as advice to enterprises on inspection, though within limited funds. The staff use mass media, record videos, develop recommendations on different issues and post them to social media. They also erect warning signs in risky areas and banners in public places.

The *aimag* department also cooperates with the Sectoral Inspection Department of the Ministry, which provides methodological and other guidance. It also receives assignments from the Ministry in accordance with the legal framework, but there is no budget or equipment from the ministry as that is beyond the legal provisions.

The head of the *aimag* department is consulted on draft policies and laws being drawn up in the ministry. He considers the legal responsibilities as being clearly delineated. However, the German Development Institute, in a 2018 report, suggests that "The Ministry of Environment and Tourism should consider revisions to the legal assignment of responsibilities to reduce overlap and uncertainty. It is also necessary to provide a clearer distinction of responsibilities, both horizontally across different subnational governance entities (principles of disentanglement) and vertically across government levels, taking the principle of subsidiarity into account."²³ There are overlaps in monitoring of use and pollution and in implementing protection measures, for example.

The *aimag* governor's office approves the *aimag* department's annual action plan and the Monitoring and Evaluation Department of the governor's office reviews progress every six months. The annual action plan is linked to the five-year local development plan, the four-year governor's action plan and the one-year governor's action plan, which is also signed by the national Government ministers. In the other direction, the governor can provide inputs to the Government's action plan, and the Department for Environment and Climate Change can provide input to the governor's action plan. There is also an inspection plan that the Ministry's Sectoral Inspection Department approves; the ad hoc or unplanned inspection plan is approved by the head of the Sectoral Inspection Department and the *aimag* governor. The *soum* governor approves the annual action plan for *soum*-level staff.

The *aimag* Department for Environment and Climate Change receives its budget from two sources: an amount of about 400 million tugriks from royalties and environmental resource fees, calculated by the Ministry of Finance by a mechanism that is not known at the local level; and about 350 million tugriks from the *aimag* budget. Because of increases in staff salaries, the operational budget has been declining despite increasing costs and despite increasing revenues at the *aimag* level.

²³ Ibid

Challenges experienced at the *aimag* level include a small team of inspectors being unable to cover the full range of about 200 inspection items, besides a more general lack of resources for operational costs, from simple stationery items to uniforms, personal protective equipment and vehicles.

The situation in Ulaanbaatar is different, with the capital city being home to about 45 per cent of the country's population. The Department for Environment and Climate Change is under the governor's office, with 100 staff positions, of which 11 are vacant as of September 2024 due to recent restructuring. Administratively part of the capital city governor's office, operationally the department implements decisions by the Ministry of Environment and Climate Change and functions like an implementing agency. The department includes the Environment and Natural Resource Management Division, the Forest Division, the Biodiversity Division, the Soil and Land Degradation Division, the Inspection Division (with 28 environmental, geological and mining inspectors) and the Green Belt Protection Management Division (including SPAs and with 33 forest inspectors). Though the department has more resources than, for instance, those in Darkhan-Uul *aimag*, it does lack equipment such as personal protective equipment and sufficient means of transport.

The Air and Environmental Pollution Department is separate and has its own environmental inspectors. There is also a Public Health Department that deals with surface and drinking water and conducts joint inspections with the environment department. There are also joint inspections with the Tuul River Basin Authority, with which planning is also coordinated and abstraction permitting is shared. The department also works with *duureg* governments on fire prevention and with the capital city's Emergency Management Department on disaster management planning. There is no Water, Meteorology and Environmental Analysis Centre or associated laboratory for the capital city; instead, the department cooperates directly with the Agency for Meteorology and Environmental Monitoring. Environmental rangers work for the concerned *duureg* governors, not the capital city.

The governor of the capital city has delegated solid waste management (collection and disposal) to *duureg* governors. The Office of the Mayor of Ulaanbaatar City, a residential municipality covering several *duuregs*, oversees waste management through its Landscaping and Waste Management Division.

Overall, there are 46 *soum*-level forestry units and five *aimags* have a forestry section within their Department for Environment and Climate Change, or similar arrangements. The staff are in all cases within the local administration, though proposed amendments to the Law on Forest might allow the Forest Agency to assert more control over these units. At present, the agency provides guidance via the Ministry of Environment and Climate Change and *aimag* governors' offices. There are 302 staff (42 per cent women) in these various units, including 46 managers (13 per cent women), 60 forest engineers, 49 forest technicians and 147 other staff. They work with 650 forestry companies and 1,222 forest user groups. There are 360 tree nurseries across the country.

In Darkhan-Uul *aimag*, the forestry unit is in the governor's office and not in the Department for Environment and Climate Change; it works with the environment department on a daily basis, joins weekly internal planning meetings and receives guidance from the environment department.

The situation at the *aimag* branch of the National Agency for Meteorology and Environmental Monitoring, called the *aimag* Water, Meteorology and Environmental Analysis Centre, is quite different as it reports to the national agency headquarters. The centre, which has a laboratory, undertakes river water quality testing and testing for companies according to agreements. The Freshwater Resources and Nature Conservation Centre also has *aimag* branches. The GASI laboratory has been merged into the *aimag* standardization and metrology laboratory.

Somewhat similarly, the river basin authorities are directly under the Water Agency and receive their budget from the Ministry of Environment and Climate Change. The heads of the water basin authorities report to the Minister.

Besides the environmental authorities in Darkhan-Uul *aimag*, the Health Department has an environmental health officer. The department monitors drinking water, supervises domestic waste management, works with people living in ger districts on water and soil pollution, and addresses other environmental health matters. In case of reportable cases of food poisoning and water-borne diseases, the department works with doctors and hygienists to sample, diagnose and notify the Emergency Management and Veterinary Departments. The head of the Health Department participates in meetings on urban development planning. The environment and health state inspector and the environment state inspector work together. In all *aimags*, a governor's council coordinates health matters across the heads of departments at the *aimag* level. In addition, the Ministry of Health undertakes an audit of *aimag* governors' performance in accordance with a national agreement between the governors and the ministry.

The Darkhan-Uul Water and Sewage Department, a local-government owned enterprise, has its own laboratory to test its water supply. Of the four *soums*, the three rural ones do not treat wastewater (though the environmental health inspector might still test the surface water); the fourth *soum* is the *aimag* centre, Darkhan. Companies are required to treat industrial wastewater prior to its entry into the sewage system.

For solid waste management in Darkhan *soum*, there was previously a single local-government owned enterprise, but this has now been split into three enterprises, dealing with landscaping, collection and transportation, respectively. Each of the three rural *soums* has its own waste enterprise. In each *soum*, the governor's office grants permits to these enterprises and the *Khural* is represented on the board of the enterprise. The Department for Environment and Climate Change gathers reports on waste management.

Companies producing hazardous and chemical waste must have a contract with a licensed waste management company. The Department for Environment and Climate Change supervises the one company in Darkhan-Uul *aimag* that is licensed to handle hazardous waste, though it had yet to begin operations as of September 2024. Meanwhile, companies transport their hazardous wastes to Ulaanbaatar for processing.

Across the country, *aimag* Land Administration, Construction and Urban Development Departments (or similar) make pastureland management plans as part of the local general land management plan. Construction and urban development inspectors are sometimes staff of such departments, but in some *aimags* they are posted directly within the governor's office. In each *soum*, there is normally one land management officer. Staff are responsible to the governor's office administratively but operationally under the national administration.

Some SPA administrations coordinate with the *soum* authorities, whereas others do not. Across the country there are 842 staff in state-funded SPA administrations. In Gorkhi-Terelj National Park close to Ulaanbaatar, for example, there are six rangers and four inspectors. Among other areas they check that tourism operators manage waste and respect flora and fauna, and that people do not collect nuts, for instance, outside the permitted season.

One of the 21 water basin authorities is the Tuul River Basin Authority, headquartered in Ulaanbaatar. It was established in 2012 and has 23 positions but just 14 employees as of September 2024, because of the difficulty of finding qualified staff and the low salary on offer. The authority is funded by the ministry's budget and cooperates with the capital city authorities and *duuregs*, as well as *soums* in neighbouring *aimags*. The river basin council active as of September 2024 was set up in 2022 with up to 45 members from local governments, academia, experts, water users, NGOs and media. Though it is meant to meet once or twice a year it has not met since 2022 due to the lack of funds; the previous council did meet but it anyway has limited powers and expertise. The authority is preparing the Tuul River basin management plan with the help of the Water Agency; it is subject to approval by the Minister of Environment and Climate Change. It will replace the expired plan of 2012–2021.

Other institutions

The dissolution of GASI was an important step in the development of the institutional framework. Previously, GASI conducted inspections in 26 areas and had more than 1,600 employees, some of whom were laid off whereas 800 inspectors were moved to line ministries; some functions were shifted to the private sector;²⁴ though not in the environmental area. The change was intended to create a more business-friendly climate, as the inspectors were seen as overly zealous by some – especially in their opening of misdemeanour cases – and occasionally corrupt by others.²⁵ Nonetheless, the change was sudden, leading to discontinuity in inspection planning and impacting staff salaries. Previously, ministries had no choice but to implement GASI recommendations, whereas now inspectors are subordinate to ministers.

The NSO is an independent agency under the supervision of Parliament (the State Great *Khural*) that aims to provide independent, scientifically based, reliable and accurate data on the economy, society and population of Mongolia. It has branch offices in the *aimags* and the capital city, and district offices in each of the nine *duuregs* of Ulaanbaatar.

The National Development Agency under the Cabinet secretary aimed to maintain the country's economic security and stability and to plan and implement socioeconomic and diverse investment policies, in line with the country's vision of sustainable development. In line with the Vision 2050 policy document, the agency's functions were taken over by a new Ministry of Economy and Development in 2022.

²⁴ Mass.mn (2022).

²⁵ Mongolia Weekly (2022).

The Ministry is the state body in charge of national development policy and planning issues in line with the Law on Development Policy and Planning and its Management. It is expected to take a broader view, exercise more power and have a direct impact on policy, though it was still developing as of September 2024. It provides for unified organization of development planning and its implementation, including the implementation of integrated development policies. (In contrast the Ministry of Finance looks at public and private funding and thus implementation of the resulting plans.) The Minister of Economy and Development is also the First Deputy Prime Minister, giving the ministry the highest status among its peers. It addresses macro-economic affairs, plans mega-projects and includes departments supporting public-private partnerships and interministerial procurement. A green finance policy division is being added. The National Development Institute has been established under the ministry though it was not active as of September 2024; it will support the development policy and planning activities.

The NEMA under the Government aims primarily to protect the public from disasters, prevent potential disasters, reduce disaster risk, involve the public in its activities and develop capacities and is unchanged. The Mongolian Agency for Standards and Metrology is unchanged also since the First EPR.

The General Department of Land Management, Geodesy and Cartography under the Ministry of Urban Development, Construction and Housing was moved in January 2024 to become the ALAMGC, a government implementing agency directly under the Prime Minister. Its scope is unchanged, and it is without a broader perspective of land as a resource, beyond its use for construction. Soil protection, land degradation and desertification are dealt with by the Ministry of Environment and Climate Change, with which the Land Monitoring Division cooperates. That division has two main substantive departments, responsible for: (i) land research and policy planning; and (ii) spatial data and infrastructure.

Functions of sectoral ministries having responsibilities over environment and sustainable development

Industry

The Ministry of Industry and Mineral Resources includes four sectoral policy departments, addressing geology, mining, heavy industry and petroleum. Within the Department of Mining Policy, an expert in the field of environment and small-scale mining is employed, and, in the Department of Petroleum Policy, there is an expert in oil industry standards, occupational safety and environmental issues. Overall, there are four officers responsible for environmental issues, one per division of the Department of Mining Policy. This is expected to change with the creation of the Green Development Division in the Department of Mining Policy, with all staff being environment specialists. Nuclear and radioactive inspection has been moved from the Ministry of Education to the Ministry of Industry and Mineral Resources, which is also promoting uranium mining. The Ministry of Environment and Climate Change has mining specialists too and they work closely with the environmental specialists of the Ministry of Industry and Mineral Resources to coordinate the integration of environmental policies into mining policies.

In addition, the Ministry of Food, Agriculture and Light Industry has a Light Industry Department comprising eight staff, all of whom are engineers with different specializations. The department's functions include reducing environmental impacts and risks and promoting sustainable production, for example, by promoting international sustainability standards at two tanneries. The department cooperates with the Ministry of Environment and Climate Change on matters ranging from value chains to wastewater treatment.

Energy

The Ministry of Energy does not have an environmental specialist on its staff, just within project implementation units. Nonetheless, there is tight collaboration with the Ministry of Environment and Climate Change, with which they have a working group on hydroelectric power plant projects, together with the Water Agency and water basin authorities. The two ministries jointly organized an event on the carbon credit market as a precursor to setting up regulations on a carbon market. The Ministry of Environment and Climate Change leads in negotiations with the neighbouring countries regarding the use of transboundary rivers.

Health

Within the Ministry of Health, the Public Health Policy Coordination Department includes climate change responsibilities, and one officer is tasked with environmental affairs in the prevention division. The National Biosecurity Committee under the Ministry of Environment and Climate Change includes a representative of the Public Health Policy Coordination Department. Generally, when reviewing investment proposals, the ministry looks at, for example, impacts on public health from greenhouse gas emissions and the use of environmentally friendly technologies. The ministry now has an Inspection

Department, following the dissolution of GASI. For water, though, the Ministry of Health deals with water quality standards while the Ministry of Environment and Climate Change deals with inspection. The two ministries coordinate permits for the import of chemicals.

The National Public Health Centre has been re-established through the 2024 Law on Public Health Care and Services. Its focus may be adjusted but at present its primary areas of interest are awareness raising, research (including on environmental pollution) and noncommunicable diseases, and the prevention of communicable diseases.

Horizontal coordination

At the national level, coordination is ensured by the Cabinet and its secretariat, formal and personal connections between ministries, interministerial working groups (such as that working on hydroelectric power plant projects), committees and councils and oversight bodies.

The Deputy Prime Minister generally leads on multi-sectoral, cross-ministerial coordination efforts. The Government aims to avoid creating too many committees. Key bodies include:

- The National Committee on Sustainable Development under the Prime Minister;
- The National Committee on Climate Change under the Deputy Prime Minister, with the deputy chair being the Minister of Environment and Climate Change and the secretariat being provided jointly by the Office of the Deputy Prime Minister and the Ministry of Environment and Climate Change. Members include the Director of the NEMA, experts from which are also present in subcommittees. It has its own action plan and has adopted the National Adaptation Plan. The committee has subcommittees at *aimag* level;
- The National Water Committee under the Prime Minister, comprising members from ministries. It is distinct from the transboundary water committee, which is between the Ministry of Environment and Climate Change and the Ministry of Foreign Affairs, and the water resources committee, which is chaired by the State Secretary of the Ministry of Environment and Climate Change, with the Director of the Water Agency as deputy chair and experts from the Ministry;
- The National Committee on the Reduction of Environmental Pollution;
- The National Council on Disaster Risk Reduction under the Deputy Prime Minister, which includes the Minister of Environment and Climate Change and the ALAMGC Director among its members;
- The National Land Management and Urban Development Committee, which has been dissolved but is expected to return as its functions were considered valuable in terms of cross-sectoral coordination, strengthening geospatial planning and mainstreaming the environment and climate change.

A National Public Health Council under the Prime Minister is foreseen by the 2024 Law on Public Health Care and Services but requires a government resolution to establish it. It will discuss pressing public health issues, including climate change, and ensure the coordination of interdisciplinary activities.

In addition, the Government Monitoring and Evaluation Committee, chaired by a minister without portfolio and with ministers as members, oversees the Government Supervisory Authority, which reviews the performance of the executive branch of Government: ministries and the governors' offices of the capital city and *aimags*. The committee's secretariat also oversees the inspection portfolio for companies and individuals. The authority, which was previously the Cabinet monitoring and evaluation unit, has 119 staff positions but only about 60 are occupied as of September 2024; it is a new body and staff report that the selection criteria are demanding. The authority undertakes monitoring and evaluation and has a state inspection team reviewing government institutions and civil servants. (GASI previously undertook inspection of government entities.) There are also a surveillance team (operational, results-based reviews) and management and legal teams. In 2024, the authority is reviewing the Ministry of Environment and Climate Change and the Forest Agency, with a view to process reengineering. Reviews, together with comments and responses reported transparently, are submitted to the Government and then to Parliament.

Recommendation 1.3 of the First EPR of Mongolia has not been fulfilled, though the Government has strengthened horizontal coordination on environment and sustainable development. There is no evidence of interministerial meetings taking place on a regular basis, with reports being made public or stakeholder participation having been extended (1.1 (b)–(d), respectively). The composition of interministerial committees and councils is based upon functional titles, such as "Minister of Finance" (satisfying Recommendation 1.1 (a)). Minutes of meetings of the parliamentary Sustainable Development Goals subcommittee are made public, and meetings of certain bodies, such as the National Committee on Climate Change, are reported on in the press.

Participation of other stakeholders in decision-making

The Bertelsmann Stiftung report mentioned above notes that “The political leadership has allowed civil society to participate in the policymaking process, taking into account and, to some extent, accommodating the interests of various civil society actors. Also in recent years, laws facilitating formal hearings and other mechanisms for seeking input have been passed by the parliament.”

The Ministry of Environment and Climate Change explains that public participation can be organized in many ways depending on the draft law. These include meetings and interviews with social groups affected by the law, taking written opinions and uploading opinions on the official websites of the Ministry and Parliament. The members of the professional council that reviews recommendations on EIAs include experts from NGOs, academia and associations.

As presented by the Ministry, recent independent surveys on the integrity of institutions have revealed a decline and a slight recovery over the period 2021–2023 in the rating given by stakeholders of participation in policymaking by the Ministry. In addition, the Ministry performs poorly compared to other ministries in these surveys.

In-service training of civil servants on environment and sustainable development

Within the Ministry of Environment and Climate Change, a variety of training opportunities are arranged. For example, the Environmental Assessment and Audit Division organizes one or two training events each year and the ministry staff train staff at *aimag* and capital levels. The Ministry's Sectoral Inspection Department organizes training on enforcement, compliance and skills development for all 600 environmental, water and protected area inspectors across the country, either online or in person, though there is no accreditation process. The training of staff is carried out to familiarize them with new legislation and to develop skills. The head of the Ministry's Monitoring, Evaluation and Audit Department has attended training by the civil service council and the Cabinet Secretariat on monitoring and evaluation.

Outside of the Ministry, in Gorkhi-Terelj National Park, the staff receive training once or twice a year within an international project. Further, in the ALAMGC, the Land Monitoring Division is being trained on climate change issues. However, in the Darkhan-Uul *aimag* Department for Environment and Climate Change, there is no professional development or training, nor any budget or equipment, from the Ministry of Environment and Climate Change.

The Ministry of Family, Labour and Social Protection carries out national employment programmes. These programmes are mainly implemented through projects and programmes with annual renewal, which are approved by the National Council on National Employment. The Council is an independent body and comprises representatives of employers and employees' organizations. The national employment programmes include:

- Training to prepare for labour programmes, for example, in soft skills, vocational and temporary training, on-the-job industrial training, interview preparation and attitudinal training. The training is dedicated to the younger generation, people living with disabilities and those likely to be unemployed;
- Funding support activities: project funding for self-employed people, small loans; and motivating employers;
- Dedicated training for people living with disabilities;
- Programmes on temporary job provision, for example, child protection and helping older people.

There is no dedicated training for artisanal miners, though all the programmes are open for them to attend, thus fulfilling Recommendation 1.4 (e) of the First EPR of Mongolia.

1.4 ASSESSMENT AND RECOMMENDATIONS

Assessment

Efforts are invested in ensuring the coherence of the legal system. This does have minor undesirable side effects in terms of frequent adjustments to legislation to ensure alignment between different legal acts. There is also good access to legislation, although, inevitably, lower-level acts are more scattered. Two systemic weaknesses are apparent: the lack of routine and rigorous impact assessment of draft laws, and the limited availability of information on the implementation of legislation. Furthermore, there are gaps in regulations, and the regulations in place do not always reflect legal requirements beyond the individual acts they are intended to implement.

Within the environmental realm, few new laws have been adopted, with notable exceptions including those on waste and genetic resources, but numerous amendments have been made since the First EPR. In addition to the ongoing drafting of

a law on climate, plans have been made to substantially revise key laws, including the incomplete amendment to the legal framework for EIA and the scheduled changes to the laws on monitoring, air, land, soil and protected areas. Competing visions of land use, including for pasture and protected areas, remain unreconciled. Climate adaptation and mitigation are only superficially, if at all, referred to in sectoral legislation, apart from a new law on animal husbandry and climate change. The codification of environmental law has been suggested; however, experience in other countries in the region indicates that the drafting process can be lengthy and delay urgent legal developments.

Policymaking has been changed by the new law on policymaking and planning. This has led to a simplified and more structured approach, with greater integration of the SDGs. Nonetheless, certain planning needs, including obligations under multilateral environmental agreements, remain unfulfilled. There is a risk that environmental objectives might be diluted through joint planning processes. The Environmental Target Programme is among those delayed. Strategic environmental assessment of plans, programmes and policies is not being applied, with one donor-organized exception.

The institutional framework for achievement of the 2030 Agenda for Sustainable Development has been strengthened under the powerful Ministry of Economy and Development. VNRs were published in 2019 and 2023, with civil society making a meaningful contribution on their preparation. The NSO continues to make progress in providing SDG indicator values and in exploring non-traditional data sources. The National SDG Indicator Framework has awaited adoption since 2022. The multistakeholder Council for Sustainable Development is not operational, and the Integrated National Financing Framework has not been adopted.

The Ministry of Economy and Development has been revived, and the Ministry of Environment and Climate Change has been given a clearer mandate, now excluding the tourism sector. However, despite a modest increase in staffing since the First EPR and a large boost in the budget, the Ministry of Environment and Climate Change has suffered upheavals, with the loss of experienced staff and institutional memory. The abrupt dissolution of GASI has seen the arrival of State inspectors in the ministry (see Chapter 2) and has caused local dissatisfaction due to the lack of operational budgets for basic equipment; the separation of production and inspection functions has consequently become less clear. The new ecological police cooperate with local inspectors and rangers. Despite the loss of GASI laboratories, several organizations still have laboratories at the *aimag* level. At least superficially, interactions with sectoral ministries revealed an interest in the environment and climate change among managers.

Horizontal coordination is being rationalized, with a reduction in the number of interministerial committees. Some such bodies are anticipated by laws or regulations but do not exist. Information on meetings of relevant committees is not readily available, even regarding whether meetings are held, with the parliamentary subcommittee on SDGs providing an example of transparency. Although the country benefits from a vibrant civil society, stakeholders observe limited opportunities to engage in the policymaking of the Ministry of Environment and Climate Change.

Recommendations

Improving the legal framework

Recommendation 1.1:

The Government should:

- (a) *Ensure routine and rigorous regulatory impact assessment of draft laws, in accordance with the Law on Legislation;*
- (b) *Ensure also the availability of reports on the implementation of laws;*
- (c) *Seek the early adoption of a law on climate change that integrates mitigation and adaptation across all sectors;*
- (d) *Fill regulatory gaps in environmental protection.*

Improving the policy framework

Recommendation 1.2:

The Government should:

- (a) *Continue to work on the integration and prioritization of biodiversity conservation, climate change and other environmental aspects across sectors;*
- (b) *Seek the early adoption of the Environmental Target Programme.*

Improving strategic environmental assessment

Recommendation 1.3:

The Government should:

- (a) Ensure that strategic environmental assessment is carried out for national, regional and sectoral policies, programmes and plans in accordance with the requirements of the law;
- (b) Support the development of technical capacities across sectoral ministries and at aimag level and require the Ministry of Environment and Climate Change to engage in these activities through training, guidance and supervision.

Improving sustainable development implementation and coordination

Recommendation 1.4:

The Government should:

- (a) Adopt the National SDG Indicator Framework and the Integrated National Financing Framework;
- (b) Encourage the Parliamentary Standing Committee on Economic Policy to convene regularly the multistakeholder Council for Sustainable Development;
- (c) Improve the efficiency of the National Committee on Sustainable Development led by the Prime Minister;
- (d) Accelerate the implementation of the Vision 2050 Long-term Development Policy by approving the necessary financing and strengthening inter-ministerial coordination.

Improving the institutional framework

Recommendation 1.5:

The Government should:

- (a) Ensure that budgets at aimag and capital city level provide for operational costs, including minimal equipment for inspectors to restore their self-esteem and support their work;
- (b) Raise awareness among its members regarding the provisions of the Law on Civil Service on politically appointed positions, which exclude management positions within ministries.

CHAPTER 2

REGULATORY AND COMPLIANCE ASSURANCE MECHANISMS

2.1 PERMITTING AND LICENSING

Environmental permitting and licensing

Individual environmental permits are issued for various uses, such as the abstraction of groundwater, the discharge of wastewater into surface water or the discharge of wastewater into the sewerage system by companies. Permits are required for the import, transport and use of radioactive sources, chemicals and ozone-depleting substances (ODS). Permits are also required for logging trees and catching fish. Applications for permits are submitted to the relevant competent authority, which processes them according to established procedures. Electronic systems are increasingly being used to apply for and issue permits.

The licensing system is organized across various domains such as business, environmental protection and trade. The Law on Permits regulates the issuance of more than 360 licenses in 14 special and 12 general license areas. Some sectors require additional approvals from relevant authorities, such as mining exploration licenses, which are subject to an EIA before being granted. For heavy industries, the Law on Environmental Protection oversees the issuance of environmental licenses and permits, including measures for pollution control. Licenses are also required for the use and handling of radioactive materials. In trade, companies need import/export licenses for goods such as pharmaceuticals, ODS, chemicals and controlled items such as toxic substances. The licensing system requires regular inspections and compliance with national and international standards.

Air emissions

The 2012 Law on Air is the main legislation regulating air pollution. The Ministry of Environment and Climate Change is primarily responsible for managing and overseeing the national air quality policy, sets standards, issues regulations to control air emissions, and is authorized to grant, extend, terminate, or revoke air emission permits. The governor of Ulaanbaatar and the district governors enforce air quality regulations in the city through specific decrees, such as establishing air quality improvement zones. The National Energy Regulatory Commission is involved in issuing licenses in the energy sector, including reviewing tariffs and ensuring fair practices among licensed companies. The exact number of permits or licenses granted is not publicly available.

Recommendation 2.1 of the First EPR of Mongolia suggested that the then Ministry of Environment and Tourism should ensure that legislation and implementing regulations for air pollution and wastewater permitting are complete, and to fulfil its responsibilities for permitting of air pollution from stationary sources. The part of the recommendation addressing air pollution has been largely implemented. The Law on Air covers regulations for air pollution permits from stationary sources, including standards for emissions, pollution fees and air quality management plans, and measures in case of non-compliance.

Ozone Depleting Substances

The import, sale and use of ODS and their substitutes, equipment and products containing them are subject to a permit under the Law on Air. This Law lists the ODS, their substitutes and related equipment. In 2018, the regulation on ODS licensing and quota system was updated and includes a revised format for quota application and for reporting the refrigeration and air-conditioning (RAC) equipment imported, sold and charged with any type of refrigerant. The resolution also requires that servicing of RAC equipment can only be undertaken by certified technicians. ODS import regulations require each shipment to have a separate license under a “one-quota-one-licensing” approach.

The National Ozone Administration (NOA) is responsible for permitting, monitoring, recording and inventorying the import, consumption and use by citizens, companies and organizations that import ODS, their substitutes, equipment and products containing them. The Customs Authority has a responsibility in controlling the import and export of these substances and has received specific training for this purpose. They use the internal Customs Automated Information System, which keeps records of all the imports and exports, and contains a quota programme, which controls the quantity-restricted goods, in this case, ODS. In case of violations of the 2008 Customs Law, sanctions can be imposed, varying from post-rectification, recalling, seizing and destruction. There is an active information exchange with NOA. Production and service entities and citizens are required to submit detailed information on ODS management, including trade. An online system has been developed for permit applications, but it is not yet fully operational.

Photo 2.1: Mountain landscape

Photo credit: Marije Schouwstra.

Water abstraction and wastewater discharge

Granting permits for water abstraction and wastewater discharge involves several key authorities, primarily the Water Services Regulatory Commission and the Ministry of Environment and Climate Change. The Commission, in coordination with the Ministry, sets pollutant standards and monitors compliance. The Commission is responsible for issuing licenses to entities that manage water supply and sewage services, determining tariffs and ensuring compliance with regulations. It plays an important role in setting conditions for licensing and overseeing water service standards. Permits for water abstraction are required for both centralized users, who work with water-supplying organizations, and non-centralized users, who must coordinate with river basin administrations (RBAs) or local governors. Water abstraction from rivers, streams and other water bodies is permitted only through intake pipes, and the diversion of natural watercourses is prohibited. The scale of water use determines the level of oversight: larger-scale permits ($>100 \text{ m}^3$) fall under the Ministry of Environment and Climate Change. In 2022, 212 water users were registered. Quantities of ($50\text{--}100 \text{ m}^3$) are under the jurisdiction of RBAs, while smaller-scale extractions ($<50 \text{ m}^3$) are managed at *aimag* and *soum* levels. Between 2020 and October 2024, RBAs issued 1,032 water abstraction permits. For wastewater discharge, permits specify the types and volumes of treated wastewater allowed, ensuring adherence to environmental standards. Discharging water from an industrial activity requires a permit, and users are required to purify the discharged water to the applicable standard. Larger industrial discharges require coordination with the Ministry of Environment and Climate Change and are subject to stricter monitoring, while smaller discharges are handled by local authorities.

The part of Recommendation 2.1 of the First EPR of Mongolia related to water has been largely implemented. The Law on Water introduced stricter standards and clarified wastewater discharge procedures, aiming to improve wastewater permitting and pollution control. Adjustments in 2019 reinforced pollution fees and specified substances related to water pollution, supporting enforcement applicable sectors.

Waste generation, hazardous waste and disposal

Mongolia currently has between 350 and 400 registered central waste disposal sites. Many of them do not meet the required licensing and environmental standards set out in the 2017 Law on Waste.²⁶ In addition, there are around 400 dumpsites operating without permits, exacerbating environmental problems. The Ministry of Environment and Climate Change is responsible for overseeing waste permits and hazardous waste management. Weak enforcement allows many sites to continue operating illegally. The failure to ensure compliance with environmental standards related to waste hinders efforts towards sustainable waste management.

²⁶ Ministry of Environment and Tourism (2019).

Data on the number of permits for waste management issued are not publicly available.

Fauna and flora

Mongolia is actively working to combat illegal trade in endangered species as a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The Law on Fauna mandates government permits for the trade, hunting and export of endangered species, with enforcement led by the Ministry of Environment and Climate Change, customs and environmental inspectors. Despite these efforts, enforcement is challenging due to the high demand for wildlife products, particularly from China and the Russian Federation.²⁷ Mongolia's second national CITES implementation report recommends better coordination among enforcement agencies, a shared database to track illegal wildlife activities, public awareness campaigns and income alternatives for communities involved in the illegal wildlife trade. Since 2017, with the Ecological Police, the World Wildlife Fund (WWF) and other partners, the Sub-Council for the Prevention of Environmental Crime organizes a joint event called, Let's Protect Nature,²⁸ involving citizens and enterprises in improving public ecological education, preventing environmental crimes and increasing their role in nature conservation. Challenges regarding weak law enforcement, inadequate staffing and insufficient capacity building remain. Limited public awareness and participation stem from inaccessible information on CITES and protected species.

The European Commission Joint Staff Working Document on the GSP+²⁹ evaluation of Mongolia (2020–2022)³⁰ notes that despite having acceded to CITES in 1995, Mongolia's legislation does not fully comply with the requirements of the Convention. The CITES Secretariat issued a formal warning in 2017 and further comments in 2019, urging Mongolia to finalize and adopt its legislation. Mongolia has also delayed its CITES reporting, and, as of April 2023, reports have been submitted for 2015, 2016 and 2018–2020, and illegal trade reports for 2016–2018. An in-depth trade review is still pending. The 2019–2022 report shows progress in the management of 171 hunting areas by community-based organizations, local NGOs and private companies. Mongolia's Action Plan (2020–2024) and Vision 2050 policy aim to protect and restore endangered species. Some NGOs have reported small successes in species conservation during this period.

Forests

Logging is regulated by the Forest Law, which sets strict guidelines for forest use and protection. The Law distinguishes between industrial zone forests and protected forests, with each having different rules. Individuals and companies must obtain permission from the *aimags* or *soums* before harvesting trees, especially for industrial purposes. The number of trees that can be harvested is determined annually. It is forbidden and illegal to cut young trees and rare species such as Siberian fir, spruce and elm without explicit permission. In addition, clear-cutting is strictly prohibited in most forest areas. After trees are harvested for industrial purposes, there is a legal requirement for reforestation. For every tree cut, three to five seedlings must be planted, and the newly reforested area is evaluated after two years to ensure successful regeneration. Logging is generally prohibited in protected areas, such as near rivers, springs and major roads. Special permits are required for any activity in these areas.

Hunting

Mongolia enforces strict hunting regulations under the Law on Fauna, the Law on Animals and the Law on Regulation of International Trade in Endangered Species, aimed at protecting wildlife and especially endangered species. Both citizens and foreign hunters must obtain permits, which specify the species, season, and quotas for hunting. Foreign hunters require advance permits, particularly for species like the *Altai argali*. Some species are completely protected from hunting. Trophy hunting is limited, with permit fees supporting conservation efforts. Recent amendments to the Law on Animals and the Criminal Code have increased penalties for poaching, with fines up to 40 million tugriks or imprisonment for 2 to 8 years. No information was available on the number of permits issued.

Use of underground resources, including groundwater and mineral resources

According to the 17th Extractive Industries Transparency Initiative (EITI) Reconciliation Report 2022,³¹ in 2022, 2,544 effective mineral licenses covered an area of almost 6 million hectares, which is 3.8 per cent of the country's total territory. Furthermore, 67.3 per cent or 1,713 of the total licenses were exploitation licenses, while 32.7 per cent or 831 were exploration licenses.³²

²⁷ CITES (Mongolia).

²⁸ Batchimeg (2019).

²⁹ Generalized Scheme of Preferences Plus.

³⁰ EU-Lex (2023).

³¹ EITI (2024).

³² Mongolia Inc (n.d.).

The Mineral Resources and Petroleum Statistics report 2022/08 reports 1,709 exploitation licenses and 855 exploration licenses. As of September 2024, the Environmental Information Centre reports the granting of 1,881 licenses for use and 1,338 exploration licenses. No updated information was obtained from 2023 and 2024.

Under the Law on Nuclear Energy, 164 licenses for radioactive mineral exploration and mining have been issued to 27 enterprises. The Mineral Resources and Petroleum Authority under the Ministry of Mining and Heavy Industry oversees the licensing process, offering two main types: exploration licenses, valid for three years with possible extensions, and mining licenses, which initially last 30 years and may also be extended. In January 2025, the Government and Orano signed an investment agreement for the development and operation of the Zuuvch Ovoo uranium project, located in the southeastern Dornogovi Province of Mongolia.

Mining operations require an environmental protection plan approved by the Ministry of Environment and Climate Change. In case of non-compliance, their licenses can be suspended. In 2022, Mongolia revised its mineral licensing procedure to a fully digital, prompt and transparent system. For radioactive minerals specifically, companies must obtain additional licensing from the Nuclear Energy Commission (NEC) to comply with strict handling, transport and disposal standards to prevent environmental contamination and unauthorized access, according to the Law on Energy. Companies involved in mining activities must carry out EIAs and comply with strict environmental protection measures.

The Laws on Environmental Protection and on Minerals mandate mining license holders to protect and rehabilitate the environment during exploration and exploitation. Licensees must deposit 50 per cent of their annual environmental protection budget into a special account, refundable upon meeting approved environmental plans. However, Mongolia's mining sector struggles with environmental rehabilitation, for example, the illegal use of mercury and cyanide in artisanal mining has led to soil and water contamination.

Rehabilitation, overseen by the Mineral Resources and Petroleum Authority, includes reforestation, pollution control and ecosystem restoration to prevent land degradation, in line with SDG 15. Companies must monitor rehabilitation through geo-hydrological assessments, and a Mining Rehabilitation Fund, financed by mining companies, supports long-term projects. The Office of Meteorological and Environmental Analysis, reports that 193 sites have been rehabilitated. However, the UN highlighted issues in 2020, noting inadequate site reclamation, fund mismanagement, unauthorized mining activities, and a need for stronger oversight by government agencies. The UN Special Rapporteur on the Situation of Human Rights Defenders³³ in 2020 highlighted problems with mining reclamation laws, including inadequate site reclamation and mismanagement of funds. Some companies engage in mining under the guise of reclamation, and illegal artisanal miners often take over unclaimed sites. The Mineral Resources and Petroleum Authority expressed concerns about expertise in reclamation, misuse of royalties, unauthorized mineral exports, and long-term illegal mining operations, all of which require stronger oversight by relevant government agencies.³⁴

Recommendation 2.4 of the First EPR of Mongolia was that the Ministry of Environment and Tourism should develop procedures for and guidance on alternative land rehabilitation as part of biodiversity offsetting. Recommendation 2.7 of the First EPR of Mongolia was that the then Ministry of Environment and Tourism and the Ministry of Mining and Heavy Industry should ensure the free flow of relevant information to EITI Mongolia, including information on receipts to a special account for mining rehabilitation funds, petroleum licenses, the date of application for mining licenses and the reasons for and conditions on the numerous license transfers. Reporting to the EITI takes place, and there is mutual exchange of information. Data from different sources relating to the same periods give different information. There is insufficient transparency regarding the actual use of the mining rehabilitation funds for the rehabilitation for which they are intended. The NGOs and the Inspectorate confirm this concern. Recommendations 2.4 and 2.7 of the First EPR of Mongolia have been partially implemented.

Recommendation 1.4 (f) of the First EPR of Mongolia suggested the Government develop an action plan on the rehabilitation of abandoned and damaged mining areas. The implementation of this recommendation is ongoing. The Governor of the Bayanzurkh *soum* issued an action plan focused on rehabilitating abandoned and degraded mining areas for the period 2020–2024.³⁵ This plan includes a mandate to rehabilitate 8,000 hectares of land affected by past mining activities. The Ministry responsible for the environment, in coordination with other government agencies, is leading this effort as part of a broader national initiative called Rehabilitation-2024. Since 2020, this initiative has successfully rehabilitated over 12,000 hectares, exceeding the original target by approximately 4,350 hectares. The plan includes both technical and biological rehabilitation strategies, emphasizing responsible land restoration and holding previous operators accountable

³³ United Nations Mongolia (2020).

³⁴ Bold-Erdene (2024).

³⁵ Bayanzurkh *soum* (n.d.).

for their rehabilitation obligations. This commitment is in line with green development goals, which emphasize increased monitoring and accountability for the environmental impacts of mining.³⁶

Environmental permits in protected areas

In special protected areas (SPAs), activities are restricted to scientific research and eco-tourism, while National Parks are divided into zones allowing limited economic activities under strict permitted conditions, such as grazing and infrastructure development. Each type of zone requires permits for activities that could impact the ecosystem. These areas face challenges such as limited resources and inadequate biodiversity data for effective monitoring. Rangers, jointly with the Ecological Police, enforce regulations on the ground.³⁷ The Special Rapporteur on human rights and the environment highlighted the need for legislative revisions for clearer guidelines, more monitoring resources, and enhanced community participation in conservation.³⁸

Fishing permits

The primary law governing fishing is the Law on Animals, which includes provisions that address the protection of wildlife, including fish species, and sets guidelines for sustainable fishing practices. Fishing permits are required for both local and international anglers. For certain species, such as the endangered Siberian taimen (*Hucho taimen*), a taimen permit is required and must be obtained through a licensed outfitter who works closely with the Mongolian government. The cost of the permit is usually around US\$400–500. Fishing permits are generally issued by the Ministry of Environment and Climate Change, which are required for all types of fishing, including recreational and sports fishing and are valid for specific rivers and time periods. Permits are strictly monitored, especially in designated conservation areas. For national parks, permits are easier to obtain from park offices and typically cost around US\$20 for two days or 10 fish, whichever comes first. Additionally, online fishing licensing systems offer fishing permits, making it easier for both locals and tourists to obtain the necessary licenses for legal fishing activities.³⁹ The official fishing season is from 16 June to 1 November. Fishing without a proper permit can result in substantial penalties, including fines, confiscation of equipment and deportation.

Construction licences and building permits

Construction sites or locations require construction licenses, while construction businesses or professional organizations require building permits. The *aimag* or city Governor issues construction licenses. The Ministry of Urban Development, Construction and Housing is responsible for issuing building permits, especially for large construction projects. For smaller projects, permits may be issued by *aimag* and *soum* governments. The Government issues building permits for cross-border infrastructure and strategic structures, and for buildings which are particularly complex. This number is small, with 8 to 9 per year. No information could be obtained on the number of construction licenses or building permits issued.

Radioactive waste

Data on licences or permits on radioactive waste are not publicly available.

Radioactive sources

The 2009 Law on Nuclear Energy outlines the regulatory framework for all activities related to radioactive materials, including their import, export, transportation, storage, use and utilization of radioactive sources. It also regulates the licensing process for entities involved in these activities and outlines safety standards and radiation protection measures to ensure public and environmental safety. The 2022 Safety Regulation for Waste from Nuclear Installation and Radiation Related Activities governs the safe management, storage and disposal of this waste, focusing on protecting workers, the public and the environment from radiation.

There is a difference between the duration of a license to import a radioactive source and its use. Between 100 and 150 radioactive sources are imported into Mongolia each year. Most are used in dental practices. The Nuclear and Radiation Inspection Department of the Ministry of Mining and Heavy Industry is responsible for licensing and registering sources, as well as inspecting users' compliance with licenses. Licenses may be for temporary use of sources or for permanent use, depending on the nature and duration of the activity. The period of validity for the use of a radioactive source is five years. Licenses are granted only after a thorough assessment of the safety measures in place, including radiation shielding, safety protocols and staff training. The number of sealed radioactive sources is approximately 2,000, divided between medical,

³⁶ Anudari (2020). Amrida (2024a). Enkhmaa (2024).

³⁷ UNDP (2023).

³⁸ United Nations Mongolia (2018).

³⁹ Adiyasuren (2016).

mining, security scanners, heavy industry and scientific use. Each source requires a license. The Inspection Department evaluates and approves license applications based on safety criteria and ensures that organizations meet the required standards of radiation protection. As of May 2025, the Inspection Department is currently in the process of reviewing and amending licenses to allow multiple sources to be covered by one license.

Integrated pollution prevention and control

The Laws on Air and Environmental Protection regulate measures to prevent and control emissions from industrial plants, which ensure that industrial activities do not pose risks to public health and the environment due to air pollution or other hazardous emissions. Before operating, an industrial plant must obtain an integrated environmental permit, which is granted based on the evaluation of the findings of an EIA. The permit process includes consideration of emission limits and technical standards, and compliance with both national environmental policies and international agreements. These are also reflected in the Environmental Management Plan (EMP). The country's regulatory efforts align with broader goals of pollution prevention and integrated control, going in the same direction as the Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control) of the European Union (EU).

Business

Business requires compliance with several legal obligations, including necessary permits and licenses. Key steps include e.g., registering the business with the General Authority for State Registration to obtain a Certificate of Incorporation and with the General Department of Social Security to ensure employee contributions. Industries require specific licenses from relevant authorities. In 2020, e-Mongolia, a digital platform, was launched to streamline business interactions with government agencies, and offers more than 600 digitized government services, including various environmental licenses.

2.2 ENVIRONMENTAL IMPACT ASSESSMENT

Legislation and revision

The Law on Environmental Impact Assessment ensures that potential environmental and social impacts are considered in decision-making for new and existing projects such as industrial and construction activities, rehabilitation and activities utilizing natural resources. The EIA process was established by the Law on Environmental Impact Assessment and, in 2023, underwent meaningful revisions to align with international standards, enhancing requirements for addressing environmental and social impacts. This revision is considered an important step forward.

The revised EIA process imposes stricter requirements for assessing the impacts on local communities. These include the evaluation of (cumulative) effects on aspects such as local traditions, income, livelihoods and public perceptions. The revised EIA process now also focuses on social issues, mitigation measures, resettlement and compensation plans, cultural heritage preservation and strengthened formal stakeholder involvement. Moreover, a formal grievance mechanism is expected to be developed and implemented to address concerns raised by affected stakeholders. The updated EMP now includes continuous monitoring of environmental and social impacts, requiring regular reporting on indicators like water quality, biodiversity and social effects. The revised EIA introduced a joint working group of relevant stakeholders to oversee EMP implementation. Since the regulatory revisions, social impact assessments have been incorporated into 71 projects with approved reports.

Recommendation 1.4 (b) of the First EPR of Mongolia suggested revising the permitting process in the mining sector to ensure that outcomes of EIA are meaningfully considered. Part (b) of the recommendation has been implemented. Part (c) called for ensuring meaningful participation of stakeholders in the decision-making process for mining projects. Although the revised EIA process imposes stricter requirements for assessing the impacts on local communities, local communities and NGOs have noted that their involvement would be more effective if it occurs timely and is sufficiently substantive. This recommendation has been partly implemented, however, practical implementation to involve all relevant stakeholders requires the alertness of all parties involved.

EIA process

An EIA process includes a strategic environmental assessment, an environmental baseline assessment, an EIA and a cumulative impact assessment. A cumulative impact assessment focuses on evaluating the combined effects of multiple projects in each area or region, particularly on human health, ecosystems and natural resources. The EIA process starts with the submission of an application by the project proponent to the Ministry of Environment and Climate Change, detailing the scope and nature of the project. The Ministry of Environment and Climate Change then assesses whether

a full or limited EIA is required, considering factors like biodiversity, water resources and fragile ecosystems. The next stage is scoping, which identifies key environmental concerns through collaboration with stakeholders, including local communities to address potential impacts such as air and water pollution, soil erosion and the effects on flora and fauna. This stage also defines the geographical and ecological boundaries for the assessment. The type and size of the proposed activity determine the responsibility of either the Ministry of Environment and Climate Change or the *aimag*.

The law defines two types of EIAs, namely the General EIA (GEIA) and the Detailed EIA (DEIA). To initiate a GEIA, which focuses on screening, the project proponent submits to the Ministry of Environment and Climate Change or *aimag* Governor's Office a brief description of the project, including a feasibility study, technical details, drawings, a basic description of the proposed project environment, a written opinion of the relevant region (*aimag*) and district governor, and other related documents. The issuance of a GEIA is free of charge and usually takes up to 14 working days. If it is decided that a DEIA is required, the scope will be defined in the GEIA. A GEIA can lead to one of four conclusions: (i) no DEIA is required; (ii) the project can proceed under certain conditions; (iii) a DEIA is required; or (iv) the project is rejected due to non-conformity and impacts and is cancelled. A DEIA can only be conducted by an organization, approved and licensed by the Ministry of Environment and Climate Change through a special procedure. If a DEIA is required, the report should be submitted to the Ministry of Environment and Climate Change and must contain the following chapters: (i) environmental baseline data; (ii) analysis of the magnitude and distribution of adverse impacts and their consequences; (iii) recommendations for measures to minimize, mitigate and eliminate impacts; (iv) recommendations for alternative methods and technologies; (v) risk assessment; (vi) environmental management and monitoring plan; and (vii) notes on consultations made with local authorities and the community likely to be affected.

In the process, thorough assessments of various aspects, including air and water quality, ecological impacts, socioeconomic effects and cultural heritage considerations, emphasizing cumulative impacts for large projects like mining and infrastructure, are conducted. Public consultations are held with stakeholders, including local communities and NGOs, to ensure transparency, and feedback is incorporated into the final report. The Law on Environmental Impact Assessment requires project promoters to document consultations with communities that are to be affected. The experts of the Ministry of Environment and Climate Change review DEIA reports within 18 days, with oversight by a Professional Council of specialists who evaluate and assess DEIA reports submitted by licensed entities and provide conclusions and recommendations based on the findings. Once this Council reviews the DEIA, they submit their decision and recommendations to the Ministry of Environment and Climate Change. Based on the Council's recommendations, the Ministry of Environment and Climate Change or the *aimag* government makes the final approval decision for the project.

The revised EIA process imposes stricter requirements for assessing impacts, mandates the inclusion of health considerations in environmental assessments and has been instrumental in promoting the integration of HIAs into cumulative impact assessments. Specifically, the law requires the development of procedures and methodologies for impact assessments that encompass environmental, social and health aspects. The 2023 orders of the Ministry of Health on the new approval of the selection procedure of the HIA and assessment organization (No. A/142) and on the new approval of the HIA methodology (No. A/350) support HIAs. However, the Ministry and other relevant institutions are working on the procedures. The implementation of Recommendation 15.5 (a) on ensuring that environmental and health impact assessments are carried out and their conclusions are respected, and (b) on integrating environmental health aspects into urban planning and development of the First EPR of Mongolia is ongoing.

Role of aimags and soums in the EIA process

Aimags and *soums* participate actively in the EIA process at the local level, assisting with preliminary assessments for smaller projects, such as infrastructure and agriculture. They contribute local environmental, social and economic insights, support consultations and help identify key issues during the scoping phase. Local authorities also facilitate public consultations and communicate community feedback to project proponents and the Ministry of Environment and Climate Change. While the Ministry of Environment and Climate Change makes the final project approval decision, *aimags* and *soums* provide evaluations and recommendations based on local priorities and concerns.

Environmental management plans

After a DEIA, an entity must develop an EMP to ensure sustainable use and the restoration of nature and the environment impacted by the project. The EMP, which includes an environmental protection plan and monitoring programme, ensures that recommendations from the EIA are implemented and adverse impacts are mitigated. Once approved, local environmental inspectors, usually stationed at *aimags* and *soums*, monitor the project's compliance with the EMP, and report violations to the Ministry of Environment and Climate Change. They also handle grievances, working to resolve community complaints promptly.

Alignment revised EIA with safeguard policies of financial institutes

Several new projects are financed by loans from the Asian Development Bank (ADB) or the World Bank. ADB and the World Bank attach mandatory conditions and requirements to the development of projects as set out in the environmental safeguard policies and requirements of the institutions. The revised EIA is now aligned with the World Bank Environmental and Social Framework and the ADB safeguard policy, streamlining the approach for projects funded by these institutions and their requirements for implementation. Requirements under these safeguard policies have now become mandatory under the revised EIA.

Challenges

The EIA process faces challenges due to limited governmental capacity for effective monitoring and risks of corruption in permitting, monitoring and inspection. Recent reforms aim to enhance transparency, public participation and adaptation to the rapid growth in mining and infrastructure. Companies express concerns over inconsistent inspection frequencies and quality, noting that inspections often lack thoroughness and are sometimes influenced by unofficial payments. Additionally, the United Nations Special Rapporteur on the Situation of Human Rights Defenders highlighted that EIA reports are often ‘cut-and-pasted’ from other projects, which can lead to inaccurate assessments.⁴⁰

Recommendation 2.2 of the First EPR of Mongolia recommended clarifying the EIA process, including a review of EIA criteria and procedures. Before the 2023 revision of the Law on Environmental Impact Assessment, licensed organizations were reviewed, resulting in the termination of two agreements due to poor-quality, copy-pasted work, which was publicly announced online (Part (b)). Expert selection occurs through open tenders based on specific criteria (Parts (a) and (c)). National EIA staff has increased from 5 to 9. Each *aimag* has one expert (totalling 21) and 4 experts in Ulaanbaatar, which the Ministry of Environment and Climate Change considers adequate. Updates on pending EIAs, partly accessible to the public, are posted online, and NGOs participate actively via the NGO network (Part (d)). Monthly information sessions for project developers and certified experts are held on invitation (Part (e)). Efforts have been made to implement cumulative impact assessments (Part (f)). As of September 2024, two have been completed. This recommendation was implemented.

Recommendation 2.6 of the First EPR of Mongolia recommended improving data management for more efficient regulatory mechanism. Mongolia has largely implemented this recommendation by digitizing systems, including licensing and EIA data collection (Part (b)). The Environmental Information Centre now offers online a substantial amount of environmental information accessible to the public, though some sections remain restricted or outdated (Part (c)). However, no regular assessments of the completeness and relevance of the data to its purpose, including policy evaluations, have been conducted. Part (a) is partially implemented.

Transboundary EIAs

Several transboundary EIAs have been carried out between Mongolia and its neighbours, the Russian Federation and China. With the Russian Federation, the EIAs focus on the Selenga River Basin, which flows into Lake Baikal. Projects such as the proposed Eg River Hydropower Plant have been assessed to mitigate negative impacts on water quality and the ecosystem. In addition, large-scale mining activities near the border, such as in the Erdenet region, require EIAs to assess potential pollution of shared water systems. For instance, Mongolia and China have conducted transboundary EIAs addressing shared water resources and environmental challenges, including desertification and dust storms. The Agreement on the Protection and Utilization of Transboundary Waters⁴¹ includes joint management of rivers such as the Halaha and Kerulen, with efforts to monitor water quality and manage flood risks.

Recommendation 2.3 of the First EPR of Mongolia referred to improving the EIA process in a transboundary context, including continuing to learn from the international experience and good practices in applying EIA in a transboundary context, including those available in the framework of the Convention on Environmental Impact Assessment in a Transboundary Context.⁴² This recommendation has been implemented through a major update of the legislation. Transboundary is now part of this update, based on experience from other countries.

⁴⁰ United Nations Mongolia (2020).

⁴¹ FAOLEX (Agreement China and Mongolia).

⁴² ECE (Environmental assessment).

2.3 ENVIRONMENTAL STANDARDS

Mongolian authorities use national standards developed through a common standardization process as references for environmental quality standards or emission limits. The Mongolian Agency for Standardization and Metrology (MASM) is responsible for publishing these standards. Reference values used for environmental management and permitting are in principle consistent with international standards, such as those developed by the International Organization for Standardization (ISO) or the European Committee for Standardization (CEN). Multidisciplinary technical councils develop the Mongolian National Standards (MNS). In addition to ISO or CEN guidelines, MNS incorporate national research findings and other international standards, such as those of the World Health Organization (WHO). Each MNS is reviewed every four years to confirm the standard as it is or decide to undertake a full revision, if necessary, based on the latest knowledge. The highest decision-making body of MASM is the National Council, which comprises representatives from ministries, agencies, NGOs and industry. This council approves the national standards, which are developed by various Standardization Technical Committees (STCs). MASM has about 55 STCs that review and accept proposed standards. The Ministry of Environment and Climate Change chairs the technical councils responsible for environmental standards, which may include experts from national authorities, research institutions, NGOs and the private sector. All MNS standards are documented and publicly available on the MASM website, and government resolutions ensure their legal enforceability. Key standards applied in the DEIA and the Initial Environmental Examinations are generally compliant with, or more stringent than, guideline values defined in the Environment, Health and Safety (EHS) Guidelines of the International Finance Corporation (IFC).⁴³

Emission standards and ambient quality standards

Air

Mongolia's official air quality standards are outlined in the National Air Quality Standard, known as MNS 4585:2016. This standard specifies the maximum permissible levels of various air pollutants, including particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃) and carbon monoxide (CO), to protect public health. These standards were last revised in 2016. Air quality is monitored through a network of 45 sites across the country, managed by the National Agency for Meteorology and Environmental Monitoring and the Air Pollution Reduction Department of Ulaanbaatar. These standards are less stringent than the guidelines recommended by WHO. For example, the WHO guideline for PM_{2.5} is 25 µg/m³ for a 24-hour period, which is half of the MNS standard of 50 µg/m³. Similarly, the standard for PM₁₀ is set at 100 µg/m³ over 24 hours, higher than WHO recommendations. Recommendation 15.6 (b) of the First EPR of Mongolia regarding improving national standards on emission of air pollutants was partially implemented and remains valid.

Water and wastewater

In Mongolia, water quality standards for surface water, groundwater and drinking water are regulated by a combination of national laws, standards and international guidelines. The primary national standard for surface water quality is MNS 4586:2024 (Surface Water Quality Standard), which classifies surface water into five classes based on its intended use, each with its own set of allowable limits for various pollutants. Groundwater quality is regulated by MNS 6148:2010, which establishes allowable contaminant concentrations and water characteristics for groundwater intended for different uses. This standard focuses on protecting groundwater from contamination by agricultural runoff, industrial waste and other pollutants. For drinking water quality, MNS 0900:2018 is followed. This standard describes the permissible levels of various contaminants, including microbiological, chemical and physical parameters. MNS 0900:2018 is largely based on and consistent with WHO guidelines. For critical contaminants such as pathogens, heavy metals and chemical contaminants, this standard and the WHO guideline are nearly identical, ensuring that internationally recognized safety levels for drinking water are met. In addition to water quality standards, Mongolia has specific emission limits for pollutants that industries can discharge into surface waters from industrial and municipal sources. These limits are regulated by MNS 4943:2011 (Effluent Discharge Standards for Water).

Environmental standards for pollutants in wastewater discharged into water bodies are set by the 2015 Joint Order No. A/816/218, issued by the Ministry of Environment and Climate Change and the Ministry of Construction, including specific limits on pollutant levels in wastewater. It outlines the acceptable concentration of various pollutants and prohibits the discharge of wastewater containing hazardous substances exceeding these limits. It replaced MNS 6561:2015 Water quality. Effluent water for sewage network. General requirements.

⁴³ World Bank (n.d.).

Noise

Noise pollution is regulated through specific national standards. These standards establish permissible noise levels for various environments. MNS 4585:2016 is the primary standard for environmental noise and sets limits for acceptable noise levels across different land use categories (residential, industrial and public spaces) during both day and night. Additionally, workplace noise in industrial and construction settings, is regulated by the MNS 5002:2000 for occupational safety and health, which replaced MNS 6768:2019 (General requirement for noise exposure measurement, occupational exposure limit and employee's hearing conservation). The national standards for regulating noise, are aligned with international guidelines, particularly the WHO Guidelines for Community Noise (1999) and the ISO standard 1996-1:2016 but adapted to Mongolia's environmental and socioeconomic context. MNS 4585:2016 for ambient noise sets a permissible limit of 60 dB for daytime noise and 45 dB for nighttime noise, with night defined as 10 pm to 6 am according to the Labour Law. A comparison of these standards with the EHS standards shows that the IFC Guidelines are slightly more stringent than the national standard for permissible daytime residential levels. The World Bank Group requires borrowers/clients to apply the relevant levels or measures of the EHS Guidelines. Where host country regulations differ from the EHS Guidelines levels and measures, projects are required to achieve the more stringent level or measure.

Soil

The main national standard for soil quality in Mongolia is MNS 5850:2008, which defines the permissible concentrations of various heavy metals, organic pollutants and other chemical substances in soil. The standard was amended in 2019. The standards are primarily enforced by MASM and aim to monitor and control soil contamination from industrial, agricultural and urban activities. The regulated parameters include heavy metals, organic compounds and pH (acidity-basicity) levels. Mongolia's soil quality standards are generally aligned with global practices for managing soil contamination and with international guidelines such as the WHO Guidelines on Soil Pollution, the ISO standards, in particular ISO 11074:2015 (Soil Quality – Vocabulary), ISO 11074 (Soil Quality) and ISO 15175 (Soil Contamination), and the EU Soil Directive. Mongolia's soil quality standards are generally in line with international guidelines, though they also tend to be more stringent in certain areas, particularly regarding heavy metal contamination.

Product standards

As of May 2025, Mongolia has developed about 6,210 national product standards, of which about 42 per cent are based on international or regional standards. Product standards are developed and administered by MASM under the 2003 Law on Standardization, Technical Regulation and Accreditation of Conformity Assessment. On the regulatory side, the Department of Product and System Conformity within MASM conducts conformity assessments to ensure that products meet the required standards for import, export and domestic use. The standards themselves often incorporate or adapt international standards, particularly those of major trading partners such as the EU, China and the Russian Federation.

Food

The 2012 Food Safety Law is the legal basis for food safety in Mongolia, while several government agencies are responsible for implementing, monitoring and enforcing food safety standards. Other relevant regulations and guidelines include the Law on Hygiene, addressing food hygiene standards and practices, the Law on Medicine and Medical Devices, regulating the safety of animal products, and the Law on Protection of Consumer Rights, which ensures that food labelling and advertising are accurate and truthful. MASM develops and maintains food safety standards under the MNS system. Key food safety standards include MNS 5002:2000 (General requirements for food safety and hygiene), MNS ISO 22000:2018 (Food safety management systems, based on the ISO 22000 standard, including guidelines for implementing a food safety management system throughout the food supply chain), MNS 5023:2001 (Standards for milk and milk products) and MNS 5216:2013 (Standards for Meat and Meat Products). Mongolia's food safety standards are in line with international standards such as the Codex Alimentarius⁴⁴ and its guidelines. Mongolia follows the Codex guidelines for key aspects of food safety such as food additives, pesticide residues and microbiological safety.

Construction materials

In Mongolia, product standards for construction materials are governed by a combination of national regulations, standards and guidelines. Key aspects of construction materials standards are the National Standards (MNS), which provide guidelines and specifications for various construction materials. Some key standards include MNS 1050:2009 (standard for concrete and its components), MNS 4916:2000 (standard for cement quality), MNS 6416:2014 (standard for brick quality) and MNS 4900:2011 (standard for gypsum plasterboard). These standards cover aspects such as material composition,

⁴⁴ FAO/WHO (Codex Alimentarius).

performance requirements, testing methods and quality assurance. The Law on Construction outlines the technical and safety requirements for buildings and construction practices. The code integrates various material standards and ensures that construction projects meet safety and quality standards. Construction materials are often subject to specific quality assurance requirements, ranging from certification by relevant authorities to on-site testing to ensure compliance with Mongolian standards. In addition, construction materials are usually tested by accredited laboratories to verify that they meet the required standards.

Toys

The MNS also provides guidelines for toys and addresses key areas such as safety, materials and manufacturing processes, to ensure that toys sold in Mongolia are free of hazardous chemicals, meet flammability requirements and are physically safe for children to use. Specific toy safety standards include MNS 6147:2010 (Toy Safety Standard), MNS 4926:2015 (Toy Safety Standard to ensure that toys do not pose a hazard to children) and MNS 5988:2017 (Standard related to physical and mechanical properties of toys, including aspects such as small parts that could pose a choking hazard). Mongolian toy safety standards are largely aligned with international standards, particularly the ISO 8124 series, the EN 71 series under the EU Directive 2009/48/EC on the safety of toys, and the EU Directive (2011/65/EU) on the restriction of the use of certain hazardous substances in electrical and electronic equipment, which limits the use of hazardous substances in toys and electronic devices. Furthermore, the MNS 6147:2010 specifies labelling requirements for toys. These requirements are designed to ensure product safety and provide consumers with essential information, such as age recommendations, safety warnings and manufacturer details.

2.4 COMPLIANCE ASSURANCE MECHANISMS

Self-monitoring and reporting by regulated entities, and citizen monitoring

Mongolia has developed national guidelines for industries to conduct environmental self-monitoring and reporting on their environmental impacts based on national environmental laws and sector-specific regulations. The Law on Environmental Protection mandates companies to monitor their environmental impacts, while the Law on Environmental Impact Assessment requires an EMP that includes self-monitoring for compliance. The laws on Water, Air and Hazardous Chemicals require specific monitoring of water use, emissions and hazardous materials, with oversight by the Ministry of Environment and Climate Change. Sector-specific guidelines, especially for mining, energy and manufacturing, outline tailored monitoring and reporting obligations, supported by regulations issued by the Ministry of Environment and Climate Change that detail the methods, frequency and types of environmental data that need to be collected and reported, to ensure standardized and consistent practices across sectors.

Mongolia's environmental complaint-handling system, managed by the Ministry of Environment and Climate Change and related bodies, allows citizens, businesses and organizations to report violations through multiple channels, such as via a toll-free phone number or online. Complaints are recorded in the Ministry of Environment and Climate Change's central database and investigated by environmental inspectors. Feedback is always provided to the complainants. Serious cases can be escalated to other organizations, such as the Ecological Police and the Prosecutor's Office. NGOs also support this process. The effectiveness of the complaint-handling system is limited and hindered by resource constraints, budget issues and the effects of the dismantling of the General Agency for Specialized Inspection (GASI).

Recommendation 2.8 of the First EPR of Mongolia recommended that the Government should design and implement regular compliance promotion activities and ensure self-monitoring by companies and the publication of results. Recommendation 2.8 (a) and (b) of the First EPR of Mongolia were fully implemented. Mongolia has initiatives and resources promoting environmental management and Corporate Social Responsibility (CSR), with the Government and UNDP support. The 2022 Environmental, Social and Governance (ESG) and Sustainability Reporting Guidance for Mongolian Companies helps companies report on sustainability and promotes transparency.⁴⁵ It also supports companies in adopting ESG practices that align with international standards. The Council for Sustainable Development and Social Responsibility assists companies, especially in mining, with CSR practices and self-monitoring.

Environmental audit

Environmental audits are mandated in Mongolia under the Law on Environmental Protection and the Law on Environmental Impact Assessment, regulated and overseen by the Ministry of Environment and Climate Change. The environmental

⁴⁵ UNDP (2022).

audits process was updated in 2019 with the revisions of the laws. Industries listed must conduct third-party environmental audits every two years. Failure to do so may result in penalties or restrictions on operations. Audits are performed by certified environmental auditors, with 35 auditing companies and 164 auditors in Mongolia, of whom 75 per cent and 50 per cent respectively are members of the Environmental Auditors' Association of Mongolia (EAAM),⁴⁶ which upholds ISO/IEC 17024 and ISO/IEC 17064. These professionals conduct a diverse range of audits independently and assess various environmental aspects to verify that operations are in line with EMPs, and that companies are complying with national environmental laws and regional policies. Audit reports are submitted to both companies and the government for review. Challenges include inconsistent audit quality, which is a concern, especially in mining, and weak enforcement, deterring international investors concerned with environmental standards.⁴⁷ Another challenge is the ineffectiveness of mandatory environmental audit due to a lack of understanding and acceptance by the economic entities required to undergo such audits. Training and public awareness efforts on the importance of environmental auditing are necessary.

Recommendation 2.5 of the First EPR of Mongolia recommended that the Ministry of Environment and Tourism should (a) revise legislation on carrying out environmental audits; (b) reach out to companies to promote the value of a well-conducted environmental audit; and (c) coordinate the inspection and review of environmental audits with GASI. Existing legislation has been amended to require industry to carry out audits which fulfil part (a). There is a system of EAAM-certified auditors, most of whom are members of the EAAM, and they work to the relevant ISO standards. However, the quality of audits carried out is regularly of concern, and enforcement is weak. Moreover, relevant ministries are not involved sufficiently. Part (b) is currently being implemented. Since GASI's dismantling in 2023, part (c) is not relevant.

Recommendation 1.4 (g) of the First EPR of Mongolia suggested that the Government ensure systematic data collection and assessment of impacts of the mining sector on the environment. Mongolia has a system for collecting data and assessing the environmental impacts of the mining sector, although there is room for improvement. The Ministry responsible for the environment and the NSO are collaborating on environmental data collection, supported by international initiatives such as those of ADB.⁴⁸ Despite these efforts, challenges remain. Quality and comprehensive reporting, mainly due to limited resources and technical capacity in some areas, is not ensured. While large mining companies generally carry out systematic self-audits, small and medium-sized companies lack the resources for rigorous assessments. Public reporting and accessible data on environmental impacts remain fragmented. This recommendation has been partly implemented.

Inspections

National Committee on Monitoring and Evaluation

The National Committee on Monitoring and Evaluation, which previously operated earlier under GASI, is responsible for monitoring and evaluating the performance of 16 ministries and 22 *aimags*. It is an independent government inspectorate. Its focus is to promote compliance by encouraging organizations to implement and adhere to relevant regulations. It follows the Law on State Inspections and operates in accordance with guidelines that were last updated in 2022 under Resolution 206. The Inspectorate works based on an annual plan, which specifies which agencies will be inspected and with what frequency. An assessment may also be initiated in response to a complaint about an organization or staff member. Organizations can comment on the conclusions of the assessment before the reports are finalized. This should be done in writing with supporting and evidencing documentation. Reports go through the Government Cabinet to the National Evaluation and Monitoring Committee, which consists of 22 officials at the minister level. The Inspectorate has 119 staff, 60 of whom are appointed, and operates independently without external intervention. In urgent situations, the Inspectorate can intervene directly to force organizations to comply. Recommendations and measures to be taken are legally binding. In 2023, 25 inspections were carried out, some of which were initiated by the Prime Minister.

Environmental inspections

Since GASI's dismantling in 2023, environmental inspections are managed by the Ministry of Environment and Climate Change, with a team of 615 inspectors distributed across the head office (15), *aimags*, *soums*, basin administrations and Ulaanbaatar. Inspectors must meet legal training standards, including exams and specialized degrees. The head office coordinates inspections, which follow an annual government-approved plan and are conducted by local authorities based on legal risk criteria. Environmental inspections cover various areas, such as hazardous substances, water use, air and soil pollution, waste management, forest protection and mining-related activities. Inspection of compliance with EMPs is of particular importance. The inspection process is categorized into planned, unplanned and preventive inspections, all

⁴⁶ AMEP (2021).

⁴⁷ AMEP (2021a).

⁴⁸ ADB (2020b).

regulated by law. In 2023, 956 facilities were inspected, and, of 3,750 objects, 2,894 enterprises were assessed for risk, identifying 764 high-risk sites for inspection in 2024. Inspectors use guidelines and 11 sector-specific checklists, recording findings on-site, with the authority to halt activities or fine violators. Company representatives sign off on the results of the inspection. Collaboration exists with the Ecological Police, prosecutors and NGOs, while complaints follow the Law on Resolving Complaints made by Citizens against Civil Servants and State Bodies. However, challenges include limited inter-ministry coordination, decreased joint and integrated inspections, lack of independent authority and budget constraints affecting necessary equipment and resources for, e.g., communication, transport, sampling and analysis. These constraints have impacted inspections at both central and *aimag* levels.

Recommendation 1.5 of the First EPR of Mongolia recommended that the Government ensure the independence of environmental inspectors at the *soum* level. Parts (a) and (b) of this recommendation are not implemented. Environmental inspectors at the *soum* level are still under the administrative authority of *soum* governments and are not directly managed by the Ministry of Environment and Climate Change. They usually report to the *soum* governor, who oversees their duties and activities, particularly in terms of implementing local environmental policies and monitoring compliance. Reports are shared with the Ministry, but not regularly. Part (c) is partly implemented. They are also usually paid from the *soum* budget rather than directly by the Ministry. The dismantling of GASI and the transfer of all inspectorates to line ministries means that subordination to GASI is no longer an option.

Health and sanitary-epidemiological inspections

The Health Inspectorate, part of the Ministry of Health, enforces health and safety regulations with 13 inspectors centrally and 160 at the *aimag* level. Key responsibilities include inspecting food production and distribution facilities to ensure that hygiene standards are met, preventing food-borne diseases and monitoring public and sanitary health issues, particularly infectious diseases. It also monitors water safety, ensuring access to safe drinking water and its quality in rural areas. Following Government Decree No. 159, the Inspectorate develops an annual workplan using a risk-based planning for inspections, categorizing facilities into scheduled, unscheduled and preventive inspections with a guideline and 63 associated checklists. In 2023, 2,869 planned inspections were carried out (see Table 2.1).

Table 2.1: Inspections by the Health Inspectorate, 2022–2023, number

	2022	2023
Planned Inspections	-	2 869
Medical treatment quality inspections	185	-
Food healthy safety inspections	2 858	-
Environmental health inspections	1 053	-
Training facility inspection	108	-
Medical establishment infection prevention inspection	245	-
Inspection based on complaints	-	586
Facilities inspected by order of the management	-	3 096
Total	4 449	6 551

Source: Health Inspectorate.

Since the dismantling of GASI, the Inspectorate faces challenges such as an inefficient organizational structure, inadequate budget allocation, lack of centralized supervision and inadequate training for inspectors working in a highly professional medical environment. Integrated inspection capabilities are also lacking. Social and psychological pressures are also significant challenges for inspectors.

Industrial safety

The Law on Occupational Safety and Health regulates the prevention of industrial accidents. Other laws address aspects of workplace and industrial safety. Industrial facilities must prepare and implement comprehensive safety and accident prevention plans. These plans must be integrated into daily operations, ensuring that risks are managed, and workers are protected. Industrial safety inspections are mainly carried out by the Ministry of Labour and Social Protection for workplace and general industrial safety, while the Ministry of Mining and Heavy Industry and Ministry of Energy manage safety in their respective sectors. Inspections follow a structured legal framework, and authorities conduct both routine and unscheduled inspections to ensure compliance with safety regulations, with enforcement mechanisms in place to address violations.

Construction inspections

The Ministry of Urban Development, Construction and Housing is primarily responsible for inspecting large and complex construction permits, while local authorities handle smaller projects. Currently, there is an inspection department within the Ministry with about 10 inspectors. At the *aimag* level, inspectors report either directly to the governor's office or to the *aimag* Department of Land Management, Construction and Urban Development, depending on the project and site. Local inspection departments in various *aimags* and *soums* work with the Ministry to ensure that construction meets national safety and compliance standards.

Non-compliance response

Administrative and criminal measures

Mongolia enforces environmental protection through a legal framework that includes both administrative and criminal sanctions for non-compliance. Administrative sanctions, such as fines and permit suspensions, are used for violations such as unauthorized emissions, illegal resource extraction and non-compliance with permit conditions. Regulators can issue binding orders to stop activities and require corrective action. Violators are responsible for restoring damaged areas and paying for remediation. Civil actions may be taken to seek compensation for environmental damage. Failure to comply with EIA requirements can result in project suspension, denial of permits or substantial fines. Repeated violations lead to in-depth inspections with a higher frequency. Mongolia's obligations under international agreements further encourage compliance. Criminal measures are reserved for intentional and serious violations, such as unauthorized exploitation of natural resources, illegal activities such as a trade in wildlife, and can result in prosecution, substantial fines or even imprisonment. For example, the Law on Environmental Impact Assessment and the Law on Minerals impose fines for non-compliance, ranging from 3.5 million tugriks to 4.2 million tugriks, and may include the suspension or revocation of licenses. The Law on Water provides for fines of up to 7 million tugriks and revocation of water licenses for non-compliance. Both administrative and criminal measures, also in combination, are used to ensure compliance with environmental laws and accountability for environmental damage.

Table 2.2: Actions to address cases of non-compliance, 2023, number

	<i>Total</i>
Offender pays the fine imposed	1 033
Opened infringement case	399
Dropped case	55
Case transferred to the relevant authority	85
Dismissed case	47
Transferred to the police	66

Source: Environmental Inspectorate.

Environmental crime

The 2023 Global Organized Crime Index (GOCI) highlights environmental crimes in Mongolia, including both flora and fauna crimes.⁴⁹ Flora-related crimes involve illegal logging, driven by local demand for firewood and timber. In addition, the illegal harvesting of pine nuts and illegal mining near forests has caused serious environmental damage. Illegal wildlife trade is a major problem, exacerbated by Mongolia's historical hunting traditions and increased demand from China. Mongolia serves as a transit country for wildlife products. Poaching is common, with marmots, red deer and gazelles being the most targeted species. Illegal hunting often exceeds legal quotas, posing a significant threat to local wildlife populations. The illegal trade in wildlife by-products, such as deer oil and bear oil, is also widespread. Corruption in the form of bribery leads to the improper issuance of hunting licenses, undermining conservation efforts. Illegal artisanal mining, especially for gold, is widespread. These operations often employ Mongolians and involve illegal refining using mercury. Gold is refined in Mongolia and smuggled for sale at market prices. The production and sale of counterfeit fuel are also common problems in Mongolia.

⁴⁹ Global Organized Crime Index (Mongolia).

Ecological Police

Established in 2020 under the National Police Agency, the Ecological Police addresses environmental crimes, which accounted for 1.5 per cent of all crimes in early 2024, an 11.5 per cent increase compared to 2023. The Police includes 132 officers in seven departments and 104 staff stationed in 64 soums across 21 *aimags*. The Police oversees crimes like illegal mining, logging, poaching, pollution and hazardous waste handling. From 2020 to 2023, 5,822 cases were reported, with 91.6 per cent occurring in rural areas and 8.4 per cent in Ulaanbaatar. The recorded environmental crimes included 769 cases of illegal logging, 521 cases of illegal exploration, use and extraction of minerals, 143 cases of animal poaching, 95 cases of plant poaching, 54 cases of toxic and hazardous substances, and 151 cases of environmental pollution. Using satellite imagery and special software, the Police detects illegal activities in remote areas, supported by equipment like a motorboat for difficult terrain. Legal authority is granted under the Law on Infringements and the Criminal Code, allowing immediate intervention, confiscation, fines and court action. For example, four cases of illegal mineral extraction, the confiscation of two excavators, two gold washing machines and one wheel loader, are still under investigation. The Police collaborates with ministries, local and international organizations, including Interpol and CITES-related bodies, and receives training and budget support from the National Police Agency.

Public prosecutors

Significant efforts have been made to combat environmental crime. This is evidenced by the establishment of the Ecological Police and a network of 40 prosecutors specializing in various environmental crimes. These prosecutors are stationed in all 21 *aimags* and in Ulaanbaatar. They work closely with organizations such as the inspectorates of relevant ministries, the Ecological Police, rangers and international organizations such as WWF-Mongolia. On the initiative of the Sub-Council for Environmental Crime Prevention, the Training and Research Institute under the Prosecutor General's Office, organized a training course titled "Crime against the Environment and Prosecutor's Control" in September 2023. The Mongolian Lawyers' Association, academics and faculty members from the National University of Mongolia and the University of Internal Affairs participated in the training.

Sub-Council for the Prevention of Environmental Crime

The Sub-Council for the Prevention of Environmental Crime was established in 2017 and operates under the Ministry of Justice and Internal Affairs. As of September 2024, it comprises 19 law enforcement agencies and organizations across the country and plays a key role in coordinating national crime prevention efforts, organizing regular meetings and training programmes. Members include officials from law enforcement, the Ministry of Justice, the Ecological Police and other environmental and judicial bodies. In February 2024, the Sub-Council reported that the collaborative efforts had led to a 23.2 per cent reduction in wildlife poaching in 2023, attributing this success to improved cooperation between law enforcement and other agencies.⁵⁰ The Sub-Council fosters interagency cooperation, though further efforts are needed to intensify collaboration with stakeholders, enhance swift information exchange and improve the professional knowledge and skills of personnel through training.

Photo 2.2: Mongolian ger



Photo credit: Zbigniew Niewiadomski.

⁵⁰ WWF-Mongolia (2024).

2.5 ENVIRONMENTAL LIABILITY, INSURANCE AND COMPENSATION

The Law on Environmental Protection requires companies operating in sectors with significant environmental impacts to take out environmental liability insurance, aimed at ensuring that companies are financially responsible for any environmental damage they cause. The insurance covers the costs associated with the prevention, mitigation and compensation of environmental damage resulting from their activities. The legal framework follows the polluter pays principle, holding companies responsible for both the damage and clean-up costs associated with pollution or environmental degradation. Companies must demonstrate financial security, either through insurance or other financial guarantees. For industries with higher environmental risks, companies are required to allocate part of their budget as a financial guarantee for environmental protection. Laws such as the Law on Water Pollution Fees further enforce liability by requiring companies responsible for water pollution to pay for damages, which are typically covered by these environmental insurance policies. Another instrument is the Index-Based Livestock Insurance Project (IBLIP),⁵¹ launched in 2006, which provides financial protection to Mongolian herders against livestock losses due to extreme weather events, particularly *dzuds* (see Chapter 15). The insurance system operates on a livestock mortality basis, triggering payouts when regional mortality exceeds a certain threshold. Herders can buy insurance from private companies on a voluntary basis, and policies are reinsured both locally and internationally. Since its inception, IBLIP has been extended to all 21 *aimags* and plays a key role in making herders more resilient to climate-related risks. The project's success has been supported by international organizations.

2.6 VOLUNTARY COMPLIANCE PROMOTION INSTRUMENTS

Environmental management systems

Mongolia does not have a stand-alone law on environmental management systems (EMS). The implementation of an EMS is however mandatory, particularly for companies in the extractive industries. The legal framework supporting implementing an EMS is based on several environmental laws, including the Law on Environmental Protection, the Law on Environmental Impact Assessment and the Laws on Air and Water. These laws require companies to develop environmental risk management strategies and EMPs, and to monitor and mitigate environmental impacts. Compliance with EMS principles is monitored by the Ministry of Environment and Climate Change through inspections, licensing and enforcement mechanisms. Non-compliance can result in fines, project suspensions, or license revocations. Following the dismantling of GASI in 2023, joint inspections have been reduced. While ISO 14001 certification is not mandatory, many companies voluntarily adopt it to meet both national and international environmental standards. International financial institutions (IFIs) typically require EMP development and implementation for projects they finance, ensuring adherence to international environmental standards.

Labelling

Mongolia has a voluntary eco-labelling scheme, supported by the 2012 amendment of the Law on Environmental Protection, which is administered and monitored by the Ministry of Environment and Climate Change. Companies can apply for eco-labels to demonstrate that their products meet specific environmental standards. Key initiatives include the Sustainable Textile Production and Eco-Labelling in Mongolia project (2018–2022), which focuses on sustainable wool and cashmere production, and the Switching on the Green Economy project,⁵² which aims to improve policy frameworks and support small and medium enterprises. National standards such as MNS 6926:2021 for sustainable textile production have been developed, with emphasis on resource management and social responsibility, supported by efforts such as the EU-funded SWITCH-Asia STePEcoLab project.⁵³ Mongolia adheres to international standards such as ISO 14020 for environmental claims and is a member of the Global Eco-Labelling Network. Despite these efforts, eco-labelling is not yet widespread, and consumer awareness remains low. However, as of May 2025, criteria are not reinforced, and labelling is applied to textiles and not extended to other sectors.

Corporate social responsibility, voluntary environmental reporting by companies and SDG target 12.6

CSR plays an increasingly important role in Mongolia, with government policies promoting ESG reporting and sustainable business practices. In 2022, the Government introduced the ESG and Sustainability Reporting Guidance,⁵⁴ developed with UNDP and the Financial Regulatory Commission to align Mongolian companies with international standards. The National

⁵¹ World Bank (2009).

⁵² EU Delegation to Mongolia (2020).

⁵³ SWITCH-Asia (n.d.).

⁵⁴ UNDP (2022).

Action Plan on Business and Human Rights for 2023–2027 supports responsible business practices aligned with the SDGs. Companies are increasingly aligning their CSR initiatives with ESG principles.

The MCS Group⁵⁵ is a leading example, actively involved in funding healthcare and cultural preservation projects, such as the renovation of the Emergency Department at the Bayankhongor Province General Hospital. They also support child welfare initiatives through organizations such as the Mongolian Red Cross Society and Lantuun Dohio. In addition, MCS has made significant contributions to the arts and sports sectors. Lhamour,⁵⁶ Mongolia's first organic skincare brand, implements a zero-waste policy and uses recycled materials, demonstrating its CSR commitment. The company has received international recognition for its sustainability efforts, including the Most Responsible SME in Asia award. Major companies exemplify CSR with initiatives in healthcare, cultural preservation and zero-waste policies, though broader CSR reporting remains limited due to challenges like lack of expertise, data and financial resources dedicated to ESG initiatives. A survey of 42 companies listed on the Mongolian Stock Exchange showed interest in ESG reporting, contingent on capacity-building support. The survey also found that companies are willing to engage in sustainability reporting and believe that relevant information can be collected and disclosed if they receive the appropriate guidance and capacity building support.

In 2022, the Financial Regulatory Commission introduced a “comply or explain” regulation for voluntary ESG disclosures, requiring listed companies to report on key ESG indicators or provide explanations. By 2023, Mongolia implemented additional sustainable policies, including the Corporate Governance Code and Green and Finance Taxonomies, supported by the ESG and Sustainability Reporting Guidance.⁵⁷

National Human Rights Commission of Mongolia and Compliance Advisor Ombudsman

The National Human Rights Commission of Mongolia (NHRCM)⁵⁸ was established in 2001. It is an independent body responsible for the promotion and protection of human rights, including environmental rights, throughout Mongolia and functions similarly to a National Ombudsman. An annual status report has been published by NHRCM since 2002, covering various topics, including those related to environmental issues affecting NGOs and Human Right Defenders. The report is sent to the Parliament with legally binding recommendations. With a team of 80 officials, it handles approximately 100 environmental complaints per year, showing an increasing trend from 2017–2024, often related to industrial projects such as mining. Under Mongolian law, situations must be investigated within 30 days, extendable to a maximum of 60 days.

NHRCM provides advisory input on the adaptation or renewal of laws and policies through recommendations, which can be made either on request or proactively. NHRCM conducts investigations, makes recommendations to the Parliament and works with NGOs through civil society councils. NHRCM advocates for the inclusion of social impact assessments in EIAs, particularly in the ongoing EIA revision process, though it currently lacks a dedicated environmental issues unit.

The Compliance Advisor Ombudsman is part of the World Bank Group and handles social and environmental complaints related to projects funded by IFIs. The Ombudsman works to ensure compliance with environmental and social standards and manages stakeholder engagement to resolve community concerns. While both NHRCM and the Ombudsman address environmental issues their mandates differ: NHRCM has a broader human rights mandate, while the Ombudsman focuses on compliance issues related to specific bank-financed projects. There is no formal cooperation between the two, although enhance coordination could prove beneficial in areas of shared concern, such as information sharing and policy advocacy.

2.7 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

The environmental legal framework contains comprehensive provisions and mechanisms for monitoring, enforcing and ensuring compliance. This framework, which is anchored in the Law on Environmental Protection, regulates natural resources and promotes sustainable use, defining the roles of the state, citizens and enterprises. Key laws include the 1998 Law on Environmental Impact Assessment, the 1994 Law on Special Protected Areas, 2006 Law on Toxic and Hazardous Chemicals, 2009 Law on Nuclear Energy and the 2012 Laws on Water and Forests.

Reflecting the country's reliance on mining, the 2006 Law on Minerals mandates EIAs and rehabilitation standards. The Law requires that minerals exploration and mining license holders to “work in cooperation with the local administrative bodies

⁵⁵ Business Council of Mongolia (Our Proud Member Organisations).

⁵⁶ Lhamour.

⁵⁷ UNDP (2022). Green Finance Platform (Aligning Finance Policies).

⁵⁸ National Human Rights Commission of Mongolia.

and establish agreements on issues of environmental protection, mine exploitation and infrastructure development in relation to mine development and job creation". Mongolia has established Local Level Agreements (LLAs) between mining companies and local authorities to promote cooperation, community support and benefits from mining projects. For example, the Oyu Tolgoi project⁵⁹ demonstrates a comprehensive agreement with provincial and district authorities to address community concerns. However, despite progress, not all contracts are publicly available and consistent consultation with communities remains a challenge. Voluntary disclosure is encouraged, but greater transparency is needed in the sector. In 2017, the Natural Resource Governance Institute (NRGI) assessed Mongolia's experience with LLAs to date, identifying gaps and opportunities and providing policy recommendations to improve existing regulations and their implementation.⁶⁰

Artisanal and small-scale mining (ASM) is regulated primarily through the Law on Minerals and the 2017 Government Resolution No. 151. The Law outlines the licensing process, safety requirements and environmental responsibilities for ASM, while the Government Resolution introduces a registration system for artisanal miners, specifies license criteria and designates working zones for ASM. Local governments play a key role in setting boundaries for ASM areas, enforcing land rehabilitation and ensuring compliance with environmental standards, especially near ecologically sensitive regions. Environmental protection laws mandate that ASM activities adhere to standards for land rehabilitation, waste management and water use, with specific measures to prevent degradation. The ASM framework is also designed to provide economic and social benefits for local communities, supporting ASM as a livelihood through partnerships with NGOs and international bodies, which offer capacity building, financial support and fair-trade opportunities. This legal structure integrates ASM into the formal economy while prioritizing sustainable mining practices, community welfare and environmental protection. Recommendation 1.4 (d) of the First EPR of Mongolia called for a revision of the legal framework for artisanal and small-scale mining. This recommendation has been implemented.

Recommendation 1.4 (a) of the First EPR of Mongolia called for improving the mechanism of agreements between mining companies and local authorities and increasing its transparency. Steps have been taken, but some challenges remain. The implementation is ongoing. NRGI recommendations provide the basis for implementation. They include: (a) Prioritize mining projects and reduce the number of resource projects required to establish LLAs, (b) Incentivize the establishment of LLAs; (c) Clarify enforcement of the model agreement; (d) Develop and implement capacity-building programmes; and (e) Support local civil society organizations to monitor implementation of LLAs.

Additional laws regulate hunting, food safety throughout the supply chain, and environmental crime penalties under the 2015 Criminal Code. A key law governing licenses and permits is the Law on Permits, which was updated in 2022 and enacted on 1 January 2023. This law consolidates and streamlines the process for obtaining business permits and classifies them based on the risk the activity poses to public health, national security and environmental stability. Compliance is enforced through inspections, permits and company reporting. Public participation is integrated through consultations in the EIA process.

Mongolia upholds international standards as a signatory to various conventions, which are incorporated into national legislation to maintain global environmental standards.

Institutional framework

Inspectorates

In 2002, GASI was established to centralize inspections in the areas of health, environment, food safety and industrial safety. In 2023, GASI was dismantled as part of reforms under the New Recovery Policy aimed at reducing bureaucracy, improving efficiency, increasing transparency and accountability, and digitizing services through the e-Mongolia platform. Following this dismantling, inspection services were integrated into line ministries, with each ministry overseeing its own inspection service. As part of this reform, approximately 800 inspectors were transferred to line ministries, while other positions were eliminated.⁶¹ This restructuring has raised concerns among the current inspectorates about the efficiency and effectiveness of their working practices and operations. In particular, the concerns raised relate to the lack of adequate human and financial resources, insufficient expertise and fragmented working methods, which have severely hampered their operations. Representatives of the various inspectorates expressed widespread dissatisfaction with the new structure. They report that inspections have become less efficient, that cooperation and coordination between ministries and institutions have weakened and that information exchange is lacking. They also noted that inspector independence

⁵⁹ Mining Technology (2019).

⁶⁰ Byambajav D. (2017).

⁶¹ Amar (2022), Ankhtuya (2022).

has been compromised. Moreover, businesses report being overburdened by frequent and uncoordinated inspections from different ministries, resulting in widespread complaints and frustration. Inspectorates themselves acknowledge the negative impact of the current siloed approach. The departure of many experienced inspectors has led to a significant loss of experience, expertise and institutional memory within the inspectorates.

Ministry of Environment and Climate Change

The Ministry of Environment and Climate Change is the central government body responsible for environmental protection, the sustainable use of natural resources and the implementation of climate change policies. Its key functions include formulating environmental laws, policies and regulations, overseeing EIAs, and managing SPAs. The Ministry also leads efforts to combat climate change, manage air and water quality, conserve biodiversity and promote sustainable development. Its mission is to ensure a balance between economic development and environmental sustainability, while addressing the impacts of climate change and supporting commitments to international environmental agreements. About 900 rangers play an important role in protecting and managing the country's vast national parks, protected areas and nature reserves (see Box 2.1).

In 2022, the then Ministry of Environment and Tourism established hotline 117, which allows citizens to obtain information on environmental matters and report environmental violations. Violations can also be reported through the business number 51-261966. However, while all requests are reviewed, often no direct action is taken based on these reports.

Box 2.1: Rangers

Operating under the Ministry of Environment and Climate Change, rangers are responsible for safeguarding over 32 million hectares of protected land by patrolling these areas, monitoring wildlife and preventing illegal activities such as poaching, illegal logging and mining. Rangers also engage in ecosystem management, habitat restoration and educational outreach to local communities and tourists. Each ranger is assigned to specific protected areas or national parks.

Rangers also have law enforcement responsibilities, including detaining individuals involved in illegal activities, issuing fines and confiscating equipment. They collaborate with both national and local authorities and the Ecological Police for larger operations. However, due to the sheer size of the area, rangers often face challenges such as limited resources, insufficient funding for necessary equipment, and the constant threats of poaching and illegal mining, which complicate their work. A major obstacle to their work is the limited availability of transport. One ranger must monitor about 30,000 hectares. Rangers receive 30 litres of fuel per month and often must replenish it from their own resources to be able to continue exercising their duties. They also use their private telephones for communication, the costs of which are not reimbursed. Salaries are about US\$300 per month, and it is considered undesirable to incur personal work-related expenses. As of September 2024, this concern is not addressed by relevant authorities.

National Committee for Monitoring and Evaluation

The National Committee for Monitoring and Evaluation provides support for the development of proposals for improving the legislation and legal environment related to the supervision of the activities of ministries and government agencies at all levels; ensures the coordination of the supervisory activities; approves the unified plan for planned supervision and monitors its implementation; and ensures the participation of the public, civil society organizations, the private sector and citizens in the development of supervision and evaluation activities. The Committee liaises with international assessment organizations, considers their findings and recommendations, and implements them, if appropriate.⁶²

National Ozone Administration

NOA coordinates ozone protection efforts, setting annual import limits for ODS and other substitutes and equipment containing these substances as per the Law on Air, and ensures and verifies safe destruction of obsolete equipment. NOA monitors and records ODS import, use and disposal. Collaborating with the United Nations Environment Programme (UNEP) Ozone Action, UNDP, the Customs Department and local industry associations, NOA raises awareness and trains relevant stakeholders, with 110 officials and 192 refrigeration and air-conditioning technicians trained on safe practices. It also hosts events, like a 2019 industry roundtable with 150 representatives from industry, research institutes, education and training centres and government agencies. In addition, NOA updates stakeholders on sector advancements and reports to international bodies (see Chapter 7).

Nuclear Energy Commission and Nuclear Energy Agency

NEC and the Nuclear Energy Agency (NEA) have distinct but complementary roles in the management of nuclear energy. NEC is responsible for overseeing the strategic direction of Mongolia's nuclear policy. Its main tasks include coordinating

⁶² National Committee for Monitoring and Evaluation (2025).

international cooperation, ensuring nuclear and radiation safety, and regulating the exploitation of radioactive minerals. It also monitors compliance with international treaties. NEA serves as the executive arm of NEC, tasked with the practical implementation of nuclear policy. NEA's responsibilities include issuing licenses for the exploration and use of radioactive materials, ensuring the safety of nuclear facilities and administering radiation protection standards. NEA is also responsible for inspections, enforcing compliance, managing the storage and disposal of nuclear waste and preparing for nuclear or radiological emergencies. Together, NEC and NEA ensure the safe and peaceful use of nuclear energy in accordance with national and international regulations. NEA also plays a key role in developing national policies for nuclear research and technology, as well as coordinating uranium mining and applying the International Atomic Energy Agency (IAEA) Basic Safety Standards.

Nuclear and Radiation Inspection Division

Following GASI's dismantling in 2023, the Nuclear and Radiation Inspection Division was moved first to the Ministry of Education and Science, then to the Ministry of Mining and Heavy Industry. Based in Ulaanbaatar with six posts in *aimags* (as of May 2025, 4 are vacant), the division issues and monitors licenses for radioactive sources, inspecting around 200 facilities annually based on applying risk criteria under Government Decree No. 195/2023. The criteria used include the compliance behaviour of the user of the source, their classification, the age of the source and whether the source is transported. High-risk facilities are inspected yearly, while low-risk ones every five years. Non-compliance may result in corrective actions, fines, or criminal charges. Inspectors are required to hold at least a bachelor's degree and receive specialized training at IAEA. The division faces challenges, including organizational dissatisfaction, slow communication within the Ministry, insufficient classified information regulations, limited budgets for equipment upgrades and loss of independent oversight. Companies report being burdened by multiple inspections from various organizations, and the division emphasizes the need for enhanced training and promotion of a safety culture among users of nuclear technology, as well as the consistent application of international Basic Safety Standards.

Ministry of Mining and Heavy Industry

The mission of the Ministry of Mining and Heavy Industry is to develop a transparent and accountable mining and heavy industry. To this end, the Ministry organizes and develops sectoral policies and a regulatory environment, initiates geological research, accelerates the process of exploration and increases the treasury of mineral resources. The Ministry contributes to improving the country's economic capacity and efficiency through this sector policy for all types of mining, processing, sales and export issues. Attracting domestic and foreign investment is also a priority in this framework.

The Mining Inspectorate was part of GASI until 2023. It is now part of the Ministry of Mining and Heavy Industries. It employs 7 inspectors at its headquarters in Ulaanbaatar and 14 inspectors in the *aimags*. With the closure of GASI, several experts have left the organization, resulting in a severe loss of knowledge and experience. On average, 60 mines are currently inspected per year.

During the period in which GASI was operating, 1,500 inspections were carried out annually. The closure of GASI has had an impact. Integrated inspections with other organizations are scarcely carried out and the quality of the work has deteriorated considerably. This has an impact on the preventive effect of inspections. The Government has approved an inspection programme for 75 facilities for 2025. The frequency of inspections is determined based on a regulatory risk approach. Guidelines are used that mainly focus on the operating rules and technical conditions contained in licenses. Inspections are also carried out on the implementation of rehabilitation when a mine or a part of it is closed. The basis for this is the EMP which contains a rehabilitation plan. At *aimag* level, a committee reviews the implementation of the rehabilitation plan. If 90 per cent of the conditions are met, activities can continue.

Ministry of Food, Agriculture and Light Industry

The Ministry of Food, Agriculture and Light Industry is responsible for the formulation and implementation of state policies in the agricultural, food production and light industry sectors. The Ministry's primary objectives are to guarantee food security, enhance agricultural productivity, facilitate rural development and encourage sustainable resource utilization. The Ministry oversees a wide range of areas, including livestock breeding, crop production, food safety and the development of small- and medium-sized industries. The Inspectorate of this Ministry is responsible for monitoring compliance with the relevant laws and regulations.

Sub-Council for the Prevention of Environmental Crime

A Sub-Council for the Prevention of Environmental Crime in Mongolia was established to strengthen combating environmental crime. It is a central platform for cooperation between various ministries, inspectorates, Environmental Police, public prosecutors and other stakeholders. Its mandate includes preventing, investigating and combating environmental crimes by coordinating joint operations, sharing information and ensuring effective enforcement of environmental laws. The Sub-Council is also responsible for developing national policies, improving legal frameworks and ensuring that international environmental obligations are met. In addition, the Sub-Council provides capacity-building programmes for law enforcement officers and government officials on detecting and addressing environmental crimes. Cooperation with NGOs and CSOs and public participation in monitoring and reporting environmental crimes is promoted. Collecting and analysing data on crime trends and raising public awareness of environmental crime prevention are also activities covered by the Sub-Council.

NGOs

NGOs in Mongolia operate under the 1997 Law on Non-governmental Organizations, which mandates registration and reporting. While amendments are under discussion, concerns exist among CSOs about restrictions that may impact operational space, especially for those addressing sensitive issues like corruption, government accountability and environmental advocacy. Environmental NGOs face political pressure and harassment, particularly when opposing large mining projects, due to conflicts with government and business interests. A 2023 European Commission report highlights concerns over a 2021 proposal to prohibit foreign grants for CSOs and declining domestic funding.⁶³ The EC warns that draft laws on Associations and Foundations submitted to Parliament in November 2021 could impose limitations on the civic space and independent NGO operations. The EC recommends revising the draft Laws on Associations and Foundations, publicly referred to as the draft NGO Laws, to align with international standards, ensuring they do not restrict civic space, and calls for the enforcement of the law on human rights defenders to ensure protection of their rights and promote their work.

Government Centre 11-11

In 2013, the Government established a call centre that responds to complaints and feedback from citizens. However, it was unable to act on these complaints and improve government services. In 2022, the Centre was reorganized to increase public relations and accountability. The Centre for Citizen and Public Relations was transferred to the Office of the Prime Minister. In accordance with the Law on Resolving Complaints made by Citizens against Civil Servants and State Bodies, the Centre transfers proposals, requests, petitions and complaints addressed to the Customs Department and officials of the Government, *aimags* and the Government of the Capital for resolution. However, for environmental matters, the cases are not adequately resolved.

International cooperation on compliance and enforcement

Mongolia works with several international organizations that support the country in improving the regulatory framework, enforcing environmental laws and combating environmental crime. Cooperation with UNEP supports the alignment of national legislation with international environmental agreements and commitments. The United Nations Office on Drugs and Crime is a partner in the fight against transboundary environmental crime, such as illegal wildlife trade. There is close cooperation with GCF and the Global Environment Facility (GEF) in projects that promote compliance. The World Bank and ADB are funding projects to improve environmental governance and enforcement. Cooperation with Interpol and the World Customs Organization focuses on combating international environmental crime. Close cooperation with IAEA exists because of Mongolia's commitments to regulations on radioactive and nuclear substances.

2.8 ASSESSMENT AND RECOMMENDATIONS

Assessment

Positive developments include stricter EIA requirements and advanced digitization of processes such as permitting and licensing. A digital platform such as e-Mongolia, which streamlines regulatory processes, enhances public participation and improves access to government services, represents a significant step forward. These advances simplify access to permits and licenses across key sectors such as water management, air quality and waste, signalling Mongolia's commitment to

⁶³ EU-Lex (2023).

integrating social and environmental considerations into decision-making. Reliable data are essential to develop effective plans for addressing undesirable and often illegal activities.

In 2023, the dismantling of the GASI fragmented inspection services across line ministries, reducing efficiency and effectiveness. Since then, enhanced coordination, improved resources for local inspectors, and a more integrated approach to inspections have been lacking, undermining enforcement effectiveness. There is no longer a central integrated inspection database. Inspectorates believe that this restructuring was carried out without sufficient planning or consideration of its impact on policy implementation and compliance with legal obligations. This rapid reorganization may have compromised the independence of inspectorates. They are now embedded within complex hierarchical ministerial structures, and their ability to fulfil their responsibilities effectively has been hampered. The reorganization has led to significant staff turnover and loss of expertise, while eliminating key integrated inspections, resulting in inefficiencies and limited information sharing. In addition, the quality of inspections is now under pressure. Budgetary constraints, limited training and resources and declining facilities such as communications, technical inspection equipment, transport and access to laboratory facilities, have all had all negatively affected inspection work. Pressure on businesses has also increased due to the fragmented nature of supervision, shifting some of the burden onto them, which is viewed negatively by the business community.

Mongolia has made progress in implementing CSR and ESG standards, with government guidelines promoting sustainable business practices and reporting. An increasing number of companies are adopting sustainable practices, although broader CSR adoption faces challenges, including limited expertise and resources. Capacity-building initiatives and increased consumer awareness, such as eco-labelling schemes, could further accelerate CSR and ESG development in the private sector. NHRCM plays an important role in the protection of human rights in Mongolia, including the right to live in a healthy and safe environment. In this context, NHRCM handles complaints from citizens and businesses in accordance with established procedures, thereby fulfilling the role and function of a national ombudsman. In Mongolia, the Compliance Advisor Ombudsman works on behalf of international financial institutions, handling social and environmental complaints from citizens and other local stakeholders, and representing their interests in relation to large projects financed by these institutions. However, there is insufficient cooperation or exchange of information between the two organizations, which does not adequately support the protection of environmental and human rights, especially in projects impacting local communities.

Illegal hunting, fishing and logging, as well as illegal trade in endangered species, continue to place pressure on Mongolia's flora and fauna. As of May 2025, several sources, including the CITES Secretariat and the EU in its GSP+ evaluation of Mongolia, indicate that legislation on flora and fauna does not yet fully comply with international regulations. There is a potential for improvement, especially as the protection and recovery of endangered species are key objectives under the Vision 2050 strategy. However, despite this starting point and the efforts of the stakeholders such as inspectorates, rangers and the Ecological Police, there remains scope to strengthen the enabling conditions for non-compliance response actors to carry out their work more effectively. Improving legislation and aligning it with international standards, and achieving better working conditions for enforcement officers, will help to prevent illegal activities and exports.

Mine rehabilitation following exploration remains an ongoing concern, particularly whether such activities are carried out in accordance with the plans and conditions attached to the licenses granted. This relates to the process of rehabilitation, aimed at restoring the ecosystem to its original state, including the natural habitat of local communities. Concerns persist regarding whether the funds to be set aside under the license and deposited in the Mining Rehabilitation Fund are used properly and transparently. International stakeholders have also raised these concerns. There have been calls for stricter monitoring and greater transparency in the management and use of rehabilitation funds.

To support sustainable development and maintain transparency, it is also essential that NGOs and CSOs continue to play active roles in monitoring and public engagement. Legislative reforms should avoid limiting their influence, as their participation in environmental governance is crucial for accountability. Strong partnerships between NGOs, CSOs and regulatory bodies would strengthen environmental advocacy and foster community involvement in decision-making processes. These measures underscore Mongolia's commitment to balancing economic development with environmental protection. Additionally, environmental violations can be reported through Centre 11-11 and the environmental hotline 117, although reports often do not lead to direct action.

Recommendations

Inspection organizations

Recommendation 2.1:

The Government, through the National Committee for Monitoring and Evaluation, should:

- (a) Consider consolidating inspectorates into a single platform to reduce administrative burden, enhance efficiency and ensure impartiality in the inspection process;
- (b) Monitor effectiveness of the new inspection model;
- (c) Prepare a plan outlining the desired structure of the inspectorates, including minimum staffing and budget requirements;
- (d) Establish a system of information and data exchange between the different inspectorates and develop a central inspection database containing both permits and inspection results.

National Human Rights Commission of Mongolia and Compliance Advisor Ombudsman

Recommendation 2.2:

The Government should encourage the National Human Rights Commission of Mongolia and the Compliance Advisor Ombudsman to:

- (a) Enhance collaboration with each other and set out clear guidelines for working together and common objectives;
- (b) Establish a transparent, coordinated and structured referral system to effectively direct cases according to each organization's mandate and to track and manage complaints;
- (c) Conduct joint awareness campaigns to inform citizens and stakeholders about complaints procedures and available support;
- (d) Hold annual meetings to assess progress, identify challenges and refine cooperation strategies based on feedback.

Facilitating a rapid grievance mechanism

Recommendation 2.3:

The Government should improve online access for submitting complaints on environmental matters and upgrade the Government Centre "11-11" and the environmental hotline 117 to better respond to complaints and feedback from citizens, including enabling direct action based on these reports.

Biodiversity conservation and protection of endangered species

Recommendation 2.4:

The Government should:

- (a) Improve working conditions and resources for enforcement officers, to enhance their capacity to monitor and combat illegal wildlife crimes;
- (b) Raise awareness of biodiversity conservation particularly among rural communities to reduce demand for illegal wildlife products and protect endangered species;
- (c) Improve inter-agency collaboration and data sharing among environmental enforcement bodies;
- (d) Implement more rigorous controls and monitoring of flora and fauna exports to prevent illegal trade and align these practices with national and international conservation standards and guidelines.

Land rehabilitation after mining operations

Recommendation 2.5:

The Government should:

- (a) Increase transparency and accountability in the management of the Mining Rehabilitation Fund through regular audits and public reporting of findings;*
- (b) Establish stricter monitoring of mining companies to ensure that they meet their rehabilitation obligations and involve certified environmental experts in all rehabilitation projects;*
- (c) Conduct regular, mandatory and independent environmental audits of rehabilitation operations by qualified external bodies and make the reports public.*

Auditing process

Recommendation 2.6:

The Ministry of Environment and Climate Change should conduct training and public awareness campaigns on the importance of environmental audits.

National air quality standards

Recommendation 2.7:

The Government should:

- (a) Align national air quality standards with interim target 2 of the 2021 World Health Organization (WHO) global air quality guidelines;*
- (b) Subsequently align with interim target 3 of the 2021 WHO global air quality guidelines.*

CHAPTER 3

GREEN DEVELOPMENT

3.1 GREENING THE TAX AND TARIFF SYSTEM

Environmental charges

Air pollution

The 2010 Law on Air Pollution Fees regulates the payment of fees on air polluters and sets out several types of polluters and fees. The 2019 amendment requires all fees to be collected in the Environment and Climate Fund (previously the Anti-Air Pollution Fund, see Chapter 9) to provide greater targeting of the funds, instead of the state general budget. The 2023 amendment also doubled the fees for carbon dioxide (CO₂) emissions from motor vehicles. The 2024 amendments specify the fee amount, its percentage, and the decision-making authority of the *aimag* and capital city Citizens Representatives *Khural* or City Council, in accordance with the Law on the Legal Status of Cities and Villages. The new fees came into effect on 1 January 2024. The air pollution tax for owners of motor vehicles distinguishes between gasoline, i.e. petrol and diesel engine vehicles. The tax for vehicles running on petrol engines depends on their CO₂ emissions (g/km), whereas engine capacity (cm³) is the tax base for diesel engine vehicles. Additionally, vehicles that emit 120 g/km or less of CO are exempt from the fee, whereas vehicles falling under the A and B categories, which emit 250 g/km of CO, are exempted for the first four years from the date of manufacture. Doubling the fees for CO₂ emissions from motor vehicles, signals a commitment to disincentivizing the use of old and high-emitting vehicles.

The mining and quarrying sector contributes the most to the total environmental taxes collected on air pollution. In the period 2017–2023, the total amount of taxes collected on air pollution reached about 383 billion tugriks. At the same time, to ensure energy security and protect the country's interests, there is a tax exemption for business entities and organizations that extract coal for energy generation (power generation is State-owned and highly subsidized).⁶⁴ The price of coal that power plants have to pay is regulated by the Department of Minerals and Oils and varies according to the type and quality of coal. In 2024, this price averaged US\$125 per ton.⁶⁵

Mongolia exported 36 million tons of coal in 2022 and 70 million tons of coal worth US\$8.9 billion in 2023.⁶⁶ This drastic increase reflects international developments in coal markets, especially with Mongolia's main trading partner, China, which temporarily scrapped its import coal tariff in early 2022 as a response to the global energy market tumult. Although China reinstated this import tariff in January 2024, it did so on a "most-favoured-nation" rate of 6 per cent for coal used in electricity and heating and a 3 per cent tariff on coking coal used in steel manufacturing, among others.⁶⁷ Looking at coal exports by border crossings, the Gashuunsukhait and Shiveekhuren border points with China in Umnugobi *aimag* account for more than 90 per cent of all coal exports.⁶⁸

According to a 2024 World Bank report,⁶⁹ the substantial resources allocated to mining have crowded out investments in non-mining sectors, impeding the creation of high-quality jobs and heightening vulnerability to external shocks. Currently, coal-related revenue contributes about a sixth of total fiscal revenues. As more countries adopt coal transition plans to move toward a low-carbon economy, Mongolia faces declining demand for coal from China. However, Mongolia does not have a plan to gradually transition away from coal, arguing that this transition must be just and logically sequenced to ensure energy security. This report suggests undertaking subsidy reforms, especially in the energy and agriculture sector.

The majority of air pollution tax collected has not been spent on air pollution reduction. First, the Law on Air Pollution Fees does not specify that the tax collected must be spent solely on air pollution reduction or prevention.⁷⁰ A total of 456.1 billion tugriks was spent from 2017 to 2020 to reduce air and environmental pollution. Of this, 287.2 billion tugriks was allocated from the state and capital budgets, while 168.9 billion tugriks was provided by foreign loans and aid from ADB, the World Bank and China. However, there is a lack of implementation of measures to reduce air pollution (see

⁶⁴ UNDP (2024).

⁶⁵ Mineral Resources and Petroleum Authority (2024), Enkhtsolmon (2024).

⁶⁶ Mining Insight Magazine (2024), Khaliun (2024).

⁶⁷ Howe (2024). Shaw (2024).

⁶⁸ Khaliun (2024).

⁶⁹ World Bank (2024).

⁷⁰ UNDP (2018).

Chapter 9). The National Committee on the Reduction of Environmental Pollution concluded that 67.8 per cent of the measures planned to be implemented by the end of 2020 have not been implemented due to the failure to implement the National Programme for Air and Environmental Pollution Reduction at the national level, coordinate inter-sectoral activities and monitor its implementation by the audit department.⁷¹ Following the 2021 amendment of the Law on Development Policy and Planning and its Management in 2020, the Programme was cancelled. Second, an Audit report on air pollution states that there is a failure to monitor, evaluate and report on programme implementation related to air pollution.⁷² Third, research also points to corruption in air pollution management and abuse of public funds.⁷³

Water usage fees

A regulatory committee determines water service charges and tariffs for utilization and service of water supply and sewage in a given territory, issues special permits to legal entities and issues professional opinions and decisions in accordance with the Law on the Use of Urban and Rural Settlement Water Supply and Sewage Systems. The Law on Water distinguishes between water users and water consumers, the former being those entities or persons using water for commercial purposes, whereas the latter use water for non-profit purposes (such as drinking, domestic and household utility, and for livestock and cultivation). In 2020, a National Water Council was established with the Prime Minister as its Chair, with the purpose of making policy recommendations and exchanging information to ensure water safety (Law on Water). Water usage fees were expected to be increased through governmental resolutions. However, as of September 2024, fees had not been increased.⁷⁴

Water pollution charges

The aim of the 2012 Law on Water Pollution Fees is to reduce the volume of wastewater and the level of pollutants in effluent sent to centralized wastewater treatment plants. However, successful implementation has remained elusive.⁷⁵ This was largely due to an overly complex model for estimating pollution charges and limited technical and implementation capacity. A revision of the law was ratified by Parliament in May 2019. It supports better monitoring of effluent, provides economic incentives for industry to treat and reuse wastewater before discharge, and establishes a simpler methodology for estimating pollution levels in wastewater. Six supporting legal documents, including discharge permits, contractual arrangements and guidelines for increasing the water pollution compensation fee in increments, were approved by the Cabinet and are being implemented. By introducing the polluter-pays principle in the law, Mongolia encourages more efficient water use. For example, the water usage fee was expected to reduce the discharge of inadequately treated effluent into the Tuul River by over 61.2 million m³ each year. It has already catalysed innovation in small-scale onsite wastewater treatment systems.⁷⁶ The Law on Water Pollution Fees identifies five broad types of water pollutants and defines the minimum and maximum allowable tax rates. The 2019 Government Resolution No. 316 introduced new tax rates for the five types of polluting substances (see Table 3.1).

The Law on Water allows for water-use fees and compensation fees. To support implementation, the law provides a methodology to determine the ecological and economic value of water resources, to be established by the Government. However, water use fees are not yet established for each river basin, based on available exploitable resources, nor is the fee collected in the provincial budget, with provisions that up to 35 per cent of revenue be allocated for protecting and restoring water resources.

Table 3.1: Water pollution tax rates

	<i>Tugrik</i>	<i>US\$</i>
Total suspended solids (kg)	50	0.015
Organic substance (kg)	50	0.015
Minerals (kg)	20	0.006
Heavy metals (kg)	500	0.147
Toxic substance (g)	1 000	0.294

Source: 2019 Government Resolution No. 316.

Note: conversion rate used US\$1 = 3,400 tugriks.

⁷¹ Eguur Mongolia (2021).

⁷² National Audit Office (2020).

⁷³ Purevsuren (2024).

⁷⁴ Myagmar (2021).

⁷⁵ World Bank (2020).

⁷⁶ Ibid.

Soil pollution

Soil pollution has been identified as a serious threat to environmental and human well-being.⁷⁷ The 2012 Law on Soil Protection and Prevention of Desertification stipulates that a perpetrator of soil degradation must pay a fine of 8 to 10 times the minimum wage.⁷⁸ The main purpose of the five-year 2019 National Programme for Soil Protection and Land Degradation Reduction was to implement activities aimed at reducing soil degradation and soil restoration, creating long-term sustainable management of soil protection and improving the ecological and economic benefits of soil. Following the adoption of the Law on Development Policy and Planning and its Management in 2020, the Programme was cancelled. However, steps are being taken to meet global standards and achieve the desired outcomes. For example, under the project to reduce soil pollution by improving the sanitary facilities in Ulaanbaatar's residential areas, implemented in cooperation with ADB,⁷⁹ more than 2,000 eco-toilets have been installed in Songinohairkhan, Bayanzurh and Khan-Uul districts.⁸⁰ Despite efforts, implementation remains insufficient.⁸¹

Taxes and excise duties on transport matters

According to the Law on Customs Tariffs and Customs Duties, customs tariffs for imported goods are be classified as normal, highly favourable and preferential tariffs, with the normal tariff being twice as high as the highly favourable tariff. Discounted tariffs are determined by international agreements.⁸²

Excise duty rates on imports of petrol and diesel depend on the border crossing point. Thus, the excise duty rates on imported gasoline and diesel are zero for the Khanh, Ulkhanmayhan, Tsagaanuur, Yarant, Borshoo, Artssuuri, Tes, Willastai, Gashuunsuhait, Shiveehuren, Bayankhoshuu, Bighigt and Khaverga border crossings. There are excise duty rates for Petrol 95 and diesel fuels on the Sukhbaatar, Zamyn-Uud, Altanbula and Erentsav border crossings (see Table 3.2). There are no excise duties on Petrol 80 nor 92.⁸³

Table 3.2: Excise duty rate on petrol and diesel fuel, tugriks

Border port	Petrol ≥ 95	Diesel fuel
Sukhbaatar, Zamyn-Uud, Altanbulag	210 000	280 000
Erentsav	80 000	150 000
Khanh, Ulkhanmayhan, Tsagaanuur, Yarant, Borshoo, Artssuuri, Tes, Willastai, Gashuunsuhait, Shiveehuren, Bayankhoshuu, Bighigt and Khaverga	0	0

Source: Mongolian Customs, 2024.

The tax rates for gasoline and diesel fuel are paid in addition to the excise duty and are as follows:

- Petrol of up to 90 octanes/ton: 20,350 tugriks (US\$5.98);
- Petrol of more than 90 octanes/ton: 25,700 tugriks (US\$7.55);
- Winter and summer diesel fuel/ton: 2,140 tugriks (US\$0.62).

The excise duty on imported motor vehicles increases with the engine size in cm³ for automobiles running on gasoline and diesel, and hybrid vehicles and vehicles running on liquefied petroleum gas (LPG). Also, there is an excise duty on electric cars, and the duty rate increases with the manufacturing date.⁸⁴ Electric cars, hybrid cars and cars running on LPG are taxed at half the rate as gasoline and diesel cars (see Table 3.3). Recommendation 3.1 (b) of the First EPR of Mongolia on adjusting the duty rates on gasoline and diesel has been implemented.

⁷⁷ JICA (2021a).

⁷⁸ According to the General Authority for Social Insurance, minimum wage is 550,000 tugriks per month from 1 January 2023.

⁷⁹ State Great Khural. (2022).

⁸⁰ Otgonjargal (2021).

⁸¹ State Great Khural (2022).

⁸² Customs Office (2021).

⁸³ Ibid.

⁸⁴ Ibid.

Table 3.3: Excise duty rates on imported passenger vehicles running on gasoline and diesel fuel, years since manufacturing, US\$

Engine capacity (cm ³)	Gasoline and diesel fuel				LPG and electric cars			
	0–3	4–6	7–9	≥ 10	0–3	4–6	7–9	≥ 10
≤ 1,500	220	470	985	2 941	110	235	493	1 470
1,501–2,500	676	941	1 470	3 441	338	471	735	1 720
2,501–3,500	897	1 176	1 970	3 926	449	588	985	1 963
3,501–4,500	2 014	2 352	3 191	5 147	1 007	1 176	1 595	2 573
≥ 4,501	4 179	8 000	11 514	19 404	2 089	4 000	5 757	9 702

Source: Mongolian Customs; 2017 amendment to the Law on Excise Tax.

Note: Conversion rate is the average for 2023 and 2024 where US\$1 = 3,400 tugriks; Age calculated as manufacturing year.

The 1992 Law on Tax of Transport Facilities and Vehicles foresees an annual tax on trucks, buses, passenger automobiles, motorcycles, special purpose automobiles (not for passenger and cargo transportation), tractors and other vehicles and trailers. The tax rates were amended in January 2022 and December 2023. The range of the tax rates are provided by the Government and depend on 1) the geographic area in which the vehicle is registered (urban or other *soums*); 2) the engine capacity (for passenger automobiles) in cm³; 3) the number of seats (for minibuses); and 4) the load capacity in tons (for trucks and trailers).

In addition to these expenses, the Law also foresees so-called stamp fees for licensing (registering) vehicles – 1,000 to 2,000 tugriks; issuance of a license plate – 1,000 to 2,200 tugriks (depending on the type of vehicle); and issuance of a driving license – 1,000 to 2,000 tugriks.

Charges for use of mineral resources

Mineral resource royalties are regulated by the 2006 Law on Minerals and the 2019 Procedure for calculating, reporting and paying fees for the use of mineral resources. According to the Law on Minerals, mineral resources are owned by the State, however the State may participate up to 50 per cent jointly with a private legal person in the exploitation of a mineral deposit of strategic importance and/or grant exploration and mining rights. The Law on Minerals sets the licensing fees for mining and exploration. These are annual fees and levied as follows:

- Exploration fee (per hectare): 145 tugriks for the first year, 290 tugriks for the second year and 435 tugriks for the third year of the term of the exploration license; 1,450 tugriks for each of the fourth to sixth years of the term of the exploration license; 2,175 tugriks for each of the seventh to ninth years; and 7,250 tugriks for year 10–12 of the term of the exploration license.
- Exploitation fee (per hectare): 21,750 tugriks for the licensed mining area and 7,250 tugriks for limestone, coal and domestic production minerals.

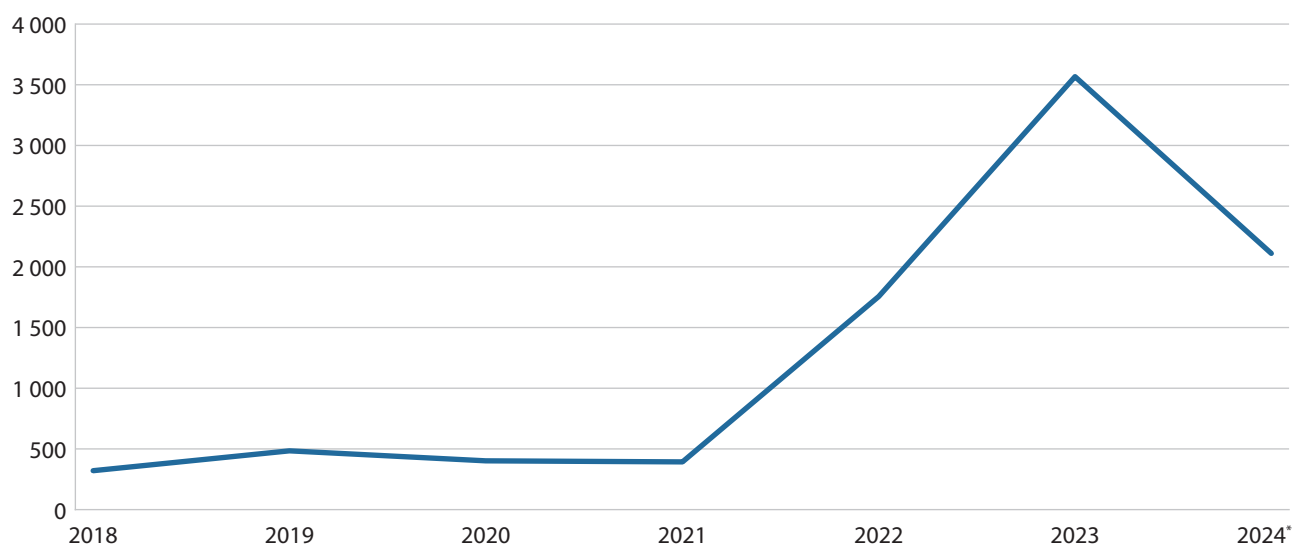
The relevant amendments (regarding royalties) to the Law on Minerals first outline who is required to pay mineral royalties and secondly sets the rates. The Law lists mineral license holders, persons exporting minerals and persons selling gold to the Central Bank of Mongolia (CBM) or authorized commercial banks as those required to pay royalties on mineral resources. The standard royalty rate is 5 per cent of the sales price, except for domestically sold coal, wherein it is 2.5 per cent of the sales value, and gold sold to CBM, and commercial banks authorized by it, wherein it is 5 per cent of the sales value. There is an additional rate added on top of the standard 5 per cent royalty, which, depending on the growth of the market price (in US\$) of the product and the level of processing (ore, concentrate or product) for precious metals, coal, final products, earth soil elements, can range from 0 to 5 per cent. The Law furthermore outlines the obligations of license holders to upkeep environmental protection.

Similarly, petroleum and unconventional petroleum are property of the State, but the State grants exploration licenses to contractors under the Law on Petroleum. These licenses are granted for a duration of 25 years with a possibility of two 5-year extensions for petroleum exploration and 30 years with a possibility of two 5-year extensions for unconventional petroleum exploration. The annual license fee for petroleum exploration is the tugriks equivalent to US\$3 per km² of the contracted area. The royalties for extraction of oil or natural gas are 5–15 per cent of the amount of oil/gas extracted; and

5–10 per cent for unconventional petroleum. The licence fee is allocated as follows: 10 per cent to the *soum* under which the field is licensed, 20 per cent to the respective *aimag* or Ulaanbaatar and 70 per cent to the State budget. Additionally, 30 per cent of the royalties are to be allocated to the local development fund and 70 per cent to the State budget.

There is clear rise in Government revenues from royalties for use of mineral resources (see Figure 3.1).

Figure 3.1: Government revenue from royalties for use of mineral resources, 2018–2024, billion tugriks



Source: Author calculations. NSO, 2025.

Note: * January–June.

Charges for use of other natural resources

The 2012 Law on the Payment for Use of Natural Resources determines items subject to fees and their values. There have been no relevant amendments to the Law's content.

Land fees

The use of State-owned land and imposition of land fees are regulated by the 1997 Law on Land Fees and the 2002 Law on Land. According to the Law on Land, all land is owned by the State. However, an exception is made for land granted for ownership to citizens of Mongolia. Citizens, companies and organizations possessing or using land pay land fees in accordance with the Law on Land Fees. Land use fees are determined, according to the Law of Land Fees, as follows:

- Pastureland: the fees are calculated per head of livestock, i.e. sheep (0.01–0.03 per cent);
- Roads or networks: per km of land (minimum of 1,500 tugriks, maximum of 7,500 tugriks);
- In cities, villages and other settled places: per hectare (0.1–1.0 per cent).

The 2021 amendments to the Law on Land Fees introduce several categories for exemption from land fees. These include:

- Land used for protecting and preserving natural, historical and cultural monuments and immovable heritage sites, regardless of ownership, when possessed or used by cultural organizations, citizens, business entities, or other organizations.
- Land used by state- and locally-owned orphanages and educational institutions at all levels, except for those located in state SPAs.
- Land possessed and used by managers and operational units of industrial and technological parks for purposes directly related to the development and functioning of these parks.
- Land possessed or used by business entities and their branches engaged in infrastructure or industrial projects, such as energy, heat sources, clean water supply, sewerage, roads, railways, airports and communication networks, within free zones or special economic zones, exempted 100 per cent for the first 10 years of operations.
- Land possessed or used by business entities operating under activities defined in the Law on Legal Status of Ulaanbaatar, exempted 100 per cent from fees in special economic zones for the first five years of operations and 50 per cent for the subsequent three years.

Photo 3.1: River and mountain landscape

Photo credit: UNDP.

Charges for utility services

Fees for municipal waste management

Each citizen, business entity or organization generating general/common waste should pay waste service fees/charges according to the 2017 Law on Waste. Service fees/charges for general/common trash generated by citizens, businesses or organizations must be calculated based on the volume/amount of waste generated. These fees are collected in the *soum's* budget. The Law allows for a waste management project to be implemented through means of public-private partnership in waste clean-up, collection, transportation, sorting, recycling, recovery, disposal and landfilling activities. This possibility entered into force on 31 December 2023. The implementation of parts (a), (b) and (c) of Recommendation 3.3 of the First EPR of Mongolia is ongoing.

As per 2024 Government Resolution No. 5, the tariff for the cost of cleaning one square meter of public land is 50 tugriks, and the tariff for burying 1 ton of ordinary waste is 4,350 tugriks.

In 2021, 24 billion tugriks in funding for waste collection and transportation services was provided from the municipal and local budgets.⁸⁵ The 21 *aimags* vary in terms of the amount of waste fees they have levied, yet there is an increasing trend across *aimags*, which shows improvement in waste fee collection. In Ulaanbaatar, there is similar rising trend, with collections rising from about 2 billion tugriks in 2017 to 50 billion tugriks in 2021.⁸⁶

Within Ulaanbaatar, there are three large landfills in Songinokhairkhan, Bayangol and Chingeltei districts (see Chapter 11). An average of 1.4 million tons of waste is received annually at these centralized points and is disposed of by landfill or compaction burial technology.⁸⁷ The Municipal Waste Collection and Transportation Management Project, funded by the Swiss Agency for Development and Cooperation (SDC), has developed a new monitoring and supervision system at the Ulaanbaatar's dumpsites (see Box 3.1).

⁸⁵ SDC (2022).

⁸⁶ Ibid.

⁸⁷ Ulaanbaatar News (2023).

Box 3.1: Municipal Waste Collection and Transportation Management Project

This project consists of the electronic reading of the vehicle's license plate number and radio frequency identification, along with the installation of radio frequency sensor plates in all transportation vehicles, the installation of surveillance cameras in dispatchers' offices, and the development of a GPS-integrated monitoring system. All of these measures were successfully implemented in 2020. There have been a number of positive outcomes from this initiative, including a quicker entry of the trucks into the disposal site, improved integrated monitoring systems that facilitate the work of registry staff, and the elimination of violations such as deliberate overreporting of waste amounts entering the disposal sites, and multiple registrations of a single trip to get fraudulent compensation.*

Within the framework of the Project, regulations and standards are being developed to improve the legal environment for waste management. This new legal framework is being introduced to the public and relevant organizations. Prior to the Project, waste trucks were manually registered at the city's disposal sites. During this time, violations such as deliberately inflating the weight of the truck, overlapping the registration of trucks arriving at the sites, and falsifying the number of shifts were repeated over 60 times a month. To ensure the sustainability of the Project, the General Manager of Ulaanbaatar mandated that the Municipal Landscaping Office (responsible for the operation of the disposal sites and all waste collection and transportation companies) only register waste trucks by the license plate number camera and radio frequency identification system at disposal sites. As a result, previous violations and errors have been eradicated, resulting in average savings of more than 130 million tugriks a year. The project has the capacity to sort 5,000–6,000 tons of waste per year. Ulaanbaatar is planning to build 5–6 more such sorting facilities so that all household waste of the city can be diversified and turned into raw materials for the processing industry.**

Sources: * SDC (2022). ** Ulaanbaatar News (2023).

Tariffs for water supply and sanitation

The Water Supply and Sewerage Authority of Ulaanbaatar City (USUG) is a fully owned subsidiary of the Municipality of Ulaanbaatar and tasked with the provision of water supply and sanitation services in the city. USUG has been unable to keep pace with growing demand, serving an estimated 60 per cent of the city's population with safe and sustainable services. Piped water supplies make up the largest proportion of USUG customers (40 per cent) through either direct water and sewerage services to metered customers or bulk services provided to the Housing and Communal Authority *kantors* as part of a public-private partnership.⁸⁸ The implementation of Recommendation 3.3 (b) of the First EPR of Mongolia on supporting the installation of meters and improving bill collection rates is ongoing.

USUG is responsible for setting the tariffs for clean water and sewage. The latest tariffs were established in 2023 under Resolution No. 96 for Ulaanbaatar (see Table 3.4).

Table 3.4: Tariffs for clean water and sewage, tugriks/L

	<i>With meter</i>	<i>Without meter</i>
Clean water	1.34	1.95
Sewage	1.07	1.43

Source: Resolution No. 96 for Ulaanbaatar.

Additionally, tariffs vary according to the type of service provided and range from 2.69 to 3.68 tugriks/L of water.

Electricity costs

The Energy Regulatory Commission approves and publishes energy tariffs. The Commission is in charge of levying the tariffs for renewable energy, according to the Law on Renewable Energy. The Commission is responsible for regulating the generation, transmission, distribution, dispatching and supply of energy, determining prices and tariffs, and implementing policy on energy reserves according to the Law on Energy. In 2024, combined heat and power plants, together with renewable energy sources, accounted for 75.4 per cent of total energy consumption, totalling 11,629.3 million kWh. Meanwhile, 24.6 per cent of the electricity was imported.⁸⁹ The end user tariffs vary according to the region.⁹⁰ Payments and fees of major energy companies to State and local budgets amounted to 682.7 billion tugriks in 2023, compared to 289.1 billion tugriks in 2018, 335 billion tugriks in 2019, 403.9 billion tugriks in 2020, 515.1 billion tugriks in 2021 and 581.1 billion tugriks in 2022.

⁸⁸ UNICEF (2016).

⁸⁹ Energy Regulatory Commission (2023).

⁹⁰ Ibid.

There are also two tariffs for households, daily and nighttime use pursuant to 2019 Government Resolution No. 94. The daily tariff is active from 6 a.m. to 9 p.m. at a rate of 116.39 tugriks/kWh whereas the evening tariff is active from 9 p.m. to 6 a.m. at a rate of 89.19 tugriks/kWh.

The focus on coal is not in line with the Sustainable Development Vision 2030,⁹¹ which aimed to increase the use of renewables for electricity generation by 30 per cent and start using electricity from nuclear power plants by 2030.⁹² At present, 297 MW of solar, wind and hydropower plants have been put into operation nationwide. Of these, six solar power plants with a total capacity of 90 MW and three wind power plants with a total capacity of 155 MW have been put into operation through private investment and are connected to the grid.⁹³ Private solar and wind sources account for 18 per cent of the installed capacity of the central region's integrated grid as of 2023, but in the balance sheet of 2023, they produced 8.8 per cent of total electricity production and received 22.3 per cent of the industry's electricity sales revenue. Also, 1 kWh of electricity is purchased from these solar power plants for 500–600 tugriks for the integrated grid of the central region, and 328–330 tugriks for 1 kWh of electricity from wind farms. The 2019 amendment of the Law on Renewable Energy calls for the implementation of renewable energy sources (RES) through competitive selection. The tariffs for renewable energy in US\$ were amended in 2024:

- Solar: from 0.15–0.18 to 0.10 for kWh;
- Wind: from 0.08–0.095 to 0.085 for kWh.⁹⁴

In 2022, the average residential tariff for electricity was estimated to be 40 per cent below the cost of recovery, while electricity subsidies amounted to 3.5 per cent of GDP. The electricity sector has a rising annual financial deficit, projected to escalate in 2025 (825,339 billion tugriks). Electricity subsidies lack targeting, with insufficient protection for more vulnerable consumers.

Gender

The energy sector's impacts are gender-differentiated. Women and girls in rural areas bear the primary responsibility for household chores, including maintaining stoves used for heating and cooking during long, harsh winters. This is a time-intensive and physically demanding task exacerbated by short daylight hours and limited access to reliable energy sources. The use of inefficient stoves and hazardous fuels results in health risks, particularly respiratory problems, disproportionately affecting women and girls due to prolonged indoor exposure.⁹⁵ Despite these challenges, energy policies lack specific references to gender equality and non-discrimination. While women are the primary household energy managers, they are underrepresented in energy policy decision-making processes. Cultural biases further limit women's advancement in the sector, despite women generally attaining higher levels of education than men. Integrating gender perspectives into energy policy and promoting women's participation in the sector are not addressed and do not support more equitable energy solutions.⁹⁶

Affordability of electricity tariffs

The poverty rate in Mongolia for 2020 stood at 27.8 per cent⁹⁷ and 27.1 per cent in 2022.⁹⁸ Compared to 29.6 per cent in 2016, not enough has been done to bring a large part of the population out of poverty. Some of this can be attributed to the stagnant growth due to the COVID-19 pandemic. The 2019 Resolution No. 106 of the Energy Regulatory Commission determines the tariffs of electricity for consumers in need of social welfare support and assistance. These discounted tariffs vary according to consumption and geography (see Table 3.5).

⁹¹ Mongolia (2016).

⁹² OECD (2019).

⁹³ Oyundelger (2024).

⁹⁴ Ibid.

⁹⁵ ADB (2022a).

⁹⁶ Ibid.

⁹⁷ NSO (2020).

⁹⁸ ADB (2024).

Table 3.5: Discounted tariffs

	<i>Monthly consumption (kWh)</i>	<i>Tariff (tugriks/kWh) *</i>
Ulaanbaatar	< 100 kWh	60.29
	≥ 101 kWh	81.39
Darkhan, Erdenet city	< 75 kWh	60.29
	≥ 76 kWh	81.39
Others	< 50 kWh	60.29
	≥ 51 kWh	81.39

Source: Energy Regulatory Commission (2023).

Note: * Tariffs without VAT.

3.2 GREENING THE SUBSIDIES SYSTEM

The 2019 Law on Corporate Income Tax lists certain expenses as deductible from taxable income, these include donations for the reduction of pollution, special funds and State funds, established by the relevant government organization, reflected on the annual environmental management plans of mining license holders and their contractors with the Laws on Environmental Impact Assessment, on Minerals, on Petroleum and on Nuclear Energy. Additionally, tax reductions (by 90 per cent) are granted to exploration, mining, exploitation, transportation and sale of minerals and radioactive minerals, manufacturing of petroleum products, importing and wholesale and retail trading of all types of fuel, and exploring, mining and selling of oil, and income tax for selling equipment designed for prudent use of natural resources, reduction of environmental pollution and waste, and environmentally friendly machinery and equipment.

The Government is the one approving a list of these machinery, equipment, products, works and services. The 2019 Government Resolution No. 468, which superseded 2013 Government Resolution No. 303, approved a new list of equipment that is environmentally friendly and encourages proper use of natural resources and reduces environmental pollution and waste. This new list differentiates between 59 categories of eligible equipment including, inter alia, water filtration and purification equipment, wind turbines, wind power generators, solar power generators, air purifiers and air filters and so on. There was a decision by the Government to eliminate the night electricity tariff for companies operating in the tourism sector from 1 January 2024 to 30 April 2024 in order to boost tourism.⁹⁹

However, according to the World Bank, Mongolia has an inefficient subsidies system for energy and agriculture, and public spending, crowding out other more efficient spending.¹⁰⁰

A well-known green subsidy scheme for residential projects is that CBM implements the Affordable Housing Finance Programme as part of the pricing stabilization programme since 2013 together with the then Ministry of Construction. Under the Programme, CBM extended loans with an interest rate of 4 per cent per annum to commercial banks in Mongolia. Using those loans from CBM, commercial banks then provided Mongolian citizens with housing mortgages at a subsidized interest rate of 8 per cent per annum for a maximum of 20 years, which has since been extended to 30 years, for the purchase of an apartment of up to 80 m².¹⁰¹ The World Bank recommended that the Programme shift into a separate fund outside of the central bank, but also integrate green criteria for beneficiaries – requiring use of programme for housing based on green construction material.¹⁰² Furthermore, in many *ger* districts, houses lack insulation, which leads to excessive energy consumption and high greenhouse gas (GHG) emissions. The Programme can support improving building in these districts.

Coal consumption in power generation remained above 90 per cent in Mongolia in 2023, indicating that an effort is needed to meet SDG target 12.c (Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, ...). Recommendation 3.1 (c) of the First EPR of Mongolia on the reform of coal subsidies has not been implemented.

⁹⁹ Erdene (2024).

¹⁰⁰ World Bank (2024)

¹⁰¹ MIK group company (n.d.).

¹⁰² World Bank (2024).

3.3 GREENING THE FINANCIAL SYSTEM

Since 2012, Mongolia has been quite active in greening financial systems when CBM joined the Sustainable Banking and Finance Network (SBFN). CBM recognizes the increasing frequency and impact of adverse weather events and climate change events on the economy, and the national commitments to reduce GHG emissions by 22.7 per cent compared to the base level by 2030 as part of the Paris Agreement. CBM policies and activities aim to create a green and sustainable financial system, with the support of other government institutions and banks.

Besides CBM, the Mongolian Banking Association and banks have been actively engaging in green finance and climate risk, establishing the Mongolian Sustainable Finance Association (MSFA), expanding foreign relations and cooperation, providing vocational training and advice, incorporating international standards and principles, and attracting green financing. To enhance the banking system's governance, strengthen the financial sector's stability, and increase investments and resource attractiveness, the Banking Sector Reform Programme was implemented in the period 2020–2023.

In 2018, the Financial Stability Council developed and approved the National Sustainable Financial Roadmap.¹⁰³ According to the roadmap, barriers to scaling sustainable finance include high interest rates and a lack of medium- to long-term funding, challenges in access to finance and scarce alternatives to bank lending. Sustainability-related barriers included an underdeveloped sustainable finance toolkit for policymakers, limited capacity and a lack of policy alignment. The roadmap aimed to address these barriers by: (i) embedding environmental and social risk management measures; (ii) scaling green finance flows, and (iii) developing the enabling environment. The roadmap set out the goal of “increasing the green loan portfolio of all banking sector lending to 10 per cent by 2030.”

According to SBFN,¹⁰⁴ Mongolia is in an advanced, maturing stage of ESG integration, developing in the climate and nature-related risk management, and in a maturing stage in financing sustainability. There is room for improvement in alignment of the financial sector with international and national climate- and nature-related risk management strategies and establishing climate related risk management policies, tracking, reporting and disclosure procedures. CBM has not yet start conducting assessments of financial institutions' climate-related risk management or providing technical guidance to the financial institutions, as well as supervisory activities and incentives. Disclosure on managing climate risk by financial institutions is also yet to happen.

A flagship initiative of the banking sector together with the Ministry of Environment and Climate Change, is the OBTNM¹⁰⁵ via the Mongolian billion Tree Fund – a collaboration established in 2023 to plant and nurture one billion trees by 2030, and aiming to develop a sustainable financing framework for nature conservation efforts (see Chapter 1). CBM facilitates the fund's donation and financing of the initiatives. Plans are underway to plant over five hundred thousand trees in 2024 as part of a large-scale afforestation endeavour. Beyond planting trees, this initiative supports establishing child-friendly surroundings, expanding green areas, providing ecological education and generating economic benefits. As the fund continues to operate smoothly and expand in the future, there is potential to enhance support for nature conservation on a broader level. The initiative seeks to increase forest coverage to 9 per cent, combat desertification and land degradation, improve GHG absorption, and enhance water resources. Additionally, it aims to mitigate climate change and promote sustainable green development.¹⁰⁶

Over the period reviewed, the Government has implemented a credit subsidy programme, which amounts to almost 40 per cent of the total value of bank lending. At the same time, most of the lending goes to the extractive industry value chain, leaving less space for investment in new technologies. The Government is paying subsidies of 3–8 per cent to reduce the interest rate for green loans.

According to the Law on Banking, all commercial banks must operate as joint stock companies. Banks are the primary players in Mongolia's financial sector, controlling 88 per cent of financial assets. They have been promoting sustainability efforts domestically since 2013. However, while the progress made by commercial banks is promising, the entire financial system is not engaged to steer the country toward a new path of sustainable growth. This engagement includes capital markets, the non-banking sector, insurance and institutional investors. To support this goal, Mongolia has created a sustainable finance roadmap through a collaborative, multi-stakeholder approach. This roadmap organizes and clarifies current developments while incorporating lessons from other countries that are advancing sustainable finance on a global scale. Credit subsidies do not focus enough on economic diversification, green development, and do not expand with

¹⁰³ UNEP, IFC, MSFA (2018).

¹⁰⁴ SBFN (n.d.).

¹⁰⁵ Forest Department (n.d.).

¹⁰⁶ National Security Council (2024).

credit guarantees. Furthermore, although there are customs tax exemptions for RES supply chains, incentives to accelerate the green transition of the private sector are limited.

The Development Bank of Mongolia is also very active in greening financial systems, having its own sustainability policy. This policy sets forth principles and frameworks for integrating ESG considerations into its operations. Aiming to align with Mongolia's sustainable development goals, the policy supports environmentally friendly initiatives and promotes green financing while prioritizing key SDGs such as zero hunger, good health and clean energy. It serves as a comprehensive guide for the Bank's management, monitoring and reporting practices in accordance with national policies and ESG standards. The policy emphasizes adherence to environmental laws, maintenance of human rights and workplace safety, and continuous improvement in governance practices. Additionally, it includes provisions for establishing internal control systems, producing annual sustainability reports, and providing staff training on ESG risks, ensuring the effective integration of sustainability principles in banking practices. This commitment reflects the Bank's dedication to responsible banking and alignment with international standards. In 2024, the Bank's Sustainability Financing Framework received a Second Party Opinion from Moody's Ratings.¹⁰⁷ As of September 2024, the total green portfolio of the Bank¹⁰⁸ amounts to US\$348.3 million and includes projects for the production of organic and animal-derived products (US\$7.19 million), electric buses for public transportation project (US\$6.12 million), water efficient eco-cement manufacturing project (US\$154.45 million) and cashmere sector financing (US\$180.58 million).

Green taxonomy

In 2019, CBM approved the Green Taxonomy, effective from 2020. The Green Taxonomy aims to develop a nationally agreed classification framework of activities that contribute to climate change mitigation, adaptation, pollution prevention, resource conservation and livelihood improvement in the context of green finance. Based on this taxonomy, statistics on green loans in the banking sector have been released and reported publicly.

After the adoption of the Green Taxonomy, CBM started publishing the green loan portfolio of the country. The green loan portfolio stood at 428.1 billion tugriks (2.5 per cent of total loans) in 2020, and doubled by 2024 to 875.3 billion tugriks (3.0 per cent of total loans).¹⁰⁹ In the first quarter of 2024 alone, the issuance of green loans surged by 2.3 times compared to the previous year, mainly due to the policy incentives introduced by CBM. CBM intends to further incentivize green financing to achieve a 6 per cent share by 2026 and 10 per cent by 2030 of all loan portfolio allocations in the country, while strengthening reporting conditions and verification for green financing. CBM also receives technical assistance for climate stress testing and expects this to become a medium-term priority in monetary and financial policy, guiding the direction of banking and financial sector policies.

The Green Taxonomy is not available online. Additionally, public sector employees across ministries have not received capacity building or clarification on their role in the application of the green taxonomy, and its complementarity with the SDG taxonomy.

SDG Taxonomy

In 2023, the Financial Stability Council approved a more expanded version, a so-called "Sustainable Development Goal Financing Taxonomy",¹¹⁰ while CBM approved the banks' ESG and climate risk assessment and management methods, respectively. As a follow-up, a SDG Finance Taxonomy was developed as a project classification system with impact assessment and reporting criteria that allows investors and projects to clearly identify SDG-supporting projects and help measure their respective impacts.¹¹¹

In this way, it becomes possible to determine what constitutes green business and activities, and to measure the amount of credit issued accordingly. The vision of the SDG Taxonomy is to help Mongolia transition to a sustainable, low carbon, climate-resilient and just economy. The specific objectives include: provide financial institutions, businesses, policy makers and other market players with a common understanding and approach to identify SDG investment opportunity areas; support investors' confidence to finance SDG projects and mitigate the risk of green/social-washing, and prevent the misuse of SDG labelling; level the playing field in the financial sector through a homogenous assessment of SDG projects and clients; increase business opportunities and boost SDG finance flows from various sources including the private sector,

¹⁰⁷ Moody's Ratings (n.d.).

¹⁰⁸ Projects that meet the national Green Taxonomy criteria of Mongolia, are classified as green.

¹⁰⁹ Ibid.

¹¹⁰ UNDP (2024f).

¹¹¹ MSFA (n.d.).

international financial institutions and foreign investors; enable the monitoring and reporting of SDG financing flows and the respective impacts, boost the quality of sustainability data and estimate the contribution of the private sector to Mongolia's sustainable development related policies and targets; identify areas of underinvestment and inform and shape national policies and regulations on SDG finance and foster coherence and alignment with national and international standards.

CBM has been working to create the policy framework needed to increase green financing in the country. Specifically, the banking sector is working towards introducing and tracking commonly accepted green and sustainable financing standards and principles, assessing the risks of climate change that could affect the financial system, and strengthening the ability to meet these risks. It has also provided fundamental conditions and environment for the development of sustainable and green finance, improved ESG assessments and climate risk management, and provided support in terms of transparency. Major progress has been made on the key points reflected in the National Sustainable Financial Roadmap. In 2024, the focus is on exploring the impact of policy tools, measuring the impact of sustainable and green funding, improving the measurement, reporting and verification system, and developing methodologies to assess the impact of climate change on the financial sector.¹¹²

Green private sector development

To shift from high dependency on the coal sector, Mongolian private sector development is key. The productivity of the Mongolian labour force has increased drastically in the past decade, yet firms underutilize their labour force. Firms' investments in fixed assets declined from 2009 to 2019, and the emergence of new firms has declined from 71 per cent in 2017 to 62 per cent in 2022, pointing to a less favourable entrepreneurial environment. Finally, firms have invested less in technology upgrades from 2013 to 2019.¹¹³ Overall, the private sector is aware and willing to embark on a green transformation, yet the knowledge, capacity and access to finance are not sufficient.

Furthermore, the business environment is not predictable and lacks a clear institutional mechanism to promote, coordinate investments and engage with the private sector. The Investment and Trade Agency under the Government focuses on foreign investors and less on attracting more FDIs from the renewable energy sector, agribusiness, tourism and shifting away from coal-dependent FDIs that represent 70 per cent of the current FDI inflows. Digitalization of procedures can also support greater interest from investors, where incentives, processes and procedures for investing in certain sector are clearly presented.

Green finance

Green economy efforts are highly contingent on green financing. Mongolia has made significant progress in leveraging international and domestic sources to provide green finance and support green economy ambitions.

Mongolia is also a country that utilizes GCF funding extensively for climate mitigation and climate adaptation, supporting overall green economy efforts (see Table 3.6). Mongolia has 12 projects with GCF totalling US\$468.5 million. Nine of these are readiness projects (US\$6 million), aiming to improve capacities in various areas. For example, Mongolia leverages funding for adaptation measures such as the Improving Adaptive Capacity and Risk Management of Rural Communities in Mongolia" project (ADAPT Project)¹¹⁴ – a US\$23 million project until 2028, implemented in five *aimags* to support people with their livestock, improve grassland management and other activities. Another important project is the Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Project led by ADB. The rest of the projects are mainly focused on providing green financing to the corporate sector via the financial institutions – commercial banks such as the XacBank to provide green loans for GHG emission reduction to the private sector, energy efficiency, and investment in RES.¹¹⁵ Mongolia is advanced in its collaboration with GCF as it has two direct access accredited entities: Trade and Development Bank and XacBank.

¹¹² Lkhagvasuren (2024).

¹¹³ World Bank (2024).

¹¹⁴ Centre for Policy Research (2024).

¹¹⁵ GCF (n.d.).

Table 3.6: Green finance pipeline in Mongolia

<i>Programmes</i>	<i>Funds/Banks</i>	<i>Types</i>
MSME Business Loan Programme for GHG Emission Reduction	XacBank	Grants, Senior Loans
Renewable Energy Programme #1 – Solar	XacBank	Equity, Senior Loans
Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Project	ADB	Equity, Grants, Senior Loans, Subordinated Loans
Energy Efficient Consumption Loan Programme	XacBank	Grants, Senior Loans
GCF-EBRD Sustainable Energy Financing Facilities (Regional)	EBRD	Grants, Senior Loans
Green Cities Facility (Regional)	EBRD	Equity, Senior Loans
Climate Investor One (Regional)	FMO	Equity, Grants, Senior Loans, Subordinated Loans
Mini-grid/off-grid Solution for Ger Area (project preparation)	XacBank	Repayable grant
Mongolian Green Finance Corporation (project preparation)	XacBank	Equity, Senior Loans

Source: GCF (Mongolia).

Note: FMO: Dutch Entrepreneurial Development Bank. EBRD: European Bank for Reconstruction and Development.

Alongside the Government and the MSFA, the Mongolia Green Finance Corporation project¹¹⁶ intends to establish the Mongolia Green Finance Corporation to borrow through local partner financial institutions (PFIs) for thermal insulation of housing, energy efficiency for businesses and mortgages for green affordable housing. In this phase, the aim is to reduce 3.8 million tons of Mt CO₂e in emissions. After initial operations, the Corporation seeks to attract new capital and target other sectors with potentially direct investment. Technical assistance is provided to operationalize the Corporation and build the capacity of the Government and financial sector stakeholders.

The intention to leverage international green and climate finance from the Government is visible via the active engagement of the Climate Change Research and Cooperation Centre (CCRCC) established in May 2020 with the mandate to implement the country's State climate policies (see Chapter 7). It is a self-funded state-owned enterprise operating under the methodological guidance of the Ministry of Environment and Tourism, with the purpose of enabling cooperation and coordination among concerned government agencies, private business entities, NGOs and CSOs by organizing national and international events and supporting initiatives to introduce new climate change technologies. CCRCC is tasked to prepare and deliver reports (Fourth National Communication and Second Biennial Update Report) under UNFCCC implementation process. It serves as the focal point for GCF and acts as the secretariat of the Joint Crediting Mechanism within the Mongolia-Japan Low Carbon Development Partnership agreement.¹¹⁷ A carbon credit exchange partnership agreement was signed between Mongolia and the Republic of Korea in 2022, and similar agreement is expected to be signed with Singapore.

¹¹⁶ GCF (2020).

¹¹⁷ CCRCC (n.d.).

Photo 3.2: View of a mining site in Mongolia

3.4 INVESTING IN ENVIRONMENTAL PROTECTION AND GREEN ECONOMY

The Government's policies designed to green the economy are divided between several major development programmes. First and foremost is the five-year Development Guidelines 2021–2025. Some of the desired outcomes are to reduce air, water, soil and noise pollution; create a stable and self-regulating system that fully meets domestic energy needs; place 55 per cent of freshwater resources and rivers under special state protection; publicize environmental legislation, enforce standards and norms, and ensure citizen participation in environmental protection; increase water storage and water supply, protect water resources from pollution and scarcity, and implement integrated management; reduce GHG emissions by 12.3 per cent; and increase the share of Government green purchases to 20 per cent. The 2023 report regarding its implementation progress notes that of the 18 implemented measures an average of 70.6 per cent have been achieved.¹¹⁸ Annual average implementation since 2021 has been approximately 75 per cent in green development and approximately 80 per cent in economic development.¹¹⁹

To avoid policy overlap, the 2021 State Great *Khural* Resolution No. 89 annulled certain national programmes tailored for green and sustainable development (see Chapter 1). While the 2014 Green Development Policy was annulled, the action plan for its implementation for the period 2016–2030 remains in effect. The total investment needed to finance the 2016 Green Development Policy is estimated at US\$6.96 billion.¹²⁰

The Vision 2050 Long-term Development Policy is dedicated to green development (see Chapter 1). The first target levels are set to be measured in 2025.¹²¹ In November 2019, Mongolia ambitiously raised its target to reduce total GHG emissions to 22.7 per cent by 2030, through updating its Nationally Determined Contributions (NDC) (see Chapter 7).¹²²

Lastly, in 2024, the Ministry of Economy and Development introduced the 2024 Development Plan. One of its main aims is to reduce congestion and air pollution in Ulaanbaatar.¹²³ The projected funding for this plan's eight thematic areas is 13.43 trillion tugriks for 184 projects.¹²⁴

¹¹⁸ State Great *Khural* (2024).

¹¹⁹ Ibid.

¹²⁰ Ministry of Environment and Tourism (2019a).

¹²¹ Ibid.

¹²² UNDP (2020).

¹²³ Ministry of Economy and Development (2023).

¹²⁴ Ibid.

Mongolia has also been a part of the 2030 Water Resources Group (WRG).¹²⁵ After nearly a decade, the 2030 WRG Mongolia multi-stakeholder partnership has achieved maturity. In 2022, 2030 WRG began to exit from the country, with knowledgeable and competent local partners in place to take the platform forward.¹²⁶

The implementation of recommendations 3.4 (a) and (b) of the First EPR of Mongolia is ongoing. The Government is advancing towards optimizing and prioritizing policies. However, funding allocation is not yet secured.

Green public procurement

Efforts have continued to introduce international best practice in public procurement, as visible in the latest revised edition of the Law on Procurement of Goods, Works and Services with State and Local Funds.

The Partnership for Action on Green Economy (PAGE) began its phase-out process in Mongolia in 2018, accompanied by the development of a comprehensive sustainability plan to safeguard the progress made over the five-year engagement.¹²⁷ PAGE supported the Ministry of Finance to incorporate sustainability principles into the national public procurement framework. A status analysis of public procurement, prioritization of goods and a market analysis were conducted. Sustainable public procurement (SPP) tools and sample tendering materials were developed. The 2019 amendment to the Law on Procurement of Goods, Works and Services with State and Local Funds was complemented by a supporting action plan that PAGE helped develop.¹²⁸ A 2019 amendment to the Law on Public Procurement allowed the introduction of green aspects in procurement. The Department of Legal and Procurement Policy under the Ministry of Finance is responsible for establishing procurement policy and standards, providing training and prior clearance for certain procurements, and reviewing complaints from bidders. This work contributed to achieving SDG target 12.7 (Promote public procurement practices ...) of SDG 12 (Ensure sustainable consumption and production patterns ...), by supporting sustainable procurement of goods and services.¹²⁹ As an update to PAGE's initiative, an SPP Action Plan was provided to the then Ministry of Environment and Tourism through the SWITCH-Asia SCP Facility. The new Action Plan introduces elements from the 2021 UNEP SPP approach.¹³⁰ Vision-2050 mentions that the Government will "contribute to the international climate change mitigation efforts through the development of a low-carbon, fruitful, inclusive green economy." In the context of this objective, many of the planned measures are related to SPP. However, implementation reports are not available.

Mongolia is developing, adopting and implementing policy instruments to transition to responsible consumption and production. Vision 2050 includes sub-programmes and projects to implement and support sustainable development, and responsible consumption and production. Progress has been made on promoting sustainability in public procurement. The Action Plan of the Government for 2020–2024 includes a spending plan of 482.4 billion tugriks for SDG targets 8.4 (Improve progressively, through 2030, global resource efficiency in consumption and production ...), 12.6 (see Chapter 2), 12.7, 12.8 (By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature), 12.a (... strengthen their scientific and technological capacity ...) and 12.b (Develop and implement tools to monitor sustainable development impacts for sustainable tourism ...), which are considered when estimating the total spending needs. Considering the Government's business-as-usual cost, Mongolia needs additional spending of 1.1 trillion tugriks for SDG 12 between 2021 and 2030. As of September 2024, no data are available for these SDG targets.¹³¹

Resource efficiency

Green growth is strongly tied to resource efficiency in consumption and production, with the aim of decoupling economic growth from environmental degradation. Being highly dependent on coal for its energy generation, Mongolia faces a particular challenge in this direction. Despite the target of reducing Mongolia's domestic material consumption per GDP to 10.0 tons/1,000 tugriks by 2025 and 6.0 tons/1,000 tugriks by 2030, no significant progress has been made (15 tons/1,000 tugriks in 2018, 17.9 tons/1,000 tugriks in 2020, 16.0 tons/1,000 tugriks in 2021). Therefore, Mongolia has regressed from the 2015 baseline on this indicator. There has been no decline in domestic material consumption per unit of GDP and no significant progress in improving resource productivity.¹³² Mongolia is highly dependent on natural

¹²⁵ 2030 WRG (n.d.).

¹²⁶ 2030 WRG (2022).

¹²⁷ PAGE (n.d.).

¹²⁸ SWITCH-Asia (2019).

¹²⁹ PAGE (n.d.).

¹³⁰ SWITCH-Asia (2022).

¹³¹ UNDP (2022b).

¹³² Ibid.

resources and minerals, with most of its GDP coming from mining and quarrying and agricultural products, and there is a need to improve resource productivity. In 2018, 1,000 tugriks of GDP were produced with 15.0 kg of material, in 2020 with 17.9 kg of material, and in 2021 with 16.0 kg of material. Mongolia is facing challenges like other coal-dependent countries to improve on this indicator.

As of September 2024, the Government does not actively pursue funding coming from global funds such as the Climate Investment Fund that have a devoted Accelerated Coal Transition programme for coal-dependent countries. Pursuing such funding would allow Mongolia to craft devoted investment plans, sequence investments in grid and renewables, reduce coal dependency and support economic diversification to absorb coal workforce. Furthermore, the recommendation of Box 3 of the First EPR of Mongolia on increased investments in R&D for green technologies remains valid, to both generate new knowledge and improve Mongolia's capacity to apply new technologies.

In terms of data collection and estimation methodology to measure progress in greening of economic growth Recommendation 3.6 (b) of the First EPR of Mongolia has been partially implemented through indicators following the implementation of Vision 2050.¹³³ Statistics for the measurement of green growth indicators, which are designed, inter alia, for the purpose of gauging improvements in environmental and resource productivity and the decoupling of economic from environmental degradation (SDG target 8.4), are not yet developed. The first steps in this direction have been made with the NSO's approval of 38 green development indicators in July 2017.

Government sector expenditures on environmental protection

According to the Law on the Payment for the Use of Natural Resources, percentages of fees collected from the exploitation of certain natural resources are to be spent on nature conservation and restoration measures as follows:

- 50 per cent of animal hunting and trapping fees;
- 15 per cent of land fees;
- 15 per cent of fees for using plants;
- 85 per cent of fees for harvesting wood and firewood (and other nuts for example) from forests;
- 35 per cent of the water bill.¹³⁴

National expenditure for environmental protection amounted to 540 billion tugriks in 2017, 560 billion tugriks in 2018, 704 billion tugriks in 2019, 725 billion tugriks in 2020, 676 billion tugriks in 2021 and 789 billion tugriks in 2022.¹³⁵ According to calculations, in 2022 this expenditure accounted for 4.3 per cent of total central Government expenditure.¹³⁶

Recommendation 3.6 (a) of the First EPR of Mongolia has been almost fully implemented. The NSO provides statistics on national expenditure for environmental protection by expenditure type: final consumption, intermediate, gross fixed capital formation, transfers; by sector: general government, corporations, households; by environmental protection activities: wastewater management, waste management protection of biodiversity and landscapes, and others. Data on expenditures for air pollution are currently lacking. The statistical data information system also contains environmental taxes account and physical flow account for water, supply, livestock, crops, fertilizers, energy and material flows. In addition, the NSO strengthens the Government's capacity to analyse and use statistical data for evidence-based policymaking at least once a year, upon receipt of an official request from interested organizations. Recommendation 3.6 (c) of the First EPR of Mongolia has been fully implemented.

Budget of the then Ministry of Environment and Tourism

The 2023 allocated budget to the then Ministry of Environment and Tourism accounted for 0.55 per cent of total central government expenditures and 0.35 per cent in 2024, continuing a downward trend since 2016.

Environmental funds

Mongolia has environment-related funds (see Tables 3.7 and 3.8). Some funds are operational; however, insufficient data are available to assess their operations and effectiveness. These funds also require consolidation, which could bring higher capitalization and leverage.

¹³³ Mongolia (2020).

¹³⁴ Mongolia (Database on environment protection budget and expenditures).

¹³⁵ NSO, 2025.

¹³⁶ NSO, 2025.

Table 3.7: Private environment related funds

<i>Fund Name</i>	<i>Brief Description</i>
Mongolian Green Credit Fund *	The fund supports achieving the targets set in the National Green Development Policy and NDC. Actual Budget US\$50,000,000.
Green Economy Financing Facility	It consisted of up to US\$80 million from EBRD and GCF provided to PFIs. The PFIs on-lent proceeds for green investments in privately owned homes or buildings, as well as privately and commercially owned buildings and businesses. Eligible sub-borrowers included individuals, housing associations, corporations, energy service providers, and vendors and manufacturers of relevant technologies.

Note: * for public sector needs.

Table 3.8: Public environment related funds

<i>Fund Name</i>	<i>Comments</i>
Green Climate Fund	The Fund has approved approximately US\$220 million worth of projects and programmes for Mongolia. The largest global climate finance fund, particularly active in Mongolia.
National Designated Authority nested under	Through these projects and programmes, approximately US\$610 million has been raised by other parties in co-financing.
Nature Conservation Trust Fund	The Fund is expected to be a catalyst for climate change mitigation, including protecting biodiversity, implementing the Paris Agreement on Climate Change, and reducing GHG emissions by 22.7 per cent by 2030, as reflected in the NDC targets.
Green Development Revolving Fund	To develop the circular economy and support human health and environmental protection activities, meetings and discussions are organized within the framework of the “3R practice for sustainable use of natural resources in Ulaanbaatar” project.
Environment and Climate Fund	The Fund’s objectives include the rational and efficient use of funds for researching the state of the environment and climate change, protecting the environment, properly using its resources, rehabilitating it, mitigating climate change, adapting to change, and providing ecological education to citizens.
Future Heritage Fund	The Fund is one of Mongolia’s three sovereign wealth funds, all sourced from the mineral wealth. The Fund is financed with 65 per cent of the royalty payments and dividends related to mining licenses and revenues. It is established as a statutory institution to implement the principles of distributing fairly and equally the revenues from the non-renewable resources mobilized in the budget to the current and future generations.
Sovereign Wealth Fund	The Government has proposed the creation of a new sovereign wealth fund designed to invest in domestic assets, which would be managed (in whole or in part) by state-owned mining enterprise Erdenet Mongol. This fund would supplement existing extrabudgetary institutions with various macroeconomic and industrial policy objectives, namely the Development Bank of Mongolia, the Future Heritage Fund, and the Fiscal Stability Fund. The Fund’s main goal is to redistribute Mongolia’s wealth from natural resources and rebalance the overlap between of mining businesses and politics. Under the new rules and regulations, Mongolia’s mining giants would need to participate in a form of profit-sharing. This Fund was inaugurated via constitutional amendment. ¹³⁷
Human Development Fund	The latest budget report for the Human Development Fund was in 2016, showing a negative balance of 90 billion tugriks. ¹³⁸ In the period 2017–2022, total transfers from the central government to the local governments averaged 175 billion tugriks, with a peak of almost 2092 billion in 2020. This fund is no longer operational.

The Nature Conservation Trust Fund was established by the 1998 State Great *Khural* Resolution No. 188 based on the Law on Environmental Protection. The organization and staffing of the fund were renewed by 2012 Government Resolution No. 189. Subsequently, the Nature Conservation Fund was reorganized as the Environment and Climate Fund following a decision of the State Great *Khural* in 2017.¹³⁹ The 2019 Law on Special Government Funds regulates the establishment of types of special government funds, their sources and spending, and performance reporting and monitoring. The Law focuses on the Environment and Climate Fund, which is to be financed by:

- A fee for the issuance of a license for natural travel and tourism activities in SPAs and a one-time fee for work and services in SPAs;
- Revenue generated from air pollution fees specified in the Law on Air;

¹³⁷ Lkhaajav (2024).

¹³⁸ Ministry of Finance (2018).

¹³⁹ Environmental and Climate Fund (n.d.).

- Revenue generated from water pollution fees specified in the Law on Water;
- Revenue generated from compensation for damage caused to the environment and natural resources by citizens, enterprises, or organizations;
- Proceeds from the sale of confiscated weapons, vehicles and means of transport, machinery and equipment used to commit crimes and violations against the environment;
- Proceeds from the sale of natural resources prepared illegally;
- Charitable donation specified in the Law on Forest;
- Revenue of fees for the use of genetic resources and traditional knowledge related to genetic resources.

Protection and rehabilitation of natural resources

In 2023, revenues from on the Law on Payment for the Use of Natural Resources reached US\$11.9 million, representing a 170 per cent increase compared to the 2016–2021 average. Projections for 2024 indicate an even higher increase – up to US\$22.4 million. The Government has committed to increasing spending on environmental protection to at least 1 per cent of GDP, signalling a promising shift towards a nature-positive society. One of the most important initiatives is the enforcement of the Law on Payment for the Use of Natural Resources. The law's implementation in 2023 and the approved budget for 2024 exceeded expectations and has the potential to generate more than US\$15 million annually – more than enough to address the current biodiversity funding gap of US\$10 million per year.¹⁴⁰

Local government budgets

The 2023 report by the National Audit Office found that there is no monitoring of the implementation of the Law on Payment for the Use of Natural Resources in 2021–2023 by local self-governments at all levels; and the fees collected have not been fully spent on measures for environmental protection as required by law.¹⁴¹ Recommendation 3.4 (c) of the First EPR of Mongolia on ensuring effective use of all environmental- and nature protection-related funds is partially implemented and remains valid. A total of 54.9 per cent of funds invested in the local budget are payments for water resources, 30.4 per cent are payments for land, 7.5 per cent are payments for forest resources, 4.3 per cent are payments for wildlife resources and 1.8 per cent are payments for natural plant resources.¹⁴² A UNDP report also states that “*aimags*, capital cities, *soums*, and districts shall appoint and employ officials authorized to collect natural resource use fees and collect revenues from natural resource use fees”.¹⁴³

Environmental expenditures in the mining sector

In order to ensure that a mining company meets its environmental responsibilities, it must deposit 50 per cent of its annual environmental protection budget in a special bank account managed by the relevant *soum* governor (Law on Minerals). However, if the license holder complies with all environmental management plan obligations, the deposited funds are returned. The Ministry of Environment and Climate Change reported that almost 2.32 billion tugriks were deposited in the special account for nature protection in 2019. On 31 December 2019, the final balance of the account was 16.35 billion tugriks.¹⁴⁴

The methodology of calculating land reclamation costs lacks comprehensiveness because it excludes the indirect costs, post-closure costs, or contingency funds. Consequently, cost estimates using this methodology are substantially lower than international benchmarks.¹⁴⁵ As of 2021, 7,096.1 hectares of land require reclamation. This means that first, 5,057.1 hectares need technical reclamation, and then, 7,096.1 hectares need biological reclamation. The total amount required for reclamation of damaged lands is 86.3 billion tugriks; of these, 54.6 billion and 17.6 billion are expected to be spent on technical and biological reclamations, respectively. Besides this, 7.7 billion; 999.1 million and 5.2 billion will be spent on riverbed reclamation, mining closure and monitoring of reclamation, respectively. Out of the total reclamation cost, the amount of 59.2 billion tugriks is expected to be allotted to the reclamation of the total damaged area within the legally prohibited zones. Of this amount, 22.8 billion, 7.7 billion, 17.7 billion and 11.0 billion tugriks will be spent on forest fund rehabilitation, riverbed reclamation, technical and biological reclamations, respectively.¹⁴⁶ Mongolia's expenses related to environmental protection increased to 788.9 billion tugriks in 2022 (see Table 3.9). Costs for environmental protection by

¹⁴⁰ UNDP (2024d).

¹⁴¹ National Audit Office (2023).

¹⁴² UNDP (2022a).

¹⁴³ UNDP (2024d).

¹⁴⁴ Mongolia EITI (2019).

¹⁴⁵ Zandariya (2022).

¹⁴⁶ Batmunkh (2021).

private enterprises increased by 23 per cent, the amount of expenses spent by state institutions increased 6.4 times, and the use of foreign aid transfers doubled.

Table 3.9: Expenditures on protection and rehabilitation of natural resources, 2017–2023, million tugriks

Indicators	2017	2018	2019	2020	2021	2022	2023
Waste water management	33 489	45 646	66 331	52 088	48 035	63 015	69 643
Waste management	360 998	351 619	427 137	238 228	274 775	311 319	193 257
Biodiversity and landscapes	13 948	15 833	24 397	355 037	242 896	309 586	258 023
Other	131 942	146 934	186 661	80 460	110 417	104 951	96 698

Source: NSO (2023a).

Financing of water supply and wastewater infrastructure investments

Groundwater is the main water source of drinking and industrial water in Mongolia (see Chapter 10). This is particularly true for the Gobi Desert region. The Gobi Desert constitutes 30 per cent of the country's territory. In this region, both livestock, which numbered more than 1.8 million as of 2018, and mines, of which there were more than 70 as of 2020, rely on groundwater. Both sectors are regarded as important pillars of Mongolia's economy. The Gobi Desert region in Mongolia hosts major mining developments, including the Oyu Tolgoi copper-gold mine, the Tavan Tolgoi coal mines, the Mongolian Alt Corporation coal mines, the Energy Resources coal mine and the Erdene Resources gold mine, among others.

All these mining companies use underground water from the Galba Doloodyn Uush River Basin. It has been estimated that mining will be the dominant user of water (83 million m³ per year) in Mongolia by 2025. Mining companies abstract water for their operation from the Galba Uush Doloodyn Gobi Basin, which has approximately 236 million m³/year of renewable groundwater resources available. According to the National Agency for Meteorology and Environmental Monitoring (NAMEM), in 2025, the mining sector consumed 121 million m³ nationwide. Therefore, there will be no immediate water shortage. Recognizing the huge demand from the mining industry, the Government established a plan to transfer surface water by diversion from Orkhon and Kherlen Rivers. However, the plan has not yet been implemented.¹⁴⁷ Oyu Tolgoi rehabilitated 41 water bores to improve livestock pasture in the Gobi Desert region and achieved an 87 per cent water recycling rate.¹⁴⁸

Development assistance

To support financing for green development, during the 2020–2022 period, total financing amounted to US\$4,705 million from various sources, including the IMF, ADB, the European Bank for Reconstruction and Development (EBRD), the World Bank and bilateral donors, such as Japan and the Republic of Korea.¹⁴⁹ The largest number of commitments were in the agriculture, natural resources and rural development sector, followed by education, energy, finance, health, industry and trade, ICT, transport and water.¹⁵⁰

UNDP is one of the most active actors in Mongolia in promoting the green economy. UNDP supported the Government's self-assessment of the tax system and its alignment with the SDGs, aiming to further align the tax system to support SDG implementation.¹⁵¹ Furthermore, UNDP is supporting the country with climate risk-informed budget planning and developing a carbon market in partnership with Ulaanbaatar Municipality, URECA (a private company developing carbon markets models) and Gerhub. Mongolia has not utilized higher donor coordination and multilateral development banks coordination to accelerate its green development.

Green jobs

According to the International Labour Organization (ILO), green jobs are decent jobs that contribute to preserving or restoring the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency. These jobs help:

¹⁴⁷ Purevjav (2023).

¹⁴⁸ EBRD (2022).

¹⁴⁹ ADB (2023a).

¹⁵⁰ ADB (2023b).

¹⁵¹ UNDP (2024e).

- Reduce consumption of energy and raw materials;
- Limit GHG emissions;
- Minimize waste and pollution;
- Protect and restore ecosystems;
- Support adaptation to the effects of climate change.

Mongolia has made commitments to alternative growth based on environmental sustainability and social inclusiveness. One potential pillar of this alternative economic growth is community-based eco and cultural tourism, in which rural herding communities, as custodians of nomadic lifestyle and culture, will be the main beneficiaries. PAGE seeks to put sustainability at the heart of economic policymaking. PAGE supports nations and regions in reframing economic policies and practices around sustainability to foster economic growth, create income and jobs, reduce poverty and inequality, and strengthen the ecological foundations of their economies. With the support of the PAGE Green Recovery Programme in Mongolia, the “Ger and Nature” scheme proposes promoting green jobs/decent work among tourism operators and local herding communities, with individual community groups serving as hosts to cultural and adventure tourists. Mongolia’s tourism industry comprises two major markets: (i) domestic tourism; and (ii) international tourism. Due to the COVID-19 pandemic, the number of international inbound tourists to Mongolia dropped by 91 per cent in 2020–2021. Also, there is strong seasonality in Mongolia’s tourism, with 42 per cent of international tourists visiting the country during the busiest three months – June, July and August. However, while the tourism industry is likely to benefit from improved connectivity within the country and internationally, it is not yet adapted to the SDGs in its operations, including:

- Waste recycling;
- Reforestation;
- Reduction of GHG emissions via the use of RES;
- Sustainable construction;
- Preservation of wild habitats and contribution to protected areas;
- Improved water sanitation.

There is a great demand among the urban population in Mongolia to stay at herder households during holidays. Among those who visited herder families, 44.2 per cent spent 2–3 days and 34.4 per cent spent 4–7 days. This could lead to a significant number of bed nights if nomadic households offer *ger* accommodation for their guests. Staying longer at the same place results in less driving and lower spending on petrol in comparison to trips covering long distances with short stays at multiple places. Domestic tourists’ preferences appear to lean towards herder settlements in Khangai (a region with forests, rivers and lakes) and steppe regions, both landscapes suitable for herding horses and cattle.

The maximum potential for green jobs in “Ger and Nature” tourism is expected to be between 122,225 and 244,450 jobs based on the assumption that each household needs one or two assistant herders if the household members need to commit their labour to tourism-related matters during the summer and autumn months.¹⁵² Thus, the domestic tourism market may have the potential to create green job opportunities and a decent work environment for herders, which then fosters green job development.

Between 2000–2019, productivity grew and the monthly average real wage increased from 65,200 tugriks (61,000 for female and 69,200 for male) in 2001 to 1,881,800 tugriks (1,651,900 tugriks for female and 2,103,400 tugriks for male) in 2023.¹⁵³ However, Mongolia’s labour productivity is lagging compared to peer countries.¹⁵⁴ For example, Mongolia’s average labour productivity is 3.6 times lower than the global average and 5.4 times lower compared to the Republic of Korea. Mongolia’s labour productivity growth averaged only 3 per cent a year between 1991 and 2018, indicating its lack of transformation and hence lack of diversification.¹⁵⁵ The capital per worker is growing slowly, and investment is heavily concentrated in the mining sector. The new jobs in Mongolia have been in lower-paying industries. Due to the geography of the country, Mongolian firms cannot benefit from agglomeration effects. The Government does not effectively support the enhancement of corporate development, modernization of firms and access to credit, all the while supporting job creation and retention of talent measures to accelerate green jobs.

¹⁵² ILO (2023).

¹⁵³ NSO (2024).

¹⁵⁴ World Bank. (2022).

¹⁵⁵ ADB (2020d).

The Information Technology and Productivity Division of the Ministry of Environment and Climate Change covers green jobs and brings technological innovation in green development. A dedicated unit in the Ministry of Environment and Climate Change is a clear sign that both green jobs and green technologies are gaining prominence, which is a positive development.

Public–private partnerships in support of green economy

The Law on Public and Private Partnership entered into force on 31 December 2023, which rendered void the 2010 Law on Concessions.¹⁵⁶ According to the 2023 Law, public-private partnership means a cooperation in the long-term, sustainable and efficient implementation of a project through financing a partnership, depending on the type of the partnership, private, providing public infrastructure and public services to the public and the state partner in the long term according to a partnership agreement signed with a public-private partners, and optimal distribution of risks by the partners. The Law on Public-Private Partnership references the 2020 Law on Development Policy and Planning and its Management, wherein the 2020 Law is listed as part of the complete legislation on public-private partnership, wherein it defines the development policy document, and regarding the planning and preliminary assessment of partnership projects. Also, the law stipulates that a requirement of a partnership project is for it to have no negative impact on the environment, to support green economic development aimed at reducing climate change. Additionally, partners are required to introduce environment-friendly technology. As of September 2024, there are 5 ongoing partnerships based on concession agreements in the energy sector, 14 in the road and transportation sector, and one categorized as ‘other’ and titled the National Stock Storage Project in Rashaant.¹⁵⁷ However, there is a lack of Government support for public partnerships in areas where they are feasible.

Decent employment is a basic condition for people’s livelihoods. People with education, knowledge, skills and experience can earn higher wages and salaries and improve their livelihoods by working productively in workplaces where the right to work and safety are guaranteed. Decent employment supports economic growth and is a fundamental factor in ensuring long-term sustainable development.¹⁵⁸ The total spending needed for SDG 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all) amounts to 728.9 billion tugriks by eliminating potential overlaps in other SDGs.¹⁵⁹ Overall, the Government is devoting policy attention to SDG 8, yet its implementation needs to intensify.

According to the Mongolia SDG Dashboard, the proportion of informal employment in non-agriculture employment is about 25 per cent since 2017 with a decrease in 2020 to 24.3 per cent (SDG indicator 8.3.1 of the target 8.3 (Promote development-oriented policies ...)). The target level of the share of informal employment in total employment by 2030 is different for each of the following indicators: (i) 25 per cent in agriculture, of which 27.1 per cent are men and 22.7 per cent are women; and (ii) 7.5 per cent in sectors other than agriculture, of which 9.4 per cent are men and 6.1 per cent are women. In Mongolia, 75 per cent of informal workers do not have employment contracts, are not protected by law, tend to work long hours, are not covered by social security, and have unstable earnings, poor access to health services, and limited access to financial services such as favourable loans. This makes it difficult to protect the labour rights of informal workers. Since 2019, the share of informal employment has decreased by only 0.3 per cent, reaching 41.2 per cent in 2021. According to the 2021 survey conducted by ILO, the largest informal employment is in the wholesale and retail trade, car and motorcycle repair and maintenance.

Informal employment is also common in manufacturing, transportation and storage operations, accommodation and food services, and other service sectors.¹⁶⁰ Compared to 2017, the informal sector remains large, with slow progress to formalize it. According to the NSO, if agricultural activities are excluded, the informal employment rate has decreased from 25 per cent in 2017 to 20.8 per cent in 2023. The informal employment rate, including agricultural activities has also decreased, from 44.6 per cent in 2019 to 41 per cent in 2023. More needs to be done to decrease informal employment. The Government does not prioritize regulations and incentives for workers to shift from the informal to the formal economy, e.g. by offering increased social protection, workers’ rights on the one hand, but also facilitating access to finance and accelerator support to foster entrepreneurship.

¹⁵⁶ Sosorburam (2022).

¹⁵⁷ Ministry of Economy and Development (n.d.).

¹⁵⁸ Mongolia (2023b).

¹⁵⁹ UNDP (2022b).

¹⁶⁰ Ibid.

Greening the energy sector

Mongolia is a coal-dependent country, accounting for 70 per cent of the total energy supply and 96 per cent of energy production in 2021. Coal is not only used for thermal power plants, but households without access to district heating access use coal to heat their homes, causing severe air pollution.

Despite its large RES generation potential (estimated at around 400 GW wind and 700 GW solar), the country faces challenges in scaling up RES. According to the World Bank report, the bottlenecks for expanding RES include: a lack of high-voltage transmission lines from the south of Mongolia to Ulaanbaatar; limited financing; an inflexible grid that is not capable of accommodating the intermittency of variable renewable energy; below-cost-recovery tariffs; subsidies that incentivize emissions-intensive energy consumption; and high-cost renewable energy power purchase agreements. Investments in RES are lagging, despite commitments in NDC to reduce coal intensity and GHG emissions by 22.7 per cent by 2030 compared to the baseline under the Paris Agreement for energy generation and heating. Although recognizing its high coal dependency for energy security, Mongolia has not developed a plan, unlike other coal dependent countries, to devise an investment plan that will support a coal phase-out.

3.5 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

The 2019 General Law on Taxation, and its 13 amendments since, set forth the legal grounds for the setting of taxes, registering taxpayers, tax assessment, tax reporting, tax payment, tax auditing, tax collection, providing tax credits and exemptions, withholding and refund of taxes, and defining the rights, duties and responsibilities of taxpayers as well as the Mongolian Tax Administration.

Air pollution charges are regulated by the 2012 Law on Air and the 2010 Law on Air Pollution Fees. The specific charge rates are set by a 2023 amendment to the Law on Air Pollution Fees, which has been in force since January 2024. Water pollution charges are regulated by the 2012 Law on Water and the 2012 Law on Water Pollution Fees. The specific charges are set by a 2019 amendment. Recommendation 3.1 (a) of the First EPR of Mongolia on ensuring that taxes on pollution provide effective incentives for changes has been largely fulfilled in terms of regulations, however, implementation is ongoing. The specific charges were updated for air and water in 2023 and 2024, respectively.

Excise duty rates are levied according to the 2006 Law on Excise Tax, with relevant amendments from 2015 and 2021. Duty rates for petroleum and diesel fuel, and passenger vehicles are regulated by the Customs Office.

Royalties for mining activities are regulated by the 2006 Law on Minerals and the 2014 Law on Common Minerals. The 2021 State Great *Khural* Resolution No. 89 annuls the 2014 Resolution of the State Great *Khural* No. 18 on the State Policy on the Minerals Sector, which aimed to promote private sector involvement in the development of the mining sector using the instrument of surtax royalties. Instead, the focus is on the Law on Development Policy and Planning and its Management to avoid unnecessary legislative overlap and non-effective use of resources. Recommendation 3.5 of the First EPR of Mongolia concerning the rehabilitation of mining sites, has not been implemented. International best practices for mine closure emphasize the importance of developing mine closure plans before licensing, clearly outlining government and company responsibilities along with financial assurances. The Law on Minerals lacks these financial assurance provisions, which pose significant environmental, health and financial risks if mines are abandoned or inadequately closed. The mining legislation does not require mine closure plans and financial guarantees before licensing, promote phased rehabilitation during mining operations, establish country-specific financial assurance guidelines and utilize flexible financial instruments to ensure responsible mine closure and sustainable mining practices.

The 2017 Law on Waste regulates the reduction, sorting, collection, transportation, storage, re-use, recycling, recovery, disposal and exports of waste. Specific waste collection fees are set at the local government level. The method for calculating the waste service fee is regulated by 2019 Resolution No. 192, A/243.

The 2019 Law on Special Government Funds regulates the establishment of types of special government funds, their formation and spending, and performance reporting and monitoring. The Law lists the following special funds, among others: Environment and Climate Fund, Fund for Agricultural Development, Budget Stability Fund, and so on.

Amendments in 2024 to the 2010 Law on Fiscal Stability stipulate the formation of a Fiscal Stability Council in the State Great *Khural* responsible for ensuring the stability of the unified budget of Mongolia. Additionally, the Law introduced a

Fiscal Stability Fund, which is to be used to ensure medium-and long-term fiscal stability of the consolidated budget. Data shows that this Fund currently has 47 million US\$ in various assets.¹⁶¹

Starting in January 2024, with Resolution No. 457, the Government approved the development of a new methodology for calculating the transfers from the General Local Development Fund. As of September 2024, this methodology has not yet been developed.

The latest budget report for the Human Development Fund was in 2016, when the balance was negative 90 billion tugriks.¹⁶² In the period 2017–2022, total transfers from the central government to the local governments averaged 175 billion tugriks, with a peak of almost 2092 billion in 2020.

The general framework for the setting of energy tariffs is regulated by the 2001 Law on Energy.

Some advancements have been made under Recommendation 3.2 (a) of the First EPR of Mongolia on regularly adjusting the established resource base values where the “polluter pays” principle has been established. The recommendation is partially implemented; however, challenges persist. With the help of 2030 WRG, an updated and revised water valuation methodology was developed. The final report and new methodology have been submitted to the then Ministry of Environment and Tourism. The Government accepted the methodology in 2020.¹⁶³ Recommendation 3.2 (b) of the First EPR of Mongolia on revising the existing methodology for assessing the monetary value of these natural resources has been implemented. The ecological and economic valuation of natural resources is regulated and approved by separate legislation:

- Plant resources by 2019 Resolution No. 77.
- Water usage by 2011 Resolution No. 302.
- Animal resources by 2023 Resolution No. 07.
- Forest resources by 2020 Resolution No. A/176.

Policy framework

Since 2020, with the Law on Development Policy and Planning and its Management, the Government structures its policies as long-term policies, mid-term policies and action plans. Key policies covering green economic development stem from the 2020 Parliament Resolution No. 52, which introduced Vision 2050, replacing the Sustainable Development Vision 2030. Each phase of these policies is connected to green development. Vision 2050 is aligned with the SDGs (see Chapter 1).

The Government has also enacted a New Recovery Policy for the period up to 2030, which aims to revive the economy after the COVID-19 pandemic, emphasizing the importance of economic diversification for sustainable and green development. The plan entails establishing new energy sources and enhancing existing transmission and distribution networks to improve the reliability of energy production and supply. It emphasizes developing renewable energy facilities with supporting water and resource storage infrastructure to ensure stability in the integrated energy system. Additionally, the energy sector, under the New Recovery Policy, will gradually transition into a self-sustaining financial and economic system. Preparations will be made for high-voltage aerial transmission lines and substations to connect RES within the Northeast Asian integrated energy grid. Furthermore, the construction of a natural gas pipeline from the Russian Federation to China through Mongolia will be accelerated. The Programme focuses largely on energy, allocating 60 per cent of the budget, while the policy’s broader intention is to address bottlenecks in economic development. The Ministry of Economy and Development monitors the implementation of the New Recovery Policy.

Vision 2050 is a long-term development strategy aimed at transforming Mongolia into a prosperous, equitable and sustainable nation by 2050. The vision outlines several key goals and priorities, including: economic diversification: reducing dependency on mining by developing other sectors such as agriculture, tourism and renewable energy; sustainability: ensuring environmental protection and sustainable use of natural resources to combat climate change and preserve Mongolia’s unique ecosystems; social development: improving education, healthcare and social services to enhance the quality of life for all citizens and reduce poverty and inequality; governance and institutional capacity: strengthening democratic governance, legal systems and institutional frameworks to ensure transparency, accountability and participation in decision-making; and infrastructure development: investing in critical infrastructure to support

¹⁶¹ Sovereign Wealth Fund Institute (n.d.).

¹⁶² Ministry of Finance (2018).

¹⁶³ World Bank (2020).

economic growth, including transportation, energy and technology.¹⁶⁴ According to these strategic documents, 30 per cent of energy should come from RES. In the industrial sector, the emissions should be reduced by 40 per cent from energy and waste. The implementation of NDC involves collaborating with other organizations. Mongolia works with Japan, the Republic of Korea and Singapore to leverage carbon market development.¹⁶⁵ The implementation of Recommendation 3.3 (d) of the First EPR of Mongolia—on developing targeted social support measures aimed at enhancing affordability for low-income citizens—is ongoing.

Additionally, Mongolia has an active Green Development Policy, with an Action plan led by the Ministry of Environment and Climate Change. The policy is a comprehensive framework aimed at promoting sustainable development while addressing environmental challenges. It supports sustainable economic growth by encouraging sectors such as agriculture, forestry, tourism and mining to adopt environmentally friendly practices and technologies. Overall, the policy aims to balance economic development with environmental stewardship.

Institutional framework

The Ministry of Economy and Development is responsible for green economic development. In 2024, the Ministry of Economy and Development establishes the Green Finance Policy Unit. This unit is expected to develop green finance attraction measures and sustainable finance policies in coordination with relevant ministries, conduct research and analysis, improve the legal environment, organize integrated resource attraction measures, identify financing projects and monitor implementation through comprehensive measures.

The Ministry of Environment and Climate Change has a clean and green financing unit, which cannot make any decision without approval from the Ministry of Economy and Development. However, the two ministries work in close cooperation.

3.6 ASSESSMENT AND RECOMMENDATIONS

Assessment

The Government has increased revenues for natural resource protection and plans to allocate more funding towards, aiming to build a nature-positive society. However, estimating water pollution charges remains challenging. The polluter-pays principle has been introduced, with the expectation that it will encourage more efficient use of water. These changes have already produced positive outcomes, notably through small-scale onsite wastewater treatment systems. Collected fees for air pollution go to the central budget. There have been calls and commitments to raise the water usage fees. Progress has been made on environmental-related taxes and subsidies, but there is still a lack of clarity in fee collection and the allocation of collected funds. The polluter-pays principle has not yet been fully implemented.

In 2019, it was proposed that air pollution charges should be allocated to an Environmental and Climate Fund to better target spending, rather than depositing revenues into the general budget. As of September 2024, this fund is not operational, and revenues from air pollution are not being directed towards pollution reduction. The use of electric vehicles is encouraged through a tax rate set at half that of gasoline and diesel vehicles.

As of September 2024, the subsidies system for energy, agriculture and public spending remains inefficient, crowding out more efficient expenditures. Planned reforms to reallocate subsidies towards greener initiatives in the energy and agricultural sectors have not yet been implemented.

Since 2017, the Government has taken significant steps to promote a green economy. However, the implementation of many well-designed and inclusive policies involving relevant stakeholders continues to lag. The green transition offers economic opportunities, but also poses fiscal sustainability risks due to the country's heavy reliance on coal. With coal revenues accounting for one-third of total state revenues, a sharp decline could have serious consequences. Tax collection has not been strengthened and non-mining revenues in the state budget remain stagnant. Moreover, Mongolia still lacks a clear energy transition plan. The institutional system for the green economy is not optimized, with unclear roles, overlaps and inefficiencies. However, the Government is making progress in collaborating with international and private banking sectors to mobilize green finance.

Mongolia lacks a targeted approach to electricity subsidies, and energy resources allocation is not optimized. Investing in advanced, environmentally friendly energy technologies to enable RES investments is also limited. Mongolia does not

¹⁶⁴ Mongolia (2020).

¹⁶⁵ Ibid.

yet have an energy auction system in which producers bid to supply the electricity network and secure power purchase agreements. Greater investment in renewable energy would also reduce healthcare costs associated with air pollution in Ulaanbaatar.

As of September 2024, efforts to advance the green economy lack the institutional coherence required to drive a multifaceted, cross-sectorial agenda. Frequent institutional changes and electoral cycles hinder policy continuity. Additionally, awareness and understanding of the green economy among civil servants remains low, limiting knowledge-sharing, intra-institutional coordination and the planning for green reforms, investments and projects. Climate and green considerations are not systematically integrated into budget planning, nor is there clear estimation of green economic impacts to support the mobilization of climate finance. State-owned enterprises do not incorporate climate considerations into their operations.

The mining sector is the principal source of tax revenue, but this dependency, particularly on coal, impedes a successful green transition. A robust plan to phase out coal in line with global decarbonization regulations has not been developed. Current mining tariffs do not incentivize a shift away from coal, leaving Mongolia reliant on it for both revenue and energy production. While the Government has committed to increasing RES usage, the energy transition lacks concrete action. Targeted electricity subsidies, optimized energy allocation and investments in green technologies have not been implemented. Additionally, an energy auction system for power purchase agreements has yet to be established.

Mongolia has significant potential to develop green jobs that could support herders and boost domestic tourism. However, the country lacks a strategy to support the transition from coal-related employment to green job opportunities. Additionally, Mongolia does not focus on corporate development, modernizing businesses and enhancing access to credit to address low labour productivity. There is an opportunity to strengthen public-private partnerships for better collaboration in these areas. The expansion of green jobs represents a viable strategy for poverty reduction.

The introduction of a Green Taxonomy in 2020 is a clear step towards mainstreaming green investments in the public sector. However, the Green Taxonomy is not publicly accessible online, and public sector employees have not received capacity building or clarification on their roles in applying the green taxonomy in relation to the SDG taxonomy.

Progress has been made in implementing the National Sustainable Financial Roadmap, with 2024 focusing on evaluating policy tools, measuring the impact of sustainable funding, enhancing the measurement, reporting and verification system, and developing methodologies to assess climate change impacts on the financial sector. According to the Sustainable Banking and Finance Network, Mongolia has advanced in the integration of ESG principles, particularly in managing climate and nature-related risks. However, the financial sector is not fully aligned with national and international climate risk strategies. The Central Bank of Mongolia has introduced climate risk management and information disclosure requirements to accelerate green financing of the private sector and shifting investments away from fossil fuels.

Mongolia developed a Sustainable Finance Roadmap through a collaborative approach, drawing on lessons from global developments in sustainable finance. However, credit subsidies do not prioritize economic diversification or green development. Moreover, incentives beyond existing customs tax exemptions for renewable energy supply chains are lacking, hindering private-sector participation in the green transition. The business environment remains unpredictable, and there is no clear institutional mechanism to promote and coordinate private sector investments. The Investment and Trade Agency under the Government focuses on foreign investors and does less on attracting broader FDI. Additionally, investment procedures have not been digitized, though doing so could enhance investor confidence by increasing transparency in sector-specific incentives and processes.

Recommendations

Improving green economy governance

Recommendation 3.1:

The Government should:

- (a) *Raise awareness of and develop capacity on the green economy among civil servants and beyond;*
- (b) *Ensure the integration of climate and green considerations into budget planning and allocations;*
- (c) *Establish standardized reporting indicators for environmental performance and green economy initiatives to ensure consistency and comparability of all data collected;*

- (d) *Ensure that all relevant ministries and agencies share data and track progress on environmental performance and green economy initiatives;*
- (e) *Ensure favourable conditions for private sector participation;*
- (f) *Facilitate public-private partnerships for green project development.*

Environment-related taxes and subsidies

Recommendation 3.2:

The Government should:

- (a) *Make the Environmental and Climate Fund operational to support targeted allocation for pollution control;*
- (b) *Implement a carbon tax or emissions trading system;*
- (c) *Provide tax breaks and financial incentives for businesses and industries that adopt green technologies, energy-efficient processes and environmentally sustainable practices;*
- (d) *Improve the effectiveness of agriculture subsidies towards green development;*
- (e) *Phase out environmentally harmful subsidies and redirect those funds to green projects;*
- (f) *Accelerate the green public procurement plan.*

Use of natural resources

Recommendation 3.3:

The Government should:

- (a) *Enhance the clarity and revise effectiveness of pollution charges;*
- (b) *Assess the efficiency of the fee collection process under the polluter pays principle to ensure effective implementation and compliance;*
- (c) *Systematically increase water usage fees to generate sufficient funding for necessary improvements in water management and infrastructure development.*

Energy transition

Recommendation 3.4:

The Government should:

- (a) *Develop a targeted programme on energy transition aligned with global and national decarbonization efforts;*
- (b) *Introduce targeted subsidies for renewable energy projects to make them economically viable;*
- (c) *Create a transparent auction system where green energy producers can bid to supply electricity to the network, facilitating competition and encouraging investment;*
- (d) *Streamline the process of securing power purchase agreements to provide renewable energy producers with long-term contracts that ensure financial stability and encourage investment;*
- (e) *Formulate an investment strategy focused on enabling infrastructure improvements, such as grid modernization and energy storage solutions, to facilitate the transition to renewable energy sources.*

Green jobs

Recommendation 3.5:

The Government should:

- (a) *Support the shift from the informal to the formal green economy by providing employment opportunities for people in the informal sector;*
- (b) *Support herder-based tourism as a means of promoting sustainable tourism and green job creation.*

Green finance

Recommendation 3.6:

The Government should:

- (a) Provide training and clarification for public sector employees on their roles in applying the green taxonomy and its relationship with the Sustainable Development Goals Taxonomy;*
- (b) Ensure that the Investment and Trade Agency focuses on attracting more foreign direct investment in renewable energy, agribusiness and tourism;*
- (c) Promote loans with favourable terms for green projects;*
- (d) Enhance the capacity of the Development Bank to further access finance from the Green Climate Fund;*
- (e) Design a multi-stakeholder just energy transition investment plan to mobilize concessional and donor funding for a shift towards more renewable energy sources;*
- (f) Promote the diversification of green financial products and the broadening of green financial markets to mobilize financial resources for environmental protection and green economy, through green financing mechanisms.*

CHAPTER 4

ENVIRONMENTAL MONITORING AND INFORMATION

4.1 ENVIRONMENTAL MONITORING NETWORKS

Air

Air quality monitoring is conducted by the National Agency of Meteorology and Environmental Monitoring (NAMEM). The national air monitoring network consists of 19 automated stations in Ulaanbaatar that take measurements 24 hours a day. In principle, the automated stations measure six key pollutant indicators: nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), particulate matter (PM₁₀ and PM_{2.5}) and ozone (O₃). Six of these stations are owned by the city of Ulaanbaatar. In the rest of Mongolia, there are 26 manual stations: all 21 *aimags* have one station each, three of them have an additional second one, and Darkhan hosts two more. However, several of the automated stations in Ulaanbaatar no longer function properly and report fewer indicators; sometimes as few as three.¹⁶⁶

The air monitoring network of NAMEM was installed in 2010. As of September 2024, the stations have not been modernized, have reached maximum capacity and require maintenance, repairs, replacements and upgrades to remain operational. Additionally, due to air pollution in Ulaanbaatar, there is a growing demand for more air monitoring stations, as the current network does not cover all neighbourhoods. In the *aimags*, new automated stations are expected to be installed with the help of the Government of the Republic of Korea. Monitoring data is publicly available on an air quality website and app¹⁶⁷ for Ulaanbaatar, which provides real time information on air quality and details on which stations monitor which pollutants.

Air quality is measured in terms of the air quality index, which is broadcasted every 24 hours. The data of the six automated stations of Ulaanbaatar are reported weekly to NAMEM. The aggregated data are reported monthly to the NSO and Environmental Information Centre (EIC). The data collected meets international standards and is accessible to the public through platforms like IQAir¹⁶⁸ and the Real-time Air Quality Index of the World's Air Pollution. This real-time data collection is crucial for assessing air pollution levels and informing public health decisions in Ulaanbaatar.

Challenges for air monitoring

A key challenge for the air monitoring network is the lack of equipment, poor station quality and too few stations. Monitoring stations for air quality are mainly located in urban centres, with most stations located in Ulaanbaatar due to severe winter air pollution. The air quality monitoring in rural areas is limited, particularly in the southern and western regions. Due to a lack of adequate equipment, some pollutants are not being measured, such as volatile organic compounds, persistent organic pollutants (POPs) and benzo(a)pyrene. Additionally, there are no heavy metal or odour detectors, preventing measurement of these contaminants and making it impossible to determine whether odours stem from air pollution.

The state of the automated air monitoring stations is alarming. Data from manual stations are manually entered into the EIC Environmental Database without quality checks. Moreover, there is a 24-hours delay in reporting data and only SO₂ and NO₂ are recorded. Compounding these issues, the offices responsible for data collection and potential analysis lack the authority to implement mitigation measures or propose them to policymakers.

Staff retention poses another monitoring challenge. Governmental agencies struggle to retain air quality experts due to high turnover rates, particularly at the Ministry of Environment and Climate Change.

Finally, the organizational structure of the air monitoring system presents difficulties. Its financing was restructured in 2017, when the National Committee of Environmental Pollution Reduction—previously responsible for air monitoring and its financing—was transferred from the then Ministry of Environment and Tourism to the Ministry of Energy before being dissolved. As of September 2024, NAMEM covers operational costs, while the Ministry of Energy funds the spare parts.

¹⁶⁶ IQAir (n.d.).

¹⁶⁷ Mongolia (Air Quality).

¹⁶⁸ IQAir (n.d.).

Water

The Mongolian National Standard for Water Quality of the Aquatic Environment (MNS 4586:1998, the Water Quality Assessment Regulation) is used to determine water quality based on legal requirements, the water quality indicators and general standards. These standards have remained unchanged since 2017. For wastewater, the Mongolian Standardization and Metrology Department approved the National Standards for Treated Wastewater Reuse (MNS6734:2018) in June 2018. The Standardization and Metrology Department is responsible for determining the methodology of monitoring and the required indicators. While the standards align with international standards, not all indicators are measured due to capacity constraints (including staff and equipment shortages) and limited budget. Chemical monitoring of water is conducted monthly, but biological monitoring is irregularly. Field measurements include, water temperature, water level, conductivity and air pressure, with samples collected for analysis in a laboratory.

Surface water and wastewater

NAMEM oversees surface water quality and water pollution monitoring. Monthly monitoring covers 193 waterpoints in 91 rivers and 19 lakes, plus 64 wastewater discharge points. Mongolia has 25 wastewater treatment plants—4 in Ulaanbaatar and 21 in the *aimags*—all monitored monthly. The schedule is adjusted when the water freezes.

In the *aimags*, NAMEM engineers collect samples, process information and data and enter those into the system. The NAMEM central laboratory of environmental monitoring in Ulaanbaatar validates the data, while the central office generates reports and provides relevant government bodies, such as the Water Agency and the Ministry of Environment and Climate Change, with the data. The reports are publicly accessible, free of charge, on the Water Agency website, and data for 5 key river indicators are included in the Environmental Database. Scientists can request additional information and raw data, which may be free of charge or fee-based depending on access level.

Surface water quality near Ulaanbaatar's wastewater treatment plants is tested by the central laboratory, but only for conventional water quality indicators: on site water temperature, water level, water conductivity and air pressure. Heavy metals, POPs and other hazardous substances are not or rarely being measured, limiting understanding of wastewater composition and risks.

The Ministry of Foreign Affairs monitors transboundary river water quality.

Groundwater

The Water Agency is responsible for groundwater monitoring, including oversight of internal water user monitoring points (covering drinking water enterprises). The groundwater monitoring network consists of 325 monitoring shafts, though these decade-old installations face operational challenges: frequent battery failures and structural deterioration. Of the 325 monitoring shafts, 121 shafts are non-functional, while another 121 need significant upgrades.

In Ulaanbaatar, the situation is particularly critical: only 20 of the 87 groundwater shafts remain operational, with the others severely degraded. Groundwater is measured manually twice a year during inventory checks. Notably, none of the stations are equipped with sensors or remote transmitters capabilities.

The Groundwater Monitoring Portal (publicly accessible with a Mongolian phone number)¹⁶⁹ provides data on the shafts, that are either fully or partly automated. While the fully automated shafts provide measurement real-time data, the partly automated shafts lack this capability. The shafts monitor water temperature, water level, water conductivity and air pressure. Chemical composition analysis, though mandated by the Water Quality Assessment Regulation as a local river basin responsibility, is not performed due to budget constraints covering travel expenses and research. Due to financial and human capacity constraints, the Water Agency cannot collect data from all shafts. Therefore, a full and accurate dataset does not exist. There is an annual inventory of water resources, and chemical data are collected but not sufficient to create a comprehensive dataset on water quality in Mongolia. There are plans and a budget to upgrade 121 groundwater monitoring shafts and, where possible, enterprises-owned shafts are being integrated into the national system as well. Regarding the analyses of the groundwater samples, groundwater pollution monitoring and biological and (biotic) ecological monitoring are not carried out.

The Ministry of Food, Agriculture and Light Industry is responsible for monitoring groundwater for irrigation.

¹⁶⁹ Water Agency (Groundwater Monitoring Portal).

Drinking water

Monitoring drinking water is the responsibility of both the Water Agency and the Ministry of Urban Development, Construction and Housing. Drinking water in Mongolia mainly comes from groundwater and springs. In summer, surface water may be used for drinking water as well. While drinking water is tested for heavy metals, most non-drinking water is not, unless there are mining sites nearby. In Ulaanbaatar, there are various monitoring points operated by the suppliers of clean water to residents. The Ministry of Health is also responsible for drinking water monitoring.

Challenges for water monitoring

In the *aimags*, sectoral inspectors measure surface water, groundwater and drinking water.

The Law on Water includes a provision requiring an integrated database. As of September 2024, the Water Agency has a national database where river basins can enter their data; however, it is not fully integrated and lacks funding for improvements. Data are not exchanged between the institutions involved in water management. Additionally, the quality of data is questionable due to are gaps caused by the lack of equipment and capacity, and because many water monitoring stations are not functioning. Furthermore, data are lacking on biological, ecological and other aspects of water pollution.

At all governmental levels, there are financial and human constraints. The lack of research and data analysis from all water monitoring points hinders water management. The Water Agency does not have a water monitoring and research unit. As of September 2024, the Water Resource Management Division only had one water quality specialist responsible for processing all the reports and responding to all inquiries. Frequently, water experts who have been trained are being recruited by mining enterprises that offer better salaries.

Soil

NAMEM conducts soil monitoring at the *aimag* level. There are more than 400 soil quality monitoring points that should be monitored every two years. However, monitoring has only occurred from 2011 to 2016. In Ulaanbaatar, there are 102 soil monitoring points tested annually, while the *aimags* have 349 monitoring points tested biennially. This follows the plan developed by NAMEM and approved by the Ministry of Environment and Climate Change. The plan is not aimed at bacterial testing of the soil, only on chemical testing. For desertification assessment, soil quality is tested in 1,500 monitoring points outside settlements every five years, with the third round of soil quality testing scheduled to begin in 2025.

Following extensive discussions on soil quality and pollution, funding has been allocated for a baseline study at an additional 1,000 points in Ulaanbaatar and the *aimags*. As both the central and *aimag* laboratories of NAMEM lack the capacity to do this testing, the work has been outsourced to commercial laboratories. These commercial laboratories cannot test for heavy metals and other hazardous substances. Only the NAMEM central laboratory can analyse eight heavy metals and some hazardous substances in soil. Testing for arsenic is not possible.

Soil quality monitoring follows MNS 5850:2019 and MNS 3297:2019 standards. While the national standard specifies testing for 23 heavy metals, only eight heavy metals can currently be analysed in laboratories in Mongolia. The standards do not include bacterial contamination testing nor provide methodologies for such analysis. Although a standard sampling methodology exists, poor compliance results in significant sample variability. Consequently, while basic data have been collected, reliable conclusions are impossible due to the absence of a baseline, standardized methodology and consistent sampling. *Aimag*-level capacity constraints further prevent accurate soil data.

Although bacterial testing is not required, the central laboratory conducts harmful bacteria tests three to five days after floods, detecting nearly 100 health-risk bacteria. Other laboratories lack this capability.

Heavy metal and chemical pollution of the soil is not a standard procedure. At the *aimag* level, testing only occurs only at suspected pollution sites. Thus, gas stations are monitored annually, with samples being sent to the central laboratory for comprehensive analysis. Roadsides are not monitored for soil pollution, despite continued leaded gasoline use in Mongolia.

In addition to NAMEM, several institutions monitor soil for various purposes: the Ministry of Food, Agriculture and Light Industry, the ALAMGC, the Central Geological Laboratory and the Municipality of Ulaanbaatar. All maintain separate databases without coordination, potentially duplicating efforts. No soil data integration or exchange mechanisms exist. Recommendation 15.9 (a) of the First EPR of Mongolia is not implemented.

No public health impact surveys regarding soil chemicals have been carried out due to the lack of data on polluted soils. Consequently, no chemical exposure reduction policies have been developed. Recommendation 15.9 (b) and (c) of the First EPR of Mongolia are not implemented.

Challenges for soil monitoring

There are both financial and capacity constraints at the *aimag* level and at the central laboratory. Of the eight heavy metals detectable in the soil by the central laboratory, only seven could be analysed as of September 2024 due to a shortage of materials. Other heavy metals, bacterial and other pollution cannot be analysed. Only a limited number of soil monitoring points are sampled regularly. Standardized procedures and methodologies of collecting and analysing soil data are lacking, resulting in an incomplete dataset for informed policy making.

Pollution from dumpsites or landfills

Waste data are reported by the environmental departments of the *aimags*. The *aimags* gather data from the (centralized) dumpsites and register enterprises disposing of hazardous and non-hazardous waste. However, no regular monitoring of pollution at dumpsites or landfills is conducted.

Noise, vibration and odour

Noise, vibration and odour are not monitored.

Photo 4.1: River in the countryside



Photo credit: Yelyzaveta Alekseyeva.

Radioactivity and radiation

NAMEM monitors nature induced radioactivity, measuring gamma radiation at 37 points twice daily. Beta radiation is assessed by collecting samples from water and air. However, radon is not measured due to the lack of appropriate equipment (see Chapter 17). Daily samples are collected at 25 points and analysed at the central laboratory, while samples from the *aimags* are delivered to the central laboratory every 10 days. NAMEM also monitors nine major rivers annually during the summer. Since 1986, radiation has been measured in microsieverts per hour ($\mu\text{Sv/h}$). Validated data are shared with the secretariat of the Nuclear Energy Commission, which forwards them to IAEA. Data are also published in the EIC air pollution – environmental radioactivity database as monthly averages. For uranium mining, the Ministry of Mining and Heavy Industry maintains a specialized inspection unit responsible for monitoring.

Solar activity (radiation) is monitored by the Information and Research Institute of Meteorology, Hydrology and Environment.

Challenges for radioactivity monitoring

Radiation monitoring relies on manual handheld equipment. Automated measuring would improve data accuracy. The 37 monitoring points are insufficient for Mongolia's vast territory.

Carbon emissions

CCRCC under the Ministry of Environment and Climate Change is, amongst others, responsible for collecting data on carbon emissions. CCRCC collects CO₂ emissions data from sectoral enterprises, though data collection remains challenging. CCRCC has also been working to develop a national carbon registry to centralize carbon project data. The password-protected registry website requires emitters to self-report. However, the method used to gather data in the registry has not been verified. Furthermore, as it is difficult to collect the data, the registry will not be comprehensive. Carbon emissions can be calculated based on the available data. CCRCC submits biennial reports and quadrennial national communications. The system is designed to be self-funded through registration fees.

Challenges for carbon emissions monitoring

Government transitions result in team changes, exacerbating existing expertise gaps in carbon emissions. An August 2024 technical review identified registry and methodological errors, prompting recommendations on improving research methodology.

Biodiversity

The Ministry of Environment and Climate Change is responsible for biodiversity monitoring (see Chapter 12). While biodiversity should be monitored regularly, budget constraints have prevented monitoring since 2014. On a project basis, rare species are monitored by NGOs and national parks (see Box 4.1), but there is no systematic monitoring of plants and species and no coordination among various biodiversity monitoring initiatives. This results in no structural overview of the general state of plants and species. There is also no comprehensive assessment of how common plants and animals are affected by factors such as climate change, overgrazing, or desertification. National parks conduct their own monitoring and maintain separate databases on local plants and species, though these databases are not publicly available.

Under the Law on Natural Flora, 132 very rare and 156 rare plants should be monitored every five years. However, budget constraints have prevented this. Since 2018, research has only been conducted in 5 out of 16 designated regions. The Ministry of Environment and Climate Change updates the red list based on research. Since 2017, four studies have examined 1,000 different plants each time. When data are missing, species are not placed on the red list. According to the latest research, the very rare species should have to increase to over 300 species. This significant increase may reflect improved data availability rather than actual ecological changes.

Box 4.1: Biodiversity monitoring in national parks

Most national parks conduct their own monitoring. Hustai National Park established a monitoring system in 1992 and has been monitoring regularly since then, which has resulted in a reliable and stable database. The population number of animals is well documented, as well as the plant species present in the park. Wildlife is being monitored on 13 transect routes every 15 days from March to November and once a month during the remainder of the year. Small animals are counted every 10 years using special equipment. During fowling season (late April until mid-August), the Przewalski's horses are monitored every morning and every evening, enabling precise tracking of population numbers and individual health status. Blood samples are taken from foals to assess potential mineral deficiencies and blood cell counts. For plants, monitoring focuses on four habitats. Eleven plots are monitored monthly from April through September. Additionally, Hustai monitors the quantity and quality of water, the quality of soil, as well as the weather and precipitation. Since 2010, the park has operated an automated weather station donated by the Metrological Agency, which also performs biennial calibrations.

The park employs four experts who are responsible for wildlife and plant monitoring. A scientific council reviews the reports at the end of each year. All raw data are entered into the park's database. These data are not public but are used for scientific research and publication in scientific journals. After publication, the park shares the information with interested scholars. Information is not publicly available on a website, but those interested can obtain the information from the park. General information on wildlife and plant species in the park is shared for free upon request. The park submits regular reports to the Ministry of Environment and Climate Change.

Challenges for biodiversity monitoring

Challenges for biodiversity monitoring are (i) organizing and funding biodiversity monitoring in a structural way; (ii) coordinating all efforts at biodiversity monitoring; and (iii) increasing the availability of data and information to both policy makers and the public by integrating and publishing all data that are available at the national level (see Chapter 12).

Forests

As of September 2024, the Forest Agency under the Ministry of Environment and Climate Change is responsible for monitoring the forests and prescribes what has to be monitored. Based on the Law on Forest, two types of inventories are being carried out:

1. A Forest Taxation Inventory is used to enable sustainable forest management (SFM). This inventory has been conducted since 1956. Every year, this inventory is done for some *aimags* so that after 10 years the inventory has been done for the whole country.
2. A Multi-Purpose National Forest Inventory that has to be done every 10 years. It was done in 2014 for the first time and is scheduled again for 2025.

The national forest inventory is multipurpose (see Chapter 13). It not only counts trees but also investigates, for instance, the use of the forests and biodiversity. The monitoring of the forests is done by remote sensing as well as by direct observation on the ground. Based on this information, inventory reports are written and sent to the Ministry of Environment and Climate Change. The reports are used as the basis for the 10-year forest management plans and the five-year forest development plans of the *aimags*. The reports are public and shared with the NSO and published by the Forest Agency.

Analytical laboratories

The central laboratory of the environmental monitoring of NAMEM is responsible for the analysis of samples from air, water and soil. The analytical capacity of the central laboratory is impaired by outdated instruments and sometimes a lack of experts, funding or other resources. The central laboratory is expected to be modernized in the coming years. In each of the 21 *aimags*, NAMEM has a local laboratory that can do basic analyses. Except for in five *aimags*, local laboratories are accredited. The central laboratory provides guidance to and has oversight of the other laboratories.

Apart from those laboratories, the Standardization and Metrology Department also has lab facilities as well as different departments of the universities. The Central Geological Laboratory and the Geodesy and Cartography Institute can, for instance, also test soil.

4.2 ENVIRONMENTAL INFORMATION

Data reporting by enterprises

Self-monitoring by enterprises is required by the Law on Environmental Protection, and reporting is obligatory at the *respective* level. According to the Law on Environmental Impact Assessment, an EMP should include self-monitoring for compliance (see Chapter 2). The self-monitoring is strictly limited to the requirements in the permits and EMPs (see Box 4.2). The local (*soum* and *bag*) levels collect and upload data of enterprises, the *aimag* level validates the data, and the Ministry of Environment and Climate Change, in turn, checks the *aimags'* reports. The Ministry is responsible for the functioning of the system and provides guidance on how data should be entered. The Ministry checks the accuracy and quality of the data. Large enterprises have dedicated units that monitor and generally provide monitoring reports of sufficient quality. Small and Medium-sized Enterprises (SMEs) face problems providing self-monitoring reports of sufficient quality.

Large enterprises have to monitor their own emissions to air and water and send data to the *soum* government offices. The department of air and environmental pollution management in Ulaanbaatar also measures the emissions to air from the large industrial combustion plants with mobile devices once a year. The department may also visit and measure the emissions of installations without notice if there are complaints. There is no mandatory inspection or monitoring of other enterprises. An increasing number of NGOs, citizens and private enterprises are starting to measure air quality (for instance for an EIA), but these data are not publicly available.

Box 4.2: Monitoring of mining activities

In the Law on Minerals, enterprises are obliged to make an environmental protection plan every year (to be approved by the soum governor) and an EMP every 5 years that has to be approved by the Ministry of Environment and Climate Change, after which the mining license will be obtained. In these EMPs, the company should exactly describe what will be monitored and how much land will be rehabilitated every year. The company must describe exactly how the land is rehabilitated, by what method, and what vegetation will be planted. The number of trees planted should be monitored and at some (undetermined) point in time should be registered with the Forest Agency.

The EMP comprises a section on the extraction and use of water. Both ground and surface water used and/or extracted by the company have to be monitored. This is a challenge for enterprises in more than one way. The level of groundwater is unpredictable as it is influenced by the precipitation in a year. As the EMP runs for a period of 5 years, it is difficult for a company to assess exactly how much groundwater will be abstracted. Another challenge for a company may be the equipment with which it has to measure the quantity of water being used. Only water meters of 8-inch are certified. If a company wants to use a 10-inch water meter because all its pipelines and its equipment are tailored to 10-inch pipes that is not allowed as the Ministry cannot certify such a water meter itself, and the Ministry does not allow for an external certification. In practice, this means that a company must adjust its equipment to 8-inch pipelines to be able to measure the quantity of the water used in a certified manner. No regular samples of the chemical composition of the water are taken, but samples are taken every now and then and sent to Ulaanbaatar for analysis. Ecological (biotic) monitoring of water and soil is not required and thus not carried out.

There are indications that the level of compliance with monitoring and other requirements differs between internationally owned enterprises and state-owned enterprises. Also, among foreign-owned enterprises, the compliance may differ significantly depending on who owns the enterprise.

The 2022 Government Resolution No. 151 allows artisanal miners to do more mining. If less than 50 m³ is being mined, a miner does not need to conduct an EIA. As artisanal mining is much less monitored and inspected by the aimag inspectors, this may lead to considerable environmental damage. However, artisanal miners must rehabilitate the grounds they have mined. In practice, this is hardly done. Some aimag and soum authorities require larger companies to do the rehabilitation of the environmental damage caused by artisanal miners and do monitor that.

Not only is the number of artisanal miners not being monitored, but also the scale of artisanal mining (so whether mining is less than 50 m³) is not being monitored. Customs have information, though, on the amount of mercury that is being imported into Mongolia, which gives a good indication of the scale of artisanal mining.

Statistical data

The NSO is responsible for publishing the official statistical data. The environmental statistics are collected and compiled in accordance with the joint order No. A/135 by the NSO and order No. A/527 by the then Ministry of Environment and Tourism. In 2019, templates were developed by the NSO together with the then Ministry of Environment and Tourism to specify what information the NSO has to receive from all environmental sectors. Any institution can use the templates. If a template is approved, then data gathered based on that template constitutes official statistics. Other templates can be used for data that can be used for policies. The latter are not official statistics and can be more detailed than the official data. The institution that provides data is responsible for the accuracy of the data. The NSO publishes the data that it receives but does not have the capacity to verify the data.

Photo 4.2: Altai Tavan Bogd National Park



Photo credit: driendl/stock.adobe.com

Challenges for statistical data

There are concerns regarding the capacity to collect environmental data. On the *soum* and *aimag* level, there is usually only one person who collects data. That makes the system of data gathering vulnerable. If this person is absent for some reason or does not follow the right procedures for collecting data, it has an immediate effect on the quality and completeness of the data. Also, there is data that is just not available in EIC, even though there is a heading for this data.

The Ministry of Environment and Climate Change and other organizations lack the capacity to analyse the data and produce more official environmental statistics based on the data that are available. Furthermore, the exchange of data between ministries, agencies and other institutions is poor, and the use of the available data is limited. There is a lack of data flows among all governmental institutions. Environmental databases of the various organizations involved in the environment are not linked. For example, as of September 2024, data from soil monitoring are not accessible from EIC.

Databases

There are many environment-related databases in Mongolia, the content of which ranges from very detailed data, for example in the cadastre, to aggregated data in the EIC Environmental Database. The Environmental Database hosts environmental information and has to provide environmental information to the general public, thus complying with the environmental dimension of SDG target 12.8 (see Chapter 6).

The Environmental Database consists of 23 components and 54 subcomponents (sub-databases). It contains geographical information system (GIS) information and cadastre data and is organized as a platform. The databases or components and sub-components that form the platform are not connected or integrated. This leads to a lack of interpretability. The Environmental Database is an open database and anyone with login rights can upload information. As around 3,700 users have rights to upload information, it is likely that there are mistakes in the data. Also, there may be inconsistencies between the various sub-databases due to the fact that many different offices and people upload data. Not all information, such as water-related data, is put in the Environmental Database directly; water experts at the *aimag* level send their information electronically to the Water Agency and the Water Agency sends it to the Ministry. IT-solutions and the strengthening of the capacity of the staff would help improve the information system. The lack of data analysis in the Environmental Database hinders the policymaking process. The Recommendation 5.2 (b) of the First EPR of Mongolia recommended the then Ministry of Environment and Tourism to ensure the quality of data available at the Environmental Database. The Recommendation is not implemented and remains valid.

Other agencies with environmental responsibility have their own databases.

Environmental indicators and their use

The Ministry of Environment and Climate Change decides which indicators are entered into the Environmental Database. The NSO reviews the template of indicators, after which the Ministry of Environment and Climate Change approves it. The template of indicators was updated in 2019. The templates and their descriptions, including who should collect what data, are public and can be found in the Environmental Database. The NSO also produces Environmental Protection Expenditure Accounts based on a 2018 order No. A/144 of the Chairperson of the NSO. These accounts focus on economic transactions to reduce and avoid environmental pollution and the utilization of the environment, where production, use and financing of environmental services are presented according to the individual actors and environmental domains. Recommendation 4.4 of the First EPR of Mongolia on improving environmental statistics was not implemented and remains valid.

Implementation of Shared Environmental Information System principles

The implementation of the seven principles of a Shared Environmental Information System is assessed based on the use of the Environmental Database:

- Managed as close as possible to its source.
- Collected once and shared with others for many purposes.
- Readily available to easily fulfil reporting obligations.
- Easily accessible to all users.
- Accessible to enable comparisons at the appropriate geographical scale and the participation of citizens.
- Fully available to the general public and at national level in the relevant national language(s).
- Supported through common, free, open software standards.

The Environmental Database performs well on infrastructure as it is using shared and modern web-based information and communication technologies. EIC also greatly facilitates the transfer of information from *soum* and *aimag* to the national level. As many environmental monitoring instruments are not automated yet, the input has to be done manually, which leads to a time delay and may lead to errors in the data. Therefore, the quality of the data is not always guaranteed. Cooperation is effective where clear mandates, guidance and processes exist. Many organizations put their information in the Environmental Database. It provides a good overview of all environmental data that are available. However, the components and subcomponents of the Environmental Database are not integrated. The system is not compatible with the systems used by the Government and other organizations, which hinders sharing, use, exchange and analysis of environmental data and other information.

Environmental reporting, publication of environmental data, indicator-based assessment reports

The publication of environmental data and environmental reporting occurs through several channels. As of September 2024, the main sources of environmental data are EIC and NSO. Furthermore, all ministries and governmental agencies publish their own reports on their own websites. Environmental reports are published by the NSO and can be found on their website. NSO does not process or aggregate data but publishes data and reports from NAMEM, the Ministry of Environment and Climate Change, the National Emergency Agency, CCRCC and the Land Management Agency and Cadastre. NSO data and information are consistent with the Environmental Database, although there can be a time lag. However, data published are not always accurate, and data sets present some gaps.

Every two years the State of the Environment Report (SoER) is published by the Ministry of Environment and Climate Change. The reports generally cover a two-year period (excluding 2015–2016) and describe the 30-year trend in environmental indicators. The reports are based on specific indicators, rather than on a Driver, Pressure, Condition, Impact and Response (DPSIR) framework. The reports do not include a simple, non-technical summary, but general conclusions and recommendations are included at the end of the report. Recommendation 4.3 of the First EPR of Mongolia suggested the then Ministry of Environment and Tourism improve SoER by (a) Using the DPSIR framework to be more connected with policy needs; and (b) Including a non-technical executive summary in the state of the environment report to better inform stakeholders and decision makers. This recommendation has not been implemented. The NSO publishes an annual statistical yearbook, which is available on the NSO website. A paper copy can be obtained for free. All ministries and agencies publish their own reports. All water reports can be found on the website of the Water Agency (<https://water.gov.mn/>). The public is informed on soil monitoring through reports that are published by NAMEM.

Some enterprises publish sustainability reports (see Chapter 2).

4.3 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

The Law on Hydrological, Meteorological and Environmental Monitoring prescribes the obligation to develop a state policy regarding hydrology, meteorology and environmental monitoring and analysis, and to monitor its implementation. It also incorporates the obligation to provide a nationwide network of hydrological, meteorological and environmental monitoring and analysis and to promptly provide citizens, legal entities and organizations with hydrological, meteorological and environmental information, and to take measures to prevent from disastrous phenomena, catastrophes and environmental pollution.

The 2016 Joint Decree No. A/02 of the then Ministry of Environment and Tourism and NAMEM makes NAMEM responsible for monitoring air, surface water, soil and radioactivity. It describes the related operational procedures, prescribes the frequency of analyses and specifies all indicators. It approves the environmental monitoring programme, which, amongst others, regulates the monitoring of radioactivity. NAMEM collects data based on the templates of the 2020 Decree No. 22. The Law on Environmental Protection gives the *soum* and *aimag* governors authority with respect to environmental protection and the compensation of environmental damage, including monitoring the use of natural resources by citizens, business entities and organizations.

The Law on Air and the Law on Environmental Protection are the legal basis for monitoring air. The Law on Water prescribes the monitoring of water. Soil quality monitoring is conducted in accordance with MNS 5850:2019 and MNS 3297:2019. There is no legal framework to process the soil data or to use of the soil data for policymaking. The Law on Soil Protection and Prevention of Desertification focuses on desertification and does not address soil quality. Therefore, if the soil is polluted, there is nothing the authorities can do.

The Law on Natural Flora describes how to protect and conserve plants. The Law on Environmental Impact Assessment prescribes how to carry out environmental monitoring. It also describes the reporting methodology, the indicators, and the obligation to make EIAs available on the Environmental Database. The Law on Forest prescribes the obligation to conduct a forest taxation inventory and a national forest inventory according to international standards and technology. The 2020 Government Resolution No. 181 prescribes that CCRCC must conduct a CO₂ inventory on a regular basis. The 1997 Law on Statistics has been constantly updated and provides the legal framework for the work of the NSO.

Policy framework

Under the 2016 joint Decree No. A/02, NAMEM has adopted a monitoring programme. The programme indicates that monitoring must be done regularly. However, due to the lack of adequate equipment, not all indicators can be measured. Therefore, NAMEM is allowed to skip the monitoring of some indicators.

Vision 2050 Long-term Development Policy and the four-year Government Action Plan are the policy framework within which the environmental agencies have to monitor (see Chapter 1). The Government Action Plan refers to international standards, but there is no programme to implement international monitoring standards. Neither is there a framework or programme to process data that are gathered or that allows informed policymaking on the basis of the environmental data that are gathered.

Water monitoring will not change in the short term. Even though the improvement of water management has been mentioned in Vision 2050, the Government Action Plan did not incorporate a Water Plan. Without a Water Plan—a Policy Framework on Water—monitoring, among others, cannot change. Regarding soil, two objectives have been mentioned in Vision 2050, but they are not worked out in the Government Action Plan. Apart from the 2021 ministerial Order No. A/138, in which the number of soil indicators to be monitored is reduced to nine, there are no specific policies about soil quality, only with regard to desertification. Regarding biodiversity, the goal in Vision 2050 has been set to analyse two regions yearly (from a total of 16 regions).

Institutional framework

The Ministry of Environment and Climate Change is responsible for environmental monitoring and information and has a dedicated Monitoring, Evaluation and Audit Department (see Chapter 1). On the national level, policies with regard to air, water, soil, hazardous waste, etc. are designed by specialists at the Ministry of Environment and Climate Change and are checked by the Monitoring, Evaluation and Audit Department. The Ministry prescribes at a general level what must be monitored, and technical experts of relevant governmental agencies such as the Environmental Assessment and Audit Division, prescribe monitoring—methodology, norms, standards and indicators—at the technical level. There are specialized agencies at the national level for water and air that have the expertise to design monitoring at the technical level, but there is no specific agency responsible for biodiversity. NAMEM has the function to monitor air, surface water, soil and radioactivity. The Water Agency is responsible for water monitoring. National parks are responsible for biodiversity monitoring in their respective parks.

The Nuclear Energy Commission under the Prime Minister is responsible for the monitoring of radioactivity.

Besides the Ministry of Environment and Climate Change and NAMEM, there are many other organizations that regularly monitor some environmental indicators: the Water Agency, NEMA, the Ministry of Health, the Ministry of Food, Agriculture and Light Industry, the Ministry of Energy, the Ministry of Foreign Affairs, the Ministry of Urban Development, Construction and Housing, National Resources Policy Implementation Department, the General Intelligence Agency, National Public Health Centre, the Ecological Policy Department, the municipality of Ulaanbaatar and CCRCC.

CCRCC is a think tank and state-owned enterprise established to support and advise the Government about carbon emissions. CCRCC has to conduct an inventory on carbon emissions on a regular basis.

Coordination between institutions at national, regional and local levels on matters related to environmental monitoring and information

At each governmental level (national, *aimag* and *soum*) (see Chapter 1), the department dealing with environment and climate change is also performing some monitoring. Data are collected at the *soum* and *aimag* level and are aggregated on the national level.

The exchange of monitoring data between the environmental departments and agencies of the different governmental levels (*soum*, *aimag* and national level) is managed. However, other organizations are also involved in environmental monitoring. The gathering of data by these institutions is not coordinated, and the exchange of data and information between those organizations is problematic. Also, there usually is no capacity to analyse the data and integrate the information of the various datasets to support informed policymaking. Recommendation 4.2 of the First EPR of Mongolia on data collection and sharing is not being implemented and remains valid. Recommendation 4.1 of the First EPR of Mongolia on strengthening the existing environmental monitoring network by making available increased financial and qualified human resources, resuming regular nationwide assessment of species, by developing noise and vibration monitoring, and improving the capacity of laboratories has not been met.

4.4 ASSESSMENT AND RECOMMENDATIONS

Assessment

Mongolia has a sound legal and institutional framework for environmental monitoring. The foundations for an efficient environmental monitoring network are in place. However, the quality of monitoring data depends on the personnel carrying out the measurements, the equipment used and the number of monitoring points. Environmental monitoring is hindered by outdated equipment, limited qualified human and financial resources, and a restricted monitoring network.

The core environmental themes are covered within the environmental monitoring network—with the exception of noise, odour and vibration—and in legislation, except for odour. However, the environmental monitoring network is not strengthened, and data collection is not ensured for many indicators. Data on, for instance, groundwater, soil pollution, air pollution and carbon emissions, for instance, are lacking. Since 2014, regular studies of ecologically and economically important species have been discontinued due to a lack of funding. However, various entities, such as WWF-Mongolia, Wildlife Conservation Society (WCS) Mongolia, The Nature Conservancy, the Zoological Society of London, the Snow Leopard Trust, the Argali Wildlife Research Centre, and the Wildlife Science and Conservation Centre of Mongolia, have been involved in biodiversity monitoring efforts. Monitoring within protected areas and hunting grounds, as well as for specific species, is being carried out (see Chapter 12).

The Government is not able to make informed policies because a large part of the available data is neither integrated nor analysed. There is no coordination between the various organizations that collect environmental data, nor is the Environmental Database integrated. The Environmental Database is a valuable platform, the importance of which would increase if its components and subcomponents were integrated. It plays an important role in keeping the public informed. However, due to current shortcomings, it cannot support evidence-based policymaking and real-time exchange of data and information among organizations. The quality of data in the Environmental Database varies because data are entered manually by many numerous individuals, rather than through automated input directly from measuring instruments. Due to a lack of capacity and funding, some data are not produced or not validated, analysed and reported.

There is an overall shortage of funding, capacity and of laboratory capability, although in general, laboratory staff possesses sufficient knowledge to support sustainable monitoring. Due to financial, human and technical constraints, important monitoring and research activities are not being carried out, such as the nationwide assessment of species, adequate nationwide groundwater measurements and nationwide radioactivity monitoring. Retaining experts is difficult, and expertise is lost due to the rotation of personnel following changes in government. In general, key shortcomings in current monitoring include the lack of monitoring for heavy metals and POPs in soil, air and partly in water, as well as the lack of other relevant parameters being measured. The laboratories lack the necessary equipment to perform these analyses.

Much of the monitoring is conducted manually at the *soum* and *aimag* levels. Many pieces of field monitoring equipment and laboratory instruments are outdated. The existing automated installations are in poor condition and only partially functional. Across different fields, there is a lack of capacity, expertise and resources for sampling, testing and analysis. This is particularly evident at the *aimag* and *soum* levels, where it is difficult to attract experts due to low salaries. Also, capacity-building at the local level remains limited.

Many ministries and agencies have responsibilities related to environmental monitoring. These responsibilities are not always well coordinated, which can lead to inefficient use of data and information by all concerned. Through the Environmental Database, Mongolia has a valuable platform for providing environmental data to inform the public, which, with the necessary upgrades, could also support evidence-based policymaking.

Recommendations

Human capacity for those involved in environmental monitoring

Recommendation 4.1:

The Ministry of Environment and Climate Change should:

- (a) Increase the number of experts involved in environmental monitoring;
- (b) Strengthen the capacity of people involved in environmental monitoring.

Strengthening the existing monitoring network

Recommendation 4.2:

The Ministry of Environment and Climate Change should:

- (a) Prepare a plan on implementing international standards for all fields of environmental monitoring;
- (b) Make a long-term plan to build capacity and gradually modernize all equipment by allocating budget to purchase automated equipment and link it to databases for all fields of environmental monitoring;
- (c) Allocate financial resources to resume the nationwide assessment of all species and the nationwide monitoring of water, and develop noise, odour and vibration monitoring;
- (d) Assess the minimum number of monitoring points in all environmental fields necessary to give a good insight in the state of the environment of Mongolia, and reserve budget to realize this number of monitoring points;
- (e) Invest in the equipment and analytical capacity of the central and other laboratories so that they can work according to international standards and measure more polluting substances;
- (f) Set up a different way of financing the registration system of carbon emissions, not relying upon a registration fee that is a disincentive for projects to register;
- (g) Set up a real time online monitoring system for radioactivity;
- (h) Increase the number of air and water monitoring stations in rural and ecologically significant regions, mountainous regions and areas affected by desertification, to provide a more accurate, representative understanding of environmental conditions across the country;
- (i) Invest in expanding biodiversity monitoring using remote sensing tools and automated climate monitoring networks to improve the monitoring of critical environmental changes and better inform climate adaptation and conservation efforts.

Increasing the quality and use of environmental data

Recommendation 4.3:

The Ministry of Environment and Climate Change, in cooperation with the National Statistical Office, should:

- (a) Ensure the validation, integration and analysis of environmental data to facilitate informed policymaking;
- (b) Strengthen the capacity to gather primary environmental data for improved data quality and avoiding data gaps;
- (c) Further develop procedures and methodology of collecting and analysing data on soil;
- (d) Also develop procedures and methodology of collecting and analysing data on carbon emissions;
- (e) Develop more formal statistics that are relevant for state of the environment reporting;
- (f) Establish a Centralized Environmental Data Platform that consolidates data from all relevant agencies and makes it publicly available, to facilitate sharing and integration of data, making it accessible to policymakers, researchers and the public;
- (g) Implement advanced data management systems that support real-time data analysis, visualization and reporting, to improve decision-making and enable timely responses to emerging environmental issues.

Supporting the policymaking processes

Recommendation 4.4:

The Government should:

- (a) Consider the environmental information and data when developing and implementing policy frameworks at national and local levels, especially on climate change adaptation, resource efficiency and sustainable urbanization;*
- (b) Make the resources available to upgrade the Environmental Database into a platform in which the components and subcomponents are integrated, that is compatible with other computer systems of the Government and that allows data to be exchanged in real time between all organizations involved in monitoring environmental data;*
- (c) Enter all raw environmental data into the Environmental Database, so that it really provides a complete, real-time overview of the state of the environment available to both policymakers and the public;*
- (d) Create the possibility for experts and analysts to give input and advice for remediating environmental pollution and other negative developments for the environment based on analysis of the data;*
- (e) Develop a plan to coordinate and improve inter-institutional cooperation and the sharing of data;*
- (f) Carry out an integrated analysis of each environmental field as the basis for national management plans and programmes;*
- (g) Develop the capacity and knowledge needed to make use of the Environmental Database for informed policymaking.*

Policy integration and alignment with Sustainable Development Goals

Recommendation 4.5:

The Government should ensure that environmental monitoring information and data are used to track progress towards the Sustainable Development Goals (SDGs), particularly those related to clean water and sanitation (SDG 6), climate action (SDG 13) and life on land (SDG 15).

CHAPTER 5

ACCESS TO INFORMATION, PUBLIC PARTICIPATION AND ACCESS TO JUSTICE

5.1 ACCESS TO ENVIRONMENTAL INFORMATION

Scope of environmental information

Environmental information is not defined in the legislation of Mongolia. The scope of environmental information is indirectly indicated in the 1995 Law on Environmental Protection by the content of the environmental database – a publicly accessible state nationwide electronic database of information related to the environment. The list of information to be included in the database covers all elements of the environment, as well as factors/issues such as: natural disasters, hazardous and toxic chemicals, waste, special protected areas, environmental law, EIA, implementation of environmental policies and programmes, environmental statistics and reports, budget and costs of environmental protection measures, organizations and human resources operating in the environmental sector, environmental damage, environmental breaches and crimes, metadata, and other information on the environment. At the same time, information on factors/issues such as energy, noise and radiation, as well as activities and measures, including administrative measures, affecting or likely to affect the elements of the environment, cost-benefit and other economic analysis and assumptions used in environmental decision-making, is not on the list of information composing the environmental database. The information pertaining to other ministries, in particular, on the state of human health and safety, the conditions of human life, and cultural sites and built structures, in as much as they are or may be affected by the elements of the environment falls outside the scope of environmental information.

Since 2017, the legal framework on access to information has continued to evolve toward relevant international standards with significant emphasis put on openness of certain public interest information, digitalization, electronic governance and services, which have developed significantly in practice. The 2011 Law on Information Transparency and Right to Information was replaced by the 2021 Law on Transparency of Public Information. There is, however, no evidence that the new law strengthened implementation and enforcement regarding passive access to information, as the institutional arrangements and the recourse mechanisms available to the public remained the same. The Law on Transparency of Public Information does not define environmental information, nor does it set any special provisions for providing such information to the public either proactively or upon request. The essential information enabling the public to seek information, on the types and scope of information held by public authorities and the public's right and mechanisms to obtain information, are not made publicly available on government websites. Therefore, the Recommendation 5.1 (a) of the First EPR of Mongolia, therefore, was partially implemented in relation to dissemination of information, but not as much in relation to access to information upon request.

Active access

Dissemination of environmental information on the Internet

An obligation of governmental authorities to collect and disseminate environmental information of public interest is prescribed by the Law on Environmental Protection, which assigns it to the state central administrative body in charge of the environment – as of September 2024, the Ministry of Environment and Climate Change. The Ministry of Environment and Climate Change is responsible for organizing the operation of a publicly accessible electronic environmental database, while EIC is a dedicated public service organization that implements day-to-day operations of the database. The list of information to be included in the environmental database is prescribed by law. The legal framework does not prescribe active dissemination of environmental information by sectoral ministries imposing this duty solely on the Ministry of Environment and Climate Change and its subordinate bodies. Recommendation 5.1 (b) of the First EPR of Mongolia has not been implemented.

The structure of the website¹⁷⁰ of the Ministry of Environment and Climate Change reflects the list of information to be made publicly available under the Law on Transparency of Public Information. As all other governmental websites, it includes sections on functions, operational strategies, organization, human resources, budget, finance, procurement and

¹⁷⁰ Mongolia (Ministry of Environment and Climate Change).

services provided, which support meeting SDG targets 16.6 and 16.10 related to environmental matters. In 2023, Mongolia was among countries that adopt and implement constitutional, statutory and/or policy guarantees for public access to information under SDG indicator 16.10.2.¹⁷¹ In the “news” section, the website provides information related to the activities of the Minister, the Ministry and, sometimes, the environment-related activities of other governmental institutions. There is also a section dedicated to draft laws and regulations posted for public consultation as well as comments received from the public (meeting SDG target 16.7 on environment-related legislation). In terms of environmental information, the website publishes the state of the environment reports and provides links to various databases within the environmental database operated by EIC and the air quality website.¹⁷² The dedicated website and associated mobile phone application on air quality feature real-time air quality data in Ulaanbaatar city.

The reports on the state of the environment in Mongolia are prepared on a biennial basis. As of September 2024, the website of the Ministry of Environment and Climate Change contains the reports on the state of the environment in Mongolia for the years 2013–2014, 2015–2016, 2017–2018 and 2019–2020 years. They are also available on the website¹⁷³ of the Forest Agency.

The key platform for providing access to environmental information is EIC, which currently maintains approximately 54 sub-databases related to the environment, publicly accessible through a dedicated web portal.¹⁷⁴ Notably, the EIA database is available on the EIC web portal. It contains information on thousands of GEIAs and DEIAs approved since 1995 and actual scanned copies of EIA documentation (official documents approving the EIA report, the EIA report’s sections related to impact mitigation and compensation measures, risk management, environmental protection plan, environmental monitoring programme as well as a public participation document) from around the year 2011 (see Chapter 2).

The new addition to the EIC resources since 2017, is the Pollutant Emission and Migration Registration System, available online since 2018. The description claims that the System contains annual data on hazardous pollutants released into water, air and soil, yet currently the publicly available data only include two unrelated lists: one of the polluting substances, and another on the facilities. The list of substances includes only their names and reference codes, but no data on emissions, either facility-specific or aggregated. The list on facilities includes approximately 363 entries indicating the title of a facility, legal entity and location, although among what should be a pollutant release and transfer register like various producing plants and factories, the list includes hotels, schools, prisons and other facilities with insignificant emissions into the environment.

Other institutions providing information related to the environment on their websites include NAMEM, the Mongolian Agency for Standardization and Metrology,¹⁷⁵ NSO¹⁷⁶ and the Mineral Resources and Petroleum Authority.¹⁷⁷ NAMEM produces early warnings regarding disasters through its National Remote Sensing Centre (see Chapter 16).¹⁷⁸

Laws and regulations, as well as policies, strategies and programmes on environmental matters are available on the EIC website and the website of the Unified Legal Information System.¹⁷⁹

There is no explicit evidence of government efforts in encouraging active dissemination and provision of environmental information by sectoral ministries and agencies.

Pursuant to the Law on Information Transparency and Right to Information, only environmental-related information must be made publicly available on the respective governmental websites, for example:

- Information on revenues contributed to the budget by legal entities holding special licenses to use mineral deposits;
- Information on the impact on the environment caused by the use of mineral resources;
- Information on the impact of activities, production, services, techniques and technologies on the health of people, animals, and on the environment;

¹⁷¹ UNESCO (n.d.).

¹⁷² Mongolia (Air Quality).

¹⁷³ Mongolia (Forest Agency).

¹⁷⁴ Mongolia (EIC).

¹⁷⁵ Mongolia (Mongolian Agency for Standardization and Metrology):

¹⁷⁶ Mongolia (NSO).

¹⁷⁷ Mongolia (Mineral Resources and Petroleum Authority).

¹⁷⁸ Mongolia (National Remote Sensing Centre).

¹⁷⁹ Mongolia (Unified Legal Information System).

- Status of land use certificates, signed contracts, land use payments issued in SPAs;
- Agreements signed by local governments with mineral license holders on the issues of environmental protection.

For example, the ALAMGC has digitalized the procedure for allocation of land to citizens and legal entities within the protected areas. As of 2024, the information on the allocation, extension, cancellation and invalidation of land use rights in the protected areas is entered in the Land Electronic System,¹⁸⁰ which as of September 2024, included information on 2,643 land users within the protected areas and is publicly accessible.

The Government succeeded in its overall policy on digitalization, which contributed to making more environmental information publicly available on Internet portals (information on draft laws and regulations, on issued permits and licenses). Contrary to Recommendation 5.2 (a) of the First EPR of Mongolia, however, the Government chose not to raise the status of EIC, although it is conveniently placed in the downtown area, making it easily accessible to the public. Thus, Recommendation 5.2 (a) of the First EPR of Mongolia was partially met.

The Ministry of Environment and Climate Change disseminates some environmental information through mobile applications. An application on air quality provides real-time data from monitoring stations in Ulaanbaatar, where the number of registered mobile phones surpasses the number of residents making it the most effective way of reaching the public. Recommendation 5.3 (c) of the First EPR of Mongolia is implemented. However, online availability of information on emissions, hazardous substances and waste, on environmental performance and compliance by operators of activities potentially affecting the environment, in both raw and aggregated form, remains scarce.

The International Telecommunication Union (ITU) reports that there were slightly more female Internet users than males in 2018 and asserts that the country recorded gender parity in terms of mobile phone ownership in 2017–2019, with a score between 0.98 and 1.02 on the corresponding measure. In its Mobile Connectivity Index, GSMA emphasizes that Mongolia has maintained high scores on its Gender Equality dimension throughout the years.¹⁸¹ Therefore, as a low-middle income country, Mongolia exceeds expectations and is an exception to the premise that women in low and middle-income nations are 20 per cent less likely than men to own a smartphone. The Inclusive Internet Index confirms the gender parity in mobile phone access but suggests a “reverse” gender gap in Internet access, meaning that women are more connected than men.¹⁸² ITU data on female Internet users as a percentage of the population in 2018 also substantiates this unusual gender gap.¹⁸³

Television and radio

The Government continues to cooperate with television stations for environmental awareness raising and campaigning. In 2024, the Ministry of Environment and Climate Change signed agreements with 10 television stations and 18 news channels for broadcasting environment-related programmes. The TV broadcasting is used to involve citizens, business and NGOs in combating climate change by planting trees within the OBTNM.

In 2024, in cooperation with the Ministry of Food, Agriculture and Light Industry, the National Biosafety Committee and the Mongolian National Public Radio and Television, a 20-minute programme about food raw materials and products derived from GMOs was prepared and broadcast to the public.

Emergency signals and warnings in case of disasters and emergencies are promptly transmitted to the public by the Centre of Emergency Management and Notification of the General Directorate of Emergency Situations through radio and television broadcasting networks. The legal framework requires all legal entities holding a special license for broadcasting to facilitate dissemination of information to the public in the event of imminent threat to human health or the environment.

Dissemination of environmental information by business

Government efforts to encourage the disclosure and active dissemination of environmental information by business entities are at their very inception. The only sector where businesses disclose some information of public interest is mining,¹⁸⁴ which is due to Mongolia's participation in the EITI. Mongolia has achieved a moderate overall score in implementing the

¹⁸⁰ Mongolia (Land Electronic System).

¹⁸¹ GSMA (n.d.).

¹⁸² EIU (2022).

¹⁸³ Buyannemekh (2021).

¹⁸⁴ Mongolia EITI (Reports).

2019 EITI Standard.¹⁸⁵ Nevertheless, the draft law on extractive industry transparency, aimed at setting a legal framework for respective obligations for the mining companies, has not been passed yet, although it has remained on the political agenda for a decade now.

There are no eco-labelling and eco-auditing schemes, or other voluntary or obligatory mechanisms encouraging operators to inform the public regularly about the environmental impact of their activities and products.

Dissemination of environmental information by NGOs

NGOs contribute to the dissemination of environmental information online. In 2019, the Open Society Forum¹⁸⁶ launched the resource contracts database.¹⁸⁷ This publicly accessible database, improving transparency in the mining sector, was developed in cooperation with Mongolia EITI and the Ministry of Mining and Heavy Industry. The database includes scanned texts of production sharing agreements in the oil and gas sector, investment agreements, concession and local development agreements, as well as other agreements in the mining sector.

Passive access

In 2021, the 2011 Law on Information Transparency and Right to Information, which regulated requests for information, was repealed. As of September 2024, the Law on Transparency of Public Information sets a legal framework for passive access to information. Apart from public authorities, the law covers private legal entities owned by the state or local governments (partially or in full), persons performing certain functions of a government organization based on law or contract, public radio and television as well as political parties – as actors responsible for public information.

Individuals and legal entities have the right to request information. The law provides for two types of requests: requests for (i) open information (that may be made orally, in writing, or electronically), and (ii) restricted information (must be made in writing or electronically). For open information, the requester does not need to explain their reasons. For restricted information, the purpose of the request and the consent of the owner must be provided.

The Law requires responses within five working days, extendable by another five working days if needed. Requests that can be answered immediately should be resolved immediately.

The Law does not specifically provide for the public's right to request copies of official documents, the provisions on separating information exempted from disclosure from an official document, and provision of the remainder of information that has been requested.

The Law requires responsible officials to keep record of information requests, information on how they were resolved, as well as forward the requests to a relevant institution holding the information.

The Ministry of Environment and Climate Change responds to public requests in writing, orally and in person, depending on the nature of the request and the mode in which it was made. A record of public inquiries including requests, petitions and complaints received from citizens, NGOs and businesses is kept by the Ministry's registration desk. The majority are inquiries on various administrative services provided by the Ministry of Environment and Climate Change or complaints. The Ministry does not keep a separate record of the number of information requests and the way they were handled.

No information is publicly available on the number of requests made to public authorities or on the implementation of the Law on Transparency of Public Information regarding access to information requests. Websites of the Ministry of Environment and Climate Change and EIC lack information on the basic terms and conditions under which environmental information is made available and accessible, and the process by which it can be obtained.

According to the information received, despite the legal frameworks provided by the Law on Information Transparency and Right to Information, as well as the Law on Transparency of Public Information, environmental NGOs and activists still face difficulties accessing environmental information. Information concerning mining activities as well as actual copies of licenses and authorizations seem to be particularly challenging to obtain. The law does not require public authorities to disseminate information about access procedures, and the public underutilizes this right. Constraints on capacity and resources have limited government efforts to raise awareness and build capacity regarding information access rights. This makes Recommendation 5.1 (c) of the First EPR of Mongolia not sufficiently implemented.

¹⁸⁵ EITI (2022).

¹⁸⁶ Open Society Forum (Home).

¹⁸⁷ Open Society Forum (Database).

Although both laws created a presumption favouring access to information (with limited exceptions), in practice these exceptions often are applied inconsistently with international standards. According to the Ministry of Environment and Climate Change, copies of environmental licenses and inspection reports withheld due to confidentiality concerns and when the public is allowed to study official documents, on the premises of the Ministry of Environment and Climate Change, copying or photographing them is prohibited.

EIC provides requested environmental information (from its database) free of charge. Although availability of information online helps to reduce the number of information requests, departments of the Ministry of Environment and Climate Change handle the requests for environmental information in their respective areas on a regular basis.

Charges

According to the Law on Transparency of Public Information, costs must not be charged if the information is requested in electronic form. However, when obtaining information in paper form, a person or legal entity must pay the associated expenses. These costs, however, are limited to the direct costs of paper copying and mailing of the requested information. The Law delegates to the Government the authority to establish the method of calculating and the procedure for collecting the costs, granting discounts and waivers.

In the case of the Ministry of Environment and Climate Change, environmental information is provided free of charge when the requested information is available in documents, reports, publications or databases. Even the direct costs for copying and mailing are not charged. It is very rare, however, for the replies to information requests to exceed 10 pages.

NAMEM provides archived environmental and hydroclimatic data to individuals and legal entities for a fee. Fees apply for providing paper-based originals for examination, for access to the electronic database and for providing copies of archive documents.

Photo 5.1: Mongolian landscape



Photo credit: Dmitry Pichugin/stock.adobe.com

Limitations to access to information

The Law on Transparency of Public Information, as one of its core principles, proclaims that public information should be transparent and open, unless otherwise provided by law (restricted or secret). Information other than restricted or secret is deemed open. Restricted information includes official confidential information (such as information collected in the course of investigating crimes and executing court decisions, information collected during the state inspections until the decision becomes effective) and information related to persons and legal entities, the disclosure and use of which are restricted by law. Confidential information covers state secrets and other information that is prescribed to be confidential by law.

The information specified by the law to be transparent and open must not be classified as an official secret. Restricted information pertaining to persons and legal entities may be provided to third parties only with the explicit consent of the information owner. When requesting for consent, one must state the purpose of obtaining information and the intended future use of the information.

The 2016 Law on State and Official Secrets covers a wide range of information protected from disclosure due to the national security and national interest concerns (state secrets) as well as potential harmful information to industry and other legal entities in case of disclosure (official secrets). The law provides no exceptions or special provision for environmental information.

The Law on Privacy of Organizations establishes a legal framework for the protection of commercial secrets. Although amended over the years, the law allows private parties to claim confidentiality over their information, technological solutions, projects, and research and analysis. This applies to information the organization has kept confidential for the purpose of protecting its market and advantages in fair competition, and whose disclosure might harm its legal interests. The law provides very few exceptions specifically stating that the following cannot be made confidential: information on the impacts of organization's activities on health and the environment, data on toxic and radioactive substances held by the organization, information about crimes; and other information required to be disclosed by national legislation.

The Mongolian legal framework includes many internationally recognized grounds for refusal, it does not require for them to be interpreted restrictively, considering the public interest in disclosure. The law lacks a three-tier harm and public interest test for limiting access to and disclosing public information, leaving officials with no discretion in handling access to information requests. Furthermore, the legislation provides for criminal, administrative and disciplinary penalties for individuals that violate the laws related to secret and restricted information.

Notably, domestic law does not require public authorities to consider whether requested information relates to emissions into the environment when processing access requests.

5.2 PUBLIC PARTICIPATION IN DECISION-MAKING ON ENVIRONMENTAL MATTERS

Environmental NGOs

Legal environment for registration and operation of environmental NGOs allows for civil society to develop and operate rather freely. No backslide is observed in this regard. Since the 1990s, the number of environmental NGOs has been constantly growing. The civil society sector is very diverse and vibrant, ranging from awareness-raising and research-oriented NGOs to groups involved in open criticism of government and industry, participation in decision-making, advocacy campaigns, and public interest litigation. There is, however, no evidence of implementation of Recommendation 5.3 (e) of the First EPR of Mongolia which calls for further governmental efforts to encourage NGOs to develop their capacity and accountability.

Domestic NGOs undergo state registration by the General Authority for State Registration, like any other legal entities. The fee of 44,000 tugriks charged for the state registration of newly established NGOs does not hinder their registration.¹⁸⁸ There are no special provisions for the environmental NGOs. The Authority maintains a publicly available online database of information on legal entities registered in the country including the NGOs.¹⁸⁹ As of September 2024, according to the General Authority for State Registration, 23,112 NGOs are registered, of which 1,907 NGOs are registered as environmental NGOs. Compared to 2017 figures (487 environmental NGOs), the number has more than tripled over the review period. In 2023, 6,643 NGOs were removed from State registration for failure to submit financial reports over a prolonged period, including 569 environmental NGOs. That suggests that the count of 1,907 environmental NGOs more accurately reflects the number of active NGOs in the country. International NGOs are registered by the Mongolian Immigration Agency.

The current law requires NGOs to file annual financial reports for the previous calendar year with the Tax Office and submit annual activities reports with the Ministry of Justice. The law does not authorize the Ministry of Justice nor the State authority in charge of State registration with powers to conduct out inspections of NGOs, to halt their activities or to dissolve them. Only the courts may order a compulsory dissolution of an NGO, and only on grounds explicitly specified by law.

¹⁸⁸ Average wages in 2023: almost 1.9 million tugriks.

¹⁸⁹ Mongolia (General Authority for State Registration).

The NGO sector is very diverse in its forms of organization, areas of work and methods of activities. A substantial number of NGOs operate without membership or in the form of a foundation. The sector includes many briefcase NGOs, and NGOs established by former government employees. There is also a visible division in the NGO sector between NGOs cooperating with the Government and receiving grants from the State budget or from international donors and independent NGOs.

In general NGOs are more involved in training, research, consulting and information activities with very few engaged in public service monitoring, budget control or strategic litigation.¹⁹⁰ However, in environmental protection, NGOs that openly criticize government and industry (especially mining) are particularly vocal. Environmental NGOs are active in public interest litigation in domestic courts and complaints to international financial institution recourse mechanisms.

Legislation requires inclusion of NGO representatives in working groups, committees and boards that perform various functions of the Ministry of Environment and Climate Change, and its subordinate organizations. In practice, however, some NGOs receive preferential treatment over others. Although the First EPR advised (Recommendation 5.3 (d) of the First EPR of Mongolia) to equal opportunities for all NGOs to apply for direct inclusion in law-drafting working groups, by receiving information about such working groups via government websites, no evidence of such implementation was observed during the mission.

Public participation in decision making on specific activities (projects)

Public participation in EIA is provided for as part of the legal framework in Mongolia. This framework has not changed since 2017, it lays down only the basic provisions for public involvement, with very few procedural details, some of which are not in line with relevant international standards.

In practice, both businesses and NGOs report that enforcement of legal provisions on public participation remains weak. Due to the lack of specifics in the legislation and no guidance documents from the Ministry of Environment and Climate Change, local authorities and consultants preparing EIA reports often fail to effectively inform the public concerned, seek public input, or take due account of public opinions.

Only some consultants, while preparing the EIA report, meet with the citizens, visit households and conduct surveys to collect public opinion, while others ignore this phase to save on expenses.

Since there are no clear rules on public access to the draft EIA reports during public involvement, these drafts are neither posted online nor made publicly available at local authorities' offices. There is also no consensus on the access status of EIA reports, with some authorities and consultants considering them confidential. While some consultants provide local authorities with an EIA summary prior to public hearings, others do not. In most cases, citizens participate in meetings and express opinions based solely on presentations made by the consultants.

Public hearings for EIAs are organized during regular citizen meetings of the *bagh* and *khoroо* territory. In these meetings, which occur only a few times a year, EIA consultations are merely an agenda item rather than a separate exercise. Furthermore, these meetings traditionally are attended predominantly by men, hindering participation by women. A common misconception among the local authorities and the public is that EIA consultations are decision-making forums to support or reject projects. This misconception is reinforced when authorities approve EIA reports based solely on supportive resolutions in meeting minutes, rather considering actual public comments and opinions. The affected population cannot meaningfully participate in the procedure due to lack of relevant expertise, and the hearings devolving into votes favouring projects in exchange for promised environmental measures and social benefits.

Written comments are not solicited or collected during established consultation periods. NGOs and activists report that public input is neither considered by the consultants when revising draft EIA reports nor taken into account by public authorities when approving reports. Once is approved, certain EIA report chapters (namely, on impact mitigation, elimination and compensation measures, risk management, environmental protection plan, environmental monitoring programme) are uploaded to the EIA database along with the approval decision and a public participation document. Complete EIA reports remain unavailable online even after approval. The public participation document includes meeting resolutions and minutes but does not show how public input was incorporated.

Since 2017, the Government has not reviewed the Law on Environmental Impact Assessment, or updated the 2014 Procedure on Ensuring Public Participation in Environmental Impact Assessment to either extend deadlines for public consultations on planned projects or to encourage greater use of mobile phones and other electronic information tools for public participation. Hence, Recommendations 5.3 (a) and 5.3 (c) of the First EPR have not been met regarding EIA

¹⁹⁰ Civil Society Consortium (2021).

procedures. The Government has also failed to act on Recommendation 5.3 (b) of the First EPR of Mongolia, namely, by building capacity of local authorities and enabling business to proactively engage the public in consultations on planned projects.

Since 2017, the Ministry of Environment and Climate Change has digitalized the EIA procedure and maintains a publicly accessible EIA database containing decisions on approval of EIA documentation as well as certain parts thereof.

Public participation in issuing licenses and permits

Although many relevant laws have been revised and new legislation on issuing licenses and permits have been passed in the review period, public participation remains excluded from these processes. The 2012 Law on Air does not provide for public participation in permits for major air polluting stationary sources. Similarly, other sectoral laws governing waste management, water management, or use of other natural resources also lack public participation requirements. Consequently, no environmental permit or license issuance procedures include public participation requirements.

The 2022 Law on Permits does not incorporate public participation in permit-granting procedures. The law does, however, establish a publicly accessible unified electronic database containing information on the permitting procedures and their results. While the law requires public inquiries related to permits to be answered within three working days, it does not explicitly grant the public the right to receive actual copies of permits. In practice, NGOs report persistent difficulties in obtaining copies of permits and licenses, despite legal provisions.

Public participation in strategic environmental assessment

There is no strategic environmental assessment (SEA) example in the environmental assessment database, which includes documentation on all types of environmental assessments performed in the country. The Government does not implement the SEA provisions of the 2012 Law on Environmental Impact Assessment when developing strategic documents and plans. Hence, there is no experience with public participation in this procedure as of late 2024, with one donor-organized exception (see Chapter 1).

Public participation in strategic planning and legislation

The biggest progress in public participation in environmental decision-making was achieved at the level of policies, laws and regulations. Due to the favourable legal framework adopted in 2015–2020 and the digitalization of governance, the public, in particular environmental NGOs, became more active and involved in commenting on policy and regulatory documents developed by the Ministry of Environment and Climate Change and other relevant line ministries. While some gaps remain in practical implementation of certain requirements, the overall, the situation has improved. Recommendation 5.3 (c) of the First EPR of Mongolia therefore has been acted upon.

During the review period, civil society organizations and individuals provided comments and suggestions to the proposed amendments to the 1997 Law on Non-governmental Organizations, the Law on Environmental Impact Assessment, the Law on Minerals, some other draft laws and numerous regulations, sometimes in multiple revision rounds. Although environmental NGOs remain generally dissatisfied with how the Ministry of Environment and Climate Change and other authorities incorporate their input, in some cases they were able to challenge some of the legislative initiatives that they found problematic (e.g. the amendments to the Law on Non-governmental Organizations).

The development of e-governance mechanisms in Mongolia was instrumental in enabling public participation in policy and lawmaking by giving public authorities practical tools to implement relevant provisions. For public consultations, authorities make draft documents available through multiple online platforms, including official websites. They collect written comments submitted via official letters or electronic forms on dedicated platforms.

While the law requires a minimum of 15-day consultation period in at least one case, in practice, the public is typically given 30 days to comment on draft documents. Recommendation 5.3 (a) of the First EPR of Mongolia on extension of deadlines for public consultations on draft legislation could be considered partly implemented.

As reported by public authorities due to resources constraints, the legal provision prescribing them to inform the public how their input was considered is not fulfilled. For example, the Ministry of Environment and Climate Change website includes lists of draft documents for public consultations and letters received from the public and NGOs. However, it does not publish documents showing the results of public participation.

Public participation in developing standards

When the Agency for Standardization and Metrology develops new standards, the draft standards are posted on the Agency's website to enable public comments.

Public participation in decision-making on genetically modified organisms

The 2007 Law on Living Genetically Modified Organism (GMOs) does not provide for public participation in the procedure of granting permits for export, import or transit of living modified organisms. The law also fails to require permits for the deliberate release of GMOs into the environment, creating another gap in public participation. The sole public participation mechanism regarding GMOs relates to the composition of the National Biosafety Committee under the Ministry of Environment and Climate Change, which includes government representatives, scientific organization representatives and NGO representatives.

Public participation in international decision-making on the environment

There are no established procedures or practices for allowing NGO participation in international meetings, public participation in developing official positions, public input on international commitments, or reports under the multilateral environmental agreements. There has been no progress, therefore, in the implementation of Recommendation 5.3 (f) of the First EPR of Mongolia.

Environmental defenders

No statistical data exist to measure progress toward environmental dimensions of SDG targets 16.3 (Promote the rule of law at the national and international levels and ensure equal access to justice for all) and 16.10 (in respect of ensuring fundamental freedoms, in accordance with national legislation and international agreements). However, environment activists report numerous cases of attacks and abuses associated with their activities over the review period. The activists mention stigma, pressure, hate speech and censorship on social media, as well as investigation by the police and the intelligence agency, imprisonment and violence. The United Nations Special Rapporteur on the Situation of Human Rights Defenders confirmed threats and intimidation against activists and journalists working on corruption or environmental issues, and inadequate investigations of suspicious deaths of defenders.¹⁹¹

The 2017 Law on Infringements' libel provisions are reportedly used to silence activists through excessively elevated administrative fines. Similarly, criminal charges like conspiracy against the government and disclosure of confidential information are weaponized against activists.

Defenders addressing human rights violations in the extractive industry face particular risks. One female environmental activist protecting the rights of a local community reported that she repeatedly received death threats and was abandoned in remote areas by mining company representatives. She complained to the police, but no meaningful actions followed. The head of another NGO fighting against irresponsible mining testified that she is frequently branded as an enemy to economic development and thus an enemy of the State. A mining company brought a lawsuit to dissolve the NGO on the grounds that the company has been repeatedly investigated by public authorities based on NGO's information. The situation of women human rights defenders in Mongolia does not differ from the trend that exists in other parts of the world. In essence, women human rights defenders face the same risks as their male counterparts, but they are also exposed to gender-specific threats.¹⁹²

In 2024, a journalist was arrested and is being prosecuted for investigating suspected misuse of public funds, facing up to eight years in prison. She was detained and later charged with "threatening to disseminate information that might cause serious damage" to the Deputy Prime Minister. A few days before the arrest, her investigative partner was found shot dead.¹⁹³ He worked on legal cases opposing the alleged illegal activities of mining companies.

In 2024, the World Press Freedom Index ranked Mongolia 109th out of 180 countries, plummeting 49 places since 2016.¹⁹⁴ Since 2016, environmental activists report increasing stigma and harassment associated with their activities on the part of private parties and public officials. The activists mention pressure, hate speech and censorship on social media, as well as investigation by the police and intelligence agency, unproportionate fines and imprisonment, as well as suspicious deaths.

¹⁹¹ Forst (2019).

¹⁹² Ibid.

¹⁹³ RSF (2024).

¹⁹⁴ RSF (n.d.)

The offense of libel for information that could damage the reputation of individuals or business entities, and some criminal charges are reported to be used to silence environmental activists.

The First EPR recommended government action to protect environmental activists. Although some measures have been taken e.g., the adoption of the 2021 Law on the Legal Status of Human Rights Defenders, the situation seems to have worsened since 2017. Therefore, Recommendation 5.4 of the First EPR of Mongolia remains unimplemented.

5.3 ACCESS TO JUSTICE IN ENVIRONMENTAL MATTERS

There are three types of judicial authority: criminal court, civil court and administrative court. Most cases initiated by the members of the public against public authorities go to administrative courts. Cases against private persons for their actions or omissions that contravene domestic environmental law are resolved in civil courts. The possibility of members of the public to initiate or participate in criminal proceedings is very limited. All court decisions are publicly available on the dedicated website.¹⁹⁵

Other than in courts members of the public and NGOs can address their complaints related to environmental matters to higher-level public authorities or public officials for an administrative review procedure. According to the Ministry of Environment and Climate Change, in 2023, they received and dealt with 60 complaints from the public (35 from citizens and 25 from organizations and companies), out of which 13 were forwarded to subordinate divisions and organizations for a substantial review, 10 were sent to the police and prosecutor's office to investigate possible corruption, 28 were found unsubstantiated and 9 were resolved by the Ministry itself in favour of the complainant. The administrative review procedure is rather prompt and free of charge, though limited in scope of review as well as in the remedies.

Another venue for the protection of environmental rights is the National Human Rights Commission. The Commission accepts individual complaints including on violations of environmental human rights and the rights of human rights defenders. Within its mandate to follow up on individual complaints, in 2023, the Commissioner in Charge of Human Rights Defenders investigated several complaints related to the rights of environmental defenders and issued recommendations to the parties responsible for the respective human rights violations.

Standing in environmental cases

The Law on Transparency of Public Information specifies that a person who believes that their right to receive information has been violated can file a complaint with the higher-level organization or official, to the court, or to the National Human Rights Commission. Representatives of the public, NGOs in particular, do turn to courts for the disclosure of environmental information (see Box 5.1), although case law in this category is scarce.

Box 5.1: Lake Khuvsgul Owners Movement access to information case

Lake Khuvsgul Owners Movement (LKOM) is an NGO founded in 2006 with the aim of preserving the original appearance of Lake Khuvsgul basin and protecting the rights of local citizens to live in a healthy and safe environment.

Being overly concerned with the land within Khuvsgul Natural Park being increasingly allocated to private parties for tourism purposes and the associated pressure on the environment and local herders, the LKOM in cooperation with local authorities worked on making the process of allocation of land for tourism purposes more transparent and participatory on the part of residents. For this, the LKOM turned to the then Ministry of Environment and Tourism to collect the background information with the aim to protect the rights and interests of citizens living in Khuvsgul Natural Park. Specifically, they requested the list of companies, tourist camps and residences that were permitted to use land for tourism purposes in the park, the details of respective certificates, such as dates and numbers, location and size of the land plots.

In 2019 the then Ministry refused to provide the LKOM with the requested information. The rejection was given in writing, but no justification was provided.

In 2022, a court decision* ruled in favour of the LKOM. The then Ministry was found to have illegally withheld information related to land use for tourism activities in Khuvsgul Natural Park. The court ordered the then Ministry to publicly disclose land use certificates, contracts and land-use payment information for the area. In its argumentation the court mainly referred to the provisions of the law requiring the defendant to hold the requested information in a publicly available database, which they failed to do. The then Ministry accepted the decision and did not challenge it to the higher courts.

Source: * Administrative Court (2022).

¹⁹⁵ Mongolia (Court Decisions Database).

The representatives of the public, on the other hand, have been very active in bringing cases challenging the substantive and/or procedural aspects of decisions related to the environment, including those that contravene provisions of national environment laws. A shift in the legal framework that happened in 2010–2016 granted citizens and environmental NGOs standing in environmental cases and contributed to the attainment of the environmental dimension of SDG target 16.3 (Promote the rule of law at the national and international levels and ensure equal access to justice for all). The Law on Environmental Protection (as amended in 2010) entitles citizens to fight against infringements of environmental laws and to file court claims against those who cause adverse impacts on the environment. The Law entitles NGOs whose charter purpose is to protect the environment to file court claims on environmental damage. The 2016 Law on Administrative Court Procedure allows NGOs to file lawsuits on environmental matters in the public interest. To be able to do so, an NGO must meet two requirements: the claim must be consistent with the NGO's purpose according to its charter, and the NGO must be in operation in accordance with its purpose for at least the last three years.

In 2016–2024, the administrative courts received over a hundred of public interest lawsuits filed by NGOs. The environmental lawsuits included those challenging EIAs for their deficiency and/or lack of effective public participation, mining licenses for being granted without prior EIA, and failures of public authorities to exercise their mandates related to the environment. According to an NGO researcher, however, only a fraction of these cases was decided on the merits, while the majority were dismissed on the basis of plaintiff-NGOs not meeting the requirements of three years of activity or correspondence between the claim and their purpose according to the charter.¹⁹⁶

Costs

Free legal aid (government-provided) for members of the public and NGOs for the protection of their environmental rights in courts does not exist. There are no effective mechanisms to reduce financial barriers either. The exemption from court costs in public interest cases is negated by the very few cases where NGOs are considered to meet the criteria for bringing a public interest case prescribed by the law. In all other cases, a general 'loser pays' principle applies, while discretionary waivers from court costs are not granted due to financial constraints. Recommendation 5.5 (a) of the First EPR of Mongolia therefore still stands.

The State stamp duty payable for filing a court case is governed by the 2010 Law on Stamp Duties and stipulates that citizens and NGOs should pay the State stamp duty. The duty itself is affordable (70,200 tugriks¹⁹⁷ for any non-pecuniary claim). The overall financial cost, however, increases considerably with the expenses required for investigating and gathering evidence, resulting in some cases not being pursued in court because of these costs.

The Law on Administrative Court Procedure exempts persons suing in the public interest from court costs. This rule, however, does not apply to all environmental cases considered by administrative courts, where the general "loser pays" principle applies. Furthermore, application of the exemption depends on classifying a claim as a public interest case, which, as described above, is rather rare due to the narrow interpretation by judges of the criteria for NGOs to bring a public interest claim.

Training of judges

There are no courts, chambers or judges that specialize in environmental cases. Practising judges receive no advanced training on either domestic, or international environmental law, although it is taught in law schools training legal professionals. Recommendation 5.5 (b) of the First EPR of Mongolia therefore was not implemented.

On the other hand, NGOs cooperate with the judiciary, raising pressing matters to the level of professional discussion. In April 2024, the State Supreme Court, in cooperation with Open Society Forum, held a discussion among administrative judges on the issues of representation of public interests in court.¹⁹⁸ Apart from the standing of NGOs in public interest cases, the participants discussed the outstanding issue of judges not applying the provisions of international agreements to which Mongolia is a party while adjudicating cases.

¹⁹⁶ Sukhchuluun (2024). Legal practice and interpretation of the Administrative Court regarding the representation and protection of public interests. Available at <https://forum.mn/product/418044>.

¹⁹⁷ Average wages in 2023: almost 1.9 million tugriks.

¹⁹⁸ Supreme Court of Mongolia (2024). Available at <https://supremecourt.mn/mn/home?page=pages&id=58&pg=3231&pr=14&tp=list&h=0>.

Environmental lawyers

There are lawyers specializing in environmental cases and promoting the use of environmental law in courts. Some of them are members of the environmental branch of the Mongolian Lawyers Association, formed in 2016. Lawyers team up with environmental NGOs, working pro bono and representing environmental interests of the affected communities on a commercial basis.

5.4 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

Environmental NGOs

NGOs in Mongolia, including ones in the area of environmental protection, operate on the basis of the Law on Non-governmental Organizations. The law is acknowledged to be in line with relevant international standards and has not undergone any substantial changes in the review period. In 2021, the Government introduced a new draft law on NGOs, which, according to the NGOs, included many provisions limiting the civic space. Under the pressure put by the NGOs, the law was withdrawn from the Parliament in 2022.

According to the law, NGOs may operate with or without state registration as a legal entity. In the first case, the registration of NGOs is governed by the 2018 Law on State Registration of Legal Entities. The law assigns the State Registration Authority the powers to exclude legal entities from state registration for their failure to submit financial reports for eight or more quarters and establishes the relevant procedure. The cancellation of state registration of NGOs as described above in section 5.2 is due to these provisions.

The Law on Environmental Protection, environmental NGOs grants explicit rights to participate in environmental protection activities, including the right to participate in environmental compliance and enforcement mechanisms, to bring court claims for compensation for environmental damages caused by the party in breach, to submit proposals and recommendations on environmental protection matters to public authorities, and to carry out environmental education and awareness raising activities.

In 2021, the Parliament adopted the Law on the Legal Status of Human Rights Defenders. It became the first law of its kind adopted in Asia, laying the legal grounds for the recognition and protection of human rights defenders. The law also triggered an amendment to the Law on Infringements, which now punishes insulting, slandering and coercing human rights defenders in relation to their work. Nevertheless, the adopted law was criticized by the NGOs for including provisions that may be used to restrict defenders' rights, namely provisions related to the protection of the honour and reputation of others (with respective amendments to the Law on Infringements imposing fines on human rights defenders) and ambiguous restrictions on funding sources.

Over the review period the Parliament repeatedly discussed the draft Law on the Legal Status of Whistleblowers, setting up their legal status, ensuring protection, and providing monetary incentives to those who leak information of public interest. As of September 2024, this law, however, has not been adopted yet.

Access to information

Access to environmental information is governed by both the general legal framework on transparency of public information and sectoral environmental legislation. The obligation of governmental authorities to collect and actively disseminate environmental information of public interest is prescribed by the Law on Environmental Protection, which assigns this responsibility to the State central administrative body in charge of nature and the environment – as of September 2024, the Ministry of Environment and Climate Change. The Ministry of Environment and Climate Change is responsible for organizing the operation of a publicly accessible electronic environmental database, while EIC is a dedicated public service organization that implements the day-to-day operations of the database. The list of information to be included in the environmental database is prescribed by law.

The Law on Transparency of Public Information, that replaced the Law on Information Transparency and Right to Information, emphasizes the use of electronic governance, electronic public services, and proactive information dissemination to the public by electronic means. The law includes a long list of categories of information to be made publicly available on the official websites, including information on a public authority's functions, operational strategies, organization, human resources, budget, finance, procurement and services provided.

Photo 5.2: A wild horse, Erciyes mountain

Access to information upon request is regulated by the Law on Transparency of Public Information. The law provides for the right of the public to file information requests and prescribes the respective procedure. The form of the request, the deadlines for the response, the obligation for the information holder to forward the request in case they do not hold the information requested to an authority having the information, and the obligation to provide reasons in case a request for information is denied are included in the law. There is no special procedure for the provision of environmental information upon request from the public.

The Law on Privacy of Organizations and the 2016 Law on State and Official Secrets cover a wide range of information protected from disclosure, while the 2015 Criminal Code and Law on Infringements provide for penalties for breaches of confidentiality.

Public participation

Public participation in the EIA procedure is regulated by the Law on Environmental Impact Assessment. The law establishes that public participation in the EIA is organized by the consultants licensed to prepare the EIA reports, which, upon their approval, are made publicly available on the Ministry of Environment and Climate Change website. A few more details are provided in the 2014 Procedure on Ensuring Public Participation in Environmental Impact Assessment issued by the then Minister of Environment and Green Development. In the case of General EIA, the public is informed about the projects and the results of the general EIA. In the case of DEIA, some more elaborate elements of public participation in decision-making are in place. There are provisions on notifying the public about the decision-making, on collecting the public's opinions, and on making EIA documentation publicly available upon its approval.

The legal framework does not define "the public" or "the public concerned". It allows affected citizens or "residents directly or indirectly affected or likely to be affected by the project" to participate in the EIA. There is, however, no clear provision allowing environmental NGOs to participate in public hearings or submit their opinions in any other way. It is prescribed that the public is informed about the projects subject to EIA by the Ministry of Environment and Climate Change and by regional and local environmental departments on their websites, but there are no requirements as to the content of such notification, and there are no minimal time frames allowing the public to prepare for meaningful participation. The requirement to make an EIA report, relevant parts thereof or a non-technical summary available to the public to study free of charge prior to public hearings is missing.

Public hearing resolution and minutes of the meeting are required to be submitted to get the EIA report approved. It appears, however, that public hearings are the only obligatory form of public participation in EIA, and there are no provisions allowing the public to submit written comments to either the EIA consultant, the developer or the public authority approving the EIA report. The legal framework does not set a timeframe during which the public may submit its written information, comments and opinions. It also limits the public comments during public hearings to only be made within the scope of relevant laws and regulations.

Public authorities approving EIA reports are not assigned by law with the legal obligation to take into account the outcome of public participation. The Environmental Impact Evaluation Procedure (2023 Governmental Resolution No. 58) requires uploading public participation documents to the EIA database. These documents, however, are produced by local authorities holding the public hearings. They include the minutes of the public hearing and the resolution of the project approval but offer no explanation as to how the public comments were taken into account during the decision-making process.

Public participation in SEA is provided for by the Law on Environmental Impact Assessment and the Procedures on Ensuring Public Participation in Environmental Impact Assessment (2014 Order of the then Minister of Environment and Green Development). The provisions on the SEA, however, are currently not being enforced in Mongolia.

Public participation in the development of policy and planning documents is regulated by the 2020 Law on Development Policy and Planning and its Management. The law requires that the draft policy documents be subject to public discussion.

Public participation in law-making is provided for by the 2015 Law on Legislation. As a general rule, the law stipulates that drafts of new or revised laws should be subject to public consultation by being available for comment on the official website for at least 15 days. In the case where a draft law affects the business environment, the public consultation period must last for at least 60 days, and a detailed introduction of the draft law must be translated into English and uploaded along with it to the dedicated website. The law clearly requires the initiator of a draft law to take into consideration the proposals submitted by the public, as well as to prepare a table containing public proposals reflected and not reflected in the draft laws and upload it on the website within 30 days of the last day of the public consultation period. The law also stipulates that proposals from relevant NGOs must be considered.

The legal framework provides for a similar procedure for public participation in the development of subordinate legislation at governmental and ministerial levels, but the public consultation period here is 30 days.

Access to justice

Court proceedings in environmental cases initiated by the public seeking redress for violations of the right to information and participation in decision-making in environmental matters, as well as for public enforcement of environmental laws, are regulated by the 2002 Law on Civil Procedures and Law on Administrative Court Procedure. The latter allows NGOs that meet certain criteria to bring environmental lawsuits in the public interest and to be exempt from court costs when doing so. There are, however, no other special procedural provisions pertaining to the consideration of environmental claims brought by the public.

In addition to judicial review, the national legislation allows members of the public to file complaints with higher-level public authorities or public officials for an administrative review procedure or to file individual complaints with the National Human Rights Commission. Complaints on environmental matters filed with higher-level authorities and officials are resolved according to the Law on Resolving Complaints made by Citizens against Civil Servants and State Bodies and the 2015 Law on General Administrative Procedures. These complaints must be responded to within 30 days. An extension of another 30 days can be granted for complaints requiring more time to collect the required information. The administrative review procedure is free of charge and rather prompt, compared to judicial proceedings, yet it does not provide as effective remedies as courts do.

Complaints brought to the National Human Rights Commission are reviewed under the 2020 Law on the National Human Rights Commission. The Commission accepts individual complaints, including those regarding violations of environmental human rights and the rights of human rights defenders. No fees are charged for investigating complaints. Mongolia is among the countries with national human rights institutions in compliance with the Paris Principles (SDG indicator 16.a.1). The Commission's recommendations, when a human rights violation has been established, are binding on the responsible party. According to NGOs, however, both public authorities and private parties do not always diligently follow the recommendations of the Commission.

Policy framework

The Vision 2050 Long-term Development Policy under its Goal 5: “Governance” includes the objective: 5.5: Establish an appropriate system for ensuring the participation of all relevant stakeholders in national policy development, its planning and implementation by strengthening civil society-private sector-state partnership. Within this objective and throughout other sectoral goals and objectives, the government plans to spread democratic values, create information transparency and ensure public participation at all levels of decision-making by applying modern information and communications technologies. Within Goal 6: “Green Development”, it is envisaged to disseminate environmental information through the media and ensure citizen participation in environmental protection activities. This document, however, similarly to many other national strategic documents, lacks any indicators to enable tracking of progress in their implementation.

Institutional framework

Ministry of Environment and Climate Change

According to the law, ensuring access to environmental information is the responsibility of the Ministry of Environment and Climate Change. It does so by operating its own website, ensuring the operation of the web portal hosting the environmental database, conducting public outreach activities via different media, and replying to access to information requests. EIC is a central governmental platform for disseminating environmental information to the public. It is operated by the Environmental Database Division of the Information and Research Institute of Meteorology, Hydrology and Environment, operating under NAMEM. Its responsibilities include the operation of the electronic environmental database, verification of information submitted by authorized users, as well as ensuring public access to the information from the database on a specially dedicated web portal.

Although there is no unit or official within the Ministry of Environment and Climate Change specifically responsible for handling access to information requests, public requests for information are processed by the registration desk in the same way as any other petition or complaint from the public. They are forwarded to relevant departments within the Ministry of Environment and Climate Change, and their subordinate institutions or other sectoral ministries to be answered.

Public participation, being a cross-cutting issue, is covered by multiple departments within the Ministry of Environment and Climate Change. In the course of the development of draft laws and regulations, a relevant department ensures public participation by including NGO representatives in the relevant working groups, posting the draft laws and regulations on the dedicated websites, organizing public discussions online or at their premises, collecting written comments and taking them into account, as well as informing the public on how their input was considered through the dedicated websites. Public participation in EIA is handled by the Environmental Impact Assessment and Audit Division, which ensures that public participation provisions are complied with by the consultants developing the EIA documentation and informs the public about the outcome of the EIA procedure via the dedicated website.

National Human Rights Commission

The National Human Rights Commission under the 2020 Law on the National Human Rights Commission, is an independent and autonomous institution charged with the monitoring, protection and promotion of human rights. In 2021, under the Law on Legal Status of the Human Rights Defenders, the Human Rights Defenders Committee was established under the Commission with the mandate to promote and protect the rights of human rights defenders, including those working on environmental matters.

The 2023 Report on the State of Human Rights and Freedoms in Mongolia¹⁹⁹ dedicates two separate chapters to the right to live in a safe environment and the situation of human rights defenders working in the areas of civil society and the environment, as well as offers recommendations on strengthening their protection to the Parliament of Mongolia.

The Commission investigates individual complaints, including those regarding violations of environmental human rights and the rights of human rights defenders.

Promote peaceful and inclusive societies for sustainable development

Concerning SDG 16 (Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels), the 2023 Voluntary National Review Report²⁰⁰ acknowledges that SDG 16 is under-implemented in Mongolia and would require special attention to ensure its attainment

¹⁹⁹ National Human Rights Commission (n.d.).

²⁰⁰ Mongolia (2023b).

by 2030. The Report, however, is silent on the steps taken in the review period or to be taken in the future to promote more inclusive and responsive public participation and access to justice in general or in its environmental dimension.

Missing or fragmented statistical data regarding SDG 16 for most of its SDG indicators prevent a comprehensive assessment of progress in attaining the related targets. Some progress in the environmental dimension of SDG target 16.3 could be attributed to the introduction of standing for NGOs in environmental cases in administrative courts, but there are still many further steps to be taken to ensure accessibility and affordability of courts in environmental matters, such as raising judicial awareness of environmental matters in general and of access to justice in particular, along with reducing the financial barriers.

In terms of the environmental dimension of SDG target 16.7, further progress was identified in public participation in environmental decision-making at the level of policies, laws and regulations; however, at the level of projects, major challenges remain both in law and in practice, hindering implementation of the target. Mongolia continues to maintain and further develop legislation related to providing access to environmental information, thus moving towards achieving SDG target 16.10. At least two cases of killing and kidnapping of environmental human rights defenders (SDG target 16.10) and many examples of environmental activists who have personally felt discriminated against or harassed (SDG target 16.b) have been identified in the review period, testifying to stagnation in implementing the respective targets. Mongolia has been further developing and broadening the scope of work of its national human rights institution, contributing to the attainment of SDG target 16.a.

Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters

Within the review period, Mongolia has not become a party to the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, although the issue was widely advocated by civil society for over fifteen years. Both the legislative framework and practice in Mongolia enshrine many elements of the Aarhus regime; yet, as of late 2024, according to the Ministry of Environment and Climate Change, accession is not being considered by the Government, thus Recommendation 5.6 of the First EPR of Mongolia was not implemented.

5.5 ASSESSMENT AND RECOMMENDATIONS

Assessment

Significant progress is observed in the areas of digitalization and electronic governance, contributing to the increased availability of environmental information online, including through easily accessible electronic databases. This progress has also significantly enhanced public participation in policy and legislative decision-making by shifting participation at this level into an online mode – a convenient solution given the country's vast territory and the current level of Internet coverage. Special dedicated online platforms and sections of government websites have been introduced to provide access to draft documents released for public consultation, to collect public input and, in some cases, to inform the public about the results of participation processes.

Since 2017, there has been no advancement in sectoral environmental legislation, which neither defines environmental information, nor prescribes special provisions on its access regime in relation to various types of restricted information or on the procedure to access it upon request. The legal framework governing access to information contains many vague and overly broad exemptions from the right to access information, while imposing criminal, administrative and disciplinary penalties for breaches of confidentiality. It lacks requirements to implement the grounds for refusal in a restricted way, taking into account public interest in disclosing the information and the environmental nature of the requested information. In practice, this leads to limited access to environmental information upon request and, in particular, to official documents. Except for EIA approval decisions, no other environmental permits or licenses are made publicly available online, although now most of them are processed and issued electronically. While the Government places significant emphasis on proactive information dissemination, it does not adequately facilitate passive access to information, leaving the public insufficiently aware of their rights to information and the procedures available to exercise those rights.

Mongolia continues to be a leader in civic freedoms in the region. Since 2017, the number of environmental NGOs has tripled, and their influence on decision-making has increased. In particular, some progress has been achieved in enhancing public participation in environmental policy and law-making. However, there remains no public participation in the development of environmental plans and programmes, nor in international forums.

Provisions for public participation in the EIA procedure are embodied in law and are implemented and enforced to some extent in practice. However, the domestic provisions remain very general in nature and lack many internationally recognized essential elements of effective public participation, such as early and effective notification of the public regarding their ability and methods of participation, free access to information during EIA development and approval, as well as public authorities' obligations to collect public comments and take due account of public input. These elements are missing in both legislation and in practice. Ambiguities and gaps in legislation result in the absence of meaningful public participation in the EIA process, prompting an ongoing revision of the relevant law. Although amended several times over the last decade, the EIA procedure in Mongolia still resembles the state ecological expertise found in many countries across Eastern Europe, the Caucasus and Central Asia. While such systems provide for public participation, they often misplace the legal obligation to organize and take due account of participation outcomes and lack defined methods, procedures and timeframes to ensure meaningful participation.

Recommendations

Access to environmental information

Recommendation 5.1:

The Government should:

- (a) Further ensure active and passive access to environmental information in line with the Bali Guidelines for the Development of National Legislation on Access to Information, Public Participation and Access to Justice in Environmental Matters;
- (b) Introduce a definition of environmental information in line with international standards;
- (c) Ensure that all governmental bodies holding environmental information publish information on their websites about the types and scope of environmental information held by them and about the process by which it can be obtained;
- (d) Ensure also that all governmental bodies holding environmental information keep records of requests for environmental information and the action taken in response to such requests, separately from other forms of public enquiries, and regularly post this information on their websites.

Public participation

Recommendation 5.2:

The Government should:

- (a) Continue to develop participatory policy and law-making in environmental matters both within the scope of governmental decisions consulted with the public and in procedural models enabling stronger public participation;
- (b) Encourage participation of environmental non-governmental organizations in international meetings and in the preparation of official positions, international commitments and reports under the multilateral environmental agreements to which Mongolia is party;
- (c) Allow public participation in decision-making on specific activities other than environmental impact assessment (EIA);
- (d) Initiate the revision of legal framework on EIA to ensure effective public participation in decision-making on specific activities in line with relevant international best practices.

Environmental defenders

Recommendation 5.3:

The Government should:

- (a) Promote the legitimacy and importance of environmental defenders;
- (b) Initiate revision of provisions on defamation to allow environmental defenders to carry out their work without intimidation;
- (c) Investigate, prosecute and provide effective remedies for all cases of attacks against environmental defenders;
- (d) Suggest that the judicial system introduce programmes, within the advanced training for prosecutors and judges, on the role of environmental and human rights defenders in society, and on relevant protection mechanisms in domestic legislation and at the international level.

Access to justice

Recommendation 5.4:

The Government should:

- (a) Suggest that the judicial system introduce, within the advanced training for judges, programmes on domestic environmental law and international best practices on the issues of standing of members of the public in environmental cases and the lowering of financial and other barriers to access to justice in environmental matters;*
- (b) Develop mechanisms lowering financial barriers on access to justice in environmental matters.*

CHAPTER 6

EDUCATION FOR SUSTAINABLE DEVELOPMENT

6.1 INTEGRATION OF EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD) INTO FORMAL EDUCATION

Mongolia boasts high coverage in primary education, with a gross enrolment rate of approximately 96 per cent in 2023.²⁰¹ Secondary education coverage is similarly extensive, ensuring that most students continue their education beyond primary school, with a gross enrolment rate of around 99 per cent in 2023.²⁰² These high enrolment rates reflect Mongolia's commitment to providing comprehensive education to its youth.

Mongolia's dedication to integrating education for sustainable development (ESD) into its education system and promoting ESD more broadly was supported by the National Programme on Education for Sustainable Development, implemented from 2018 to 2021. Even before this, starting in 2016, all schools in Mongolia and the institutions supporting them began applying ESD principles in teaching and management with support from the ESD Project (see Box 6.1). From 2018 to 2024, the country made efforts to integrate the social and economic dimensions of ESD into curricula, in addition to the environmental dimension, which was already better integrated into education. The main challenges identified for sustainable implementation of educational programmes include the lack of a unified vision for curricula across educational levels from preschool to upper secondary education, adequate financial resources, and proper prerequisites for teacher development.

The 2024 National Curriculum Concept for Preschool and General Education for 2024–2036 includes ESD as a core competence across the curricula. As of 2024, the curricula for preschool, primary and secondary education are under revision. Specifically, the revised curricula, grounded in ESD, aim to foster the knowledge, skills, attitudes and values essential for adapting to change, overcoming challenges and safeguarding the country's natural environment.

ESD Project

To advance ESD at all levels, efforts have been required to integrate ESD into policies and curricula and to strengthen existing competences and develop new ones for teachers and other personnel in the education sector, as well as for policy and decision-making personnel. The ESD Project, implemented in two phases—first from December 2013 to December 2018, and second from June 2019 to June 2023—supported national action on ESD (see Box 6.1). The ESD Project was co-funded by SDC and the Government of Mongolia.

Box 6.1: Education for Sustainable Development Project

In its first phase (2013–2018), the ESD Project focused on mainstreaming ESD principles into Mongolia's frameworks, supporting the establishment of a legal and institutional environment conducive to sustainable development. In its second phase (2019–2023), the project aimed to embed the necessary competencies within the Mongolian education system. This included efforts at the central level among policymakers and decision-makers, as well as at the local level among teachers, practitioners and local authorities, to ensure the sustainable application of ESD. Activities focused on organizing targeted in-service training, providing quality resources and practical tools for teachers, and identifying ESD model schools. An ESD website (<https://esd.mn>) was established to share information about the Project and useful ESD resources.

The ESD Project supported the implementation of ESD-based core curriculum reform in public schools, starting in 2016. For example, in 2016, these activities covered 778 schools, involving 19,249 teachers (73.4 per cent female) out of a total of 26,527 teachers, and 147,031 students (49.3 per cent female) out of a total of 552,000 students. The project also supported the development of the Action Plan for Green Development Policy, approved in January 2016, and the issuance of a gender policy for the education sector by the Ministry in charge of education. Additionally, the project contributed to the development of the National Programme on Education for Sustainable Development, implemented from 2018–2021.

Starting in 2020, the project's focus shifts to conducting trainings to deepen knowledge on ESD at national, province (*aimag*) and school levels; developing quality resources and practical tools for ESD application and making them available to teachers and other practitioners; and identifying ESD model schools in selected *aimags* and districts of the capital for enhanced support. This support aimed to further integrate ESD into education and school management, as well as school-community initiatives.

²⁰¹ World Bank (School enrolment, primary, per centage gross).

²⁰² World Bank (School enrolment, secondary, per centage gross).

The ESD Project resulted in significant improvements in students' knowledge of ESD environmental, social and economic dimensions (from 10.8 per cent to 30.2 per cent) and their ability to apply this knowledge in practice (from 37.2 per cent to 42.6 per cent). The National Technical Advisory and Coordination Group (TACG), established to oversee ESD implementation, matured into a synergistic, cross-sectoral collaboration model. The TACG members enhanced their understanding of ESD dimensions through trainings and disseminated this knowledge, successfully organizing three National Conferences and mentoring thirty ESD pilot schools. These efforts led to the development of 24 ESD training modules on 8 themes, establishing the TACG members as national ESD experts. Additionally, the training on ESD and Whole School Approach (WSA) was conducted for 200 staff working in technical and vocational education and training (TVET). Also, the Education Inspection Checklists were amended for pre-schools, secondary schools and TVET and higher education institutions to align them to WSA criteria; 89 inspectors were trained to use the updated Checklists.

A diverse range of stakeholders at national, province (*aimag*) and school levels were capacitated in ESD, enabling transformative action and establishing two-way communication for evidence-based policymaking. A total of 38,724 persons were trained. At the national level, 7,142 persons were trained through 79 sessions by the Mongolian National Institute for Educational Research (MNIER), while at the province and school levels, 8,153 persons were trained through 211 sessions by the NGO Information and Training Centre for Nature and Environment (ITCNE). Stakeholders included TACG, sub-TACGs, school principals, staff, teachers, students, parents, journalists, teacher students at the Mongolian National University of Education, test developers, curriculum developers and psychologists. A repository of 245 learning materials, books, reports, and videos in both printed and digital formats was created to disseminate ESD and WSA knowledge. Resources include WSA handbooks, lesson plans, training modules, newsletters, media content and academic translations.

The thirty ESD pilot schools, mentored by ITCNE, showed transformation demonstrating success in different strands of WSA, impacting 29,422 students and families. Schools conducted WSA self-assessments, initiated new projects and received 130 small grants for community collaboration. Sub-TACG members from 17 local agencies became ESD champions, facilitating knowledge exchange and community motivation. An innovative partnership model between ESD schools, communities and local governments was established, led by sub-TACGs. This model facilitated new ESD initiatives and successful fundraising, increasing the project budget to 783.4 million tugriks, far exceeding the planned 225 million tugriks. The project implementation model by the MNIER and ITCNE is recognized as a best practice in Mongolia. Additionally, the project introduced psychologists in 151 schools, significantly improving the socio-emotional health of students, teachers and parents, especially post-COVID-19. This initiative, benefiting 9,984 persons, is considered a milestone in national education.

Source: Mongolian National Institute for Educational Research and the Information and Training Centre for Nature and Environment NGO (2023).

Integration of ESD into preschool education

As of 2018, the integration of ESD into preschool education was in its early stages, focusing on children aged 4–5 years. The preschool curriculum implemented in 2015–2019 included activities related to exploring and protecting nature, conducting simple experiments and raising awareness about waste and cleanliness. Children used natural and traditional items in their learning. However, the preschool educators lacked adequate competencies in ESD to effectively implement ESD methodologies in preschool activities. Since 2018, the integration of ESD into preschool education has advanced, including with the support of the ESD Project and the activities of the Eco-Schools international programme in Mongolia.

The revised 2019 curricula for preschool education (2019 Order No. A/494 of the Minister of Education, Culture, Science and Sports) include the "natural and social environment" learning area for 2–5-year-old children. The expected learning outcomes are for children to appreciate the beauty of nature, love and protect plants and animals, treat the environment with respect and avoid polluting it, and develop skills to observe, recognize and care for plants and animals. Social development aims to promote understanding and respect for multicultural diversity. Teaching methodologies include discussion, problem-solving, role-playing and practical activities. The child's development assessment focuses on their ability to love and care for plants and animals, be a team player, and understand and respect differences among people. The revised curriculum allows each kindergarten to develop its own education programme and teaching methodology, promoting a flexible education approach that can adapt to each child's personal needs. It also encourages the participation of parents and the community in the education process and supports the independence and creativity of educators.

The procedure for assessing the development and school readiness of children covered by preschool educational services (2020 Order of the Minister of Education, Culture, Science and Sports, No. A/280, annex), includes, for 2–5-year-old children, assessment criteria for acquiring progressive knowledge on the environment, plants and animals, and for 5-year-olds, an additional criterion of understanding the relationship between humans, plants and animals.

The 2024 National Curriculum Concept foresees further revision of the curriculum, organizing its content in the following learning areas for 2–5-year-old children: movement, physical activity, health, language, basic mathematical and electronic technology concepts, environmental and artistic knowledge and skills development, and the development of good communication habits and routines. The concept allows kindergartens to implement additional activities. Game- and text-based methodologies are foreseen for preschool children, along with the use of active learning combined with electronic technologies for classroom, non-classroom and blended learning. As of 2025, the preschool curriculum is being revised in line with the Concept. ESD is expected to be integrated across the curriculum.

Photo 6.1: National Library with statue of Byambyn Rinchen, Ulaanbaatar



Photo credit: Kristina Maikova/stock.adobe.com.

Integration of ESD into primary education

In 2014, primary education underwent a reform that updated the core curriculum's content and methodology. The new curriculum aimed to teach children to respect national culture and traditions, develop their talents and interests, build self-confidence, and foster creative thinking. It also focused on lifelong learning skills and collaboration. The curriculum was designed to provide opportunities for each child to develop their unique characteristics and skills, incorporating elements of ESD such as respect for diversity, learning together, and caring for one another.

In 2019, the curriculum was further revised to support and enhance cooperation between schools and teachers, adapt learning activities to students' values, attitudes and maturity, eliminate duplication and difficulties in curriculum content, balance the learning load of students and the teaching load of teachers, and support the management and planning of school-based activities, including the development of school programmes and teacher lesson plans.

The 2019 curriculum includes the following studies: "Humans and Environment" for 1st graders (58 hours per year) and for 2nd and 3rd graders (64 hours per year); "Humans and Nature" for 4th and 5th graders (64 hours per year); "Humans and Society" for 4th graders (32 hours per year) and 5th graders (64 hours per year); and "Ethics and Civic Education" for 1st graders (58 hours per year) and for 2nd–5th graders (64 hours per year). The objective of "Humans and Environment" studies includes fostering the desire to contribute to protecting the environment. Teaching methodologies used include student-centred and active learning methods, such as games, discussions, debates, role-playing, experiments, competitions and project work.

In 2023, the number of allocated study hours for several subjects was modified, such as slightly decreasing the "Humans and Environment" studies from 64 to 58 hours per year for 1st grade children.

As of 2025, the curriculum is undergoing further revision to comply with the 2024 National Curriculum Concept. Accordingly, ESD is expected to be integrated across the content of primary education. Additionally, the implementation of game-based, environment-based and analytical methodologies for primary school education is foreseen. Active learning methodologies are to be used in combination with electronic technologies for classroom, non-classroom and blended learning.

Integration of ESD into secondary education

Lower secondary

In 2015, a new curriculum for lower secondary education was developed and approved, integrating ESD for the first time. The curriculum aimed to foster cognitive skills, environmental awareness and sustainable practices. Subjects such as physics, biology, chemistry, geography and design and technology included topics on energy use, pollution, climate change and sustainable development. Effective implementation of the curriculum required adequate teacher training, improved school infrastructure and sufficient financial resources.

In 2019, following the recommendations of the Second National Conference of Mongolian Teachers under the theme “The Path to Sustainable Development – Quality Education” held in 2018, and considering national research conducted during the implementation of the 2015 curriculum, the results of student academic achievement assessments, and educational development trends, the curriculum was revised to increase quality and better meet the needs of secondary education. The overarching educational objective set for each student is to acquire basic life skills and scientific knowledge, study methods and the ability to learn independently and creatively, develop their national language, history and culture, and become democratic and humane citizens. Students are expected to respect their national language, culture, history and traditions, cherish common human values and interact appropriately with people, nature and society. Skills developed include creative thinking, problem-solving, communication, teamwork, emotional management, independent learning, responsibility, adaptability, diligence, ethical information use, cultural understanding, conflict resolution, participatory decision-making and environmental protection.

As per the latest updates in 2023, the natural science curriculum (physics, biology, chemistry) is taught to 6th graders (33 hours per year per subject) and to 7th–9th graders (66 hours per year per subject). The social sciences include civic education for 6th–9th graders (66 hours per year) and geography and sociology for 7th–9th graders (33 hours per year per subject). Design and technology is taught to 6th–9th graders (66 hours per year in total).

As of 2025, the curriculum is undergoing further revisions pursuant to the provisions of the 2024 National Curriculum Concept. ESD is expected to be integrated into the new curriculum as a general competence and as a cross-curricular theme.

Upper secondary

In 2016, a new curriculum for upper secondary education was developed with the support of the ESD Project and implemented in the period 2016–2019. The curriculum integrated sustainable development themes across subjects, including information on the 2030 Agenda for Sustainable Development and the SDGs.

In 2019, the curriculum, comprising compulsory and elective subjects, was revised along with the curricula for primary and lower secondary education. Compulsory subjects include information technology, physics, biology, chemistry, geography, sociology, civic education and ethics, and design and technology. Elective studies include business studies under social sciences. ICT studies aim to equip students with knowledge on using ICT in society and the economy, including understanding its positive and negative effects. Physics, chemistry and biology cover the benefits and drawbacks of scientific applications, emphasizing environmental safety and sustainable development. Physics studies also focus on sustainable development, while chemistry and biology highlight environmental safety. Social studies aim to provide knowledge on social structure, culture, economics, politics, law and international relations, encouraging values like justice, human rights, democracy and peace. Geography aims to develop independent, creative learners who contribute to sustainable development. Business studies foster entrepreneurial, ethical and financially responsible citizens.

In 2023, the hours for compulsory subjects were slightly increased. Civic education, ethics, and design and technology for grades 10–12 now have 68 hours per year per subject. Physics, biology, chemistry, geography and sociology for grades 10–11 also have 68 hours per year per subject. Information technology for grades 10–12 has 34 hours per year. English language study for grades 10–12 increased to 102 hours per year. Elective subjects for grade 10 increased to 216 hours per year, while for grades 11 and 12, they decreased to 216 and 540 hours per year, respectively.

As of 2025, the curriculum is undergoing revisions in line with the 2024 National Curriculum Concept, including enhanced integration of ESD as a general competence and cross-curricular theme.

Teaching

The integration of ESD into teaching has intensified since 2012 and even more so since 2018. Teaching methods have shifted from theoretical problems to practical life issues, such as understanding the growth and oxygen production of

plants. An integrated approach to teaching multiple subjects is increasingly used. Extra-curricular activities include visits to nature areas and industrial plants to apply theoretical knowledge practically.

Since 2019, teaching methodologies have included understanding principles of sustainable development through ESD and adhering to sustainable development in school and everyday life, including through the creation of a school-local-industrial cooperation network.

For lower secondary education, the 2024 National Curriculum Concept specifies the implementation of problem-based and analytical, and environment-based and collaborative learning methodologies. For upper secondary education, it foresees problem-based and analytical, and project-based and participatory methodologies. Active learning methodologies are to be used in combination with electronic technologies for classroom, non-classroom and blended learning.

Integration of ESD into technical and vocational education and training (TVET)

In 2024, Mongolia had 70 TVET institutions, including 41 state institutions.²⁰³ The general trend in the number of TVET institutions is decreasing, with 86 institutions in 2018 and 77 in 2022. The total number of graduates in 2023 was 18,530, including 1,231 in mining, 1,051 in agriculture, 788 in environment and tourism, 116 in urbanization and landscaping, and 32 in education.²⁰⁴

In 2019, the then Ministry of Labour and Social Protection approved the TVET training plan, programme design and requirements (2019 Order No. A/154). Accordingly, since the 2019–2020 academic year, the TVET curriculum aims to equip students with the knowledge, skills and habits required for the management of technological processes and professional activities, as well as to acquire professional skills and practices and to specialize in a given profession. The curriculum is demand-driven, developed by universities and industry experts, and supported by the Department of Vocational and Technical Education of the ministry in charge of education. The basic TVET curriculum is organized into compulsory and elective subjects and includes social humanities, economics, languages, natural sciences and civic education. The basic TVET curriculum does not exceed 35 per cent of total study hours. The basic professional and specialization studies are tailored to the unique requirements of each profession and incorporates elements of ESD, such as energy efficiency, renewable energy sources, water efficiency, waste recycling and traditional knowledge for greening the construction and agriculture sectors.

In 2024, the Ministry of Education approved the revised professional areas and indexes of TVET and tasked the directors of TVET institutions to update and implement the curricula for the respective professional areas (2024 Orders No. A/49 and No. A/116).

While ESD as an approach is not integrated consistently into TVET, themes related to environmental protection and sustainable development are partially integrated into various subjects as relevant. The TVET curriculum remains flexible and can be adapted to the needs of TVET institutions. Progress in the development and implementation of the revised TVET curriculum is monitored by the TVET Assessment, Information and Methodology Centre under the Ministry of Family, Labour and Social Protection. Additionally, with support from the ESD Project, TVET staff received training on ESD and WSA (see Box 6.1).

The Eco-Schools programme in Mongolia includes 13 TVET registered schools, with 3 schools awarded the International Green Flag for environmental excellence. Schools follow a tiered framework to achieve bronze, silver and Green Flag awards, adhering to the Foundation for Environmental Education's criteria to ensure their sustainability efforts are recognized.

Integration of ESD into higher education

As of 2025, there are 65 higher education institutions in Mongolia, including 17 state-owned institutions, 45 privately owned institutions and 3 public religious institutions. Of these, 34 are universities. A total of 150,282 students are enrolled in universities and colleges, with 81,571 in state-owned institutions, 60,111 in private institutions and 8,600 in public/religious institutions.

In higher education programmes, ESD is taught as an independent course for future teachers and is integrated into the content of other courses for all students. Since 2014, the concept of sustainable development has been studied during the mandatory Human Development and Ethics course. Additionally, the Mongolian History, Culture and Customs curriculum includes a 4-hour study on the traditional way of life of Mongolian people and the modern concept of sustainable development.

²⁰³ NSO (number of TVET institutions).

²⁰⁴ NSO (number of TVET graduates).

Future employees in the health and social work fields are taught sustainable development-related themes during their studies. The Human Development and Ethics course in the first year of basic health education includes 2-hour lectures on human development policy and sustainable development, human development and health, and integrating human development with the SDGs. Since 2018, the studies continue in the second year with a 2-hour lecture and a 2-hour seminar on recognizing SDGs and their importance as part of the Social Development course. Since 2021, third-year students discuss in depth the relevant SDGs and the principle of leaving no one behind in health care and universal health coverage during studies on health organization and health care services.

These studies include examinations of various examples of policy development based on the social, economic and environmental dimensions of sustainable development. Student assessment includes an exam for the semester-long Social Development studies. Teaching methods use ESD approaches, engaging active participation of each student and using materials on sustainable development adopted at international and national levels. In 2024, the Health Social Work textbook addressing the concept of sustainable development was developed and published. ESD competencies for teachers in higher education are under development, with plans to include ESD in the teacher development module training.

Since 2016, ESD has been integrated into the Engineering Ethics course (32 hours of lectures and 16 hours of seminars), including in the Engineering Ethics textbook published in 2019. ESD in the Engineering Ethics course aims to integrate sustainable development policies within engineering social responsibility. Studies include lectures on understanding the rationale and importance of social responsibility and sustainable development policy, and seminars to reflect on the role of engineering in sustainable development. Student assessment comprises two regular tests (3 points) and quarterly tests (5 points). Teachers are self-developing ESD competencies, staying abreast of the latest scientific information, including on ESD and sustainable development-related themes. Challenges include ensuring adequate coordination between this course and courses on Mongolian history, cultural studies and philosophy. Other challenges include providing students with information and textbooks on a regular basis and developing teacher competencies in ESD.

Universities offer programmes on ecology and environmental protection and have started integrating green economy concepts into business and economics curricula. New courses on green economy and sustainable finance were piloted in 2018–2019 at several universities. The “Green Buildings” course, developed with the NGO Caritas, is now an elective at the Mongolian University of Science and Technology. Several higher education institutions in Mongolia have integrated ESD into their programmes:

- The National University of Mongolia (NUM) offers environmental studies during master’s and doctoral programmes, with sustainable development topics gradually being integrated into courses.
- The Mongolian University of Life Sciences offers 25 programmes, including environment protection technology and ecology. Environmental protection issues are integrated into other specialist programmes. The university’s motto is “Agriculture for Sustainable Development”.
- The Mongolian National University of Education trains secondary school teachers and includes ESD in its curriculum. The university’s motto is “Teacher leadership is the key to development”.

Additionally, NUM established the Institute for Sustainable Development as a research centre, while the National University of Commerce and Business established the Centre for Sustainable Production and Trade to focus on sustainable practices.

6.2 INTEGRATION OF ESD INTO EDUCATION AND TRAINING OF TEACHERS

As of 2024, future teachers’ education at the Mongolian National University of Education includes a dedicated course on ESD (3 credits) comprising 32 hours of lectures and 32 hours of seminars. The course’s overall learning outcomes include a general understanding of sustainable development, historical trends, and global and international trends, Mongolia’s approach to sustainable development, and issues related to the environment, economy and society. It also covers ESD policies and programmes, the state of Mongolia’s environment, its evolution and change trends, environmental pollution and degradation, climate change, desertification, forest fires, drought, floods, earthquakes, severe dust and snow-storms, and the development of comprehensive capabilities regarding ecological issues such as protection, sustainable use and restoration of natural resources (land, subsoil, forest, water, plants and animals). The ESD course is based on didactic principles that promote active learning methods supporting students’ participation, creative attitudes and skills. Key learning methods include participating in real-life collaborative activities, analysing research, critical thinking methods and visioning. The University does not have textbooks that include ESD. The ESD course aims to develop comprehensive sustainability competencies in future teachers. At the time of the First EPR of Mongolia (2018), the University incorporated ESD as 8 credits in the teacher training programme at the master’s level and 10 credits at the undergraduate level.

Additionally, the University aims to include ESD across teacher education programmes. It has conducted a study on the inclusion of climate change education in teacher education programmes for publication in an international journal. Generally, students value participating in sustainable development activities and have established a student club called “Sustainable Future.” Challenges identified include the adequate integration of ESD and climate change education into teacher training programmes, policy support for research on ESD and climate change education, and supporting teachers’ participation in international projects (e.g., Asian Framework of Teacher Education for Climate Action).

Preschool educators and schoolteachers do not have sufficient ESD competences to effectively implement ESD methodologies in educational activities. In-service teacher training for ESD integration is limited, as the annual budget barely covers salaries and operational costs. Only a small fraction of the budget is allocated for teacher training, in stark contrast to private schools, which have greater financial capacities for ESD and in-service teacher training.

The involvement of school principals and teachers is a prerequisite for developing and implementing ESD at the school level. The in-service training of principals and teachers does not integrate ESD as a separate course. The training provided by the Institute of Teachers’ Professional Development integrates themes related to environmental protection and sustainable development across various subjects. In 2018, the Institute, with support from SDC, published the first edition of a guidebook for teachers that includes information on sustainable development, SDGs and ESD, followed by a second edition in 2021. Challenges faced by the Institute of Teachers’ Professional Development include developing expertise in sustainable development and motivating teachers, who receive low salaries, to engage in self-study and integrate sustainable development into their teaching.

Additionally, with the support of the ESD Project (see Box 6.1), a system-wide approach was adopted to deepen the capacity and knowledge of ESD at national, sub-national, local and school levels through targeted and on-the-job training. These trainings improved ESD understanding among various stakeholders, including national institutions, students, teachers and local authorities. The TACG was envisaged to continue functioning as Mongolia’s ESD think tank, fostering a collaborative culture and guiding ESD integration. However, after the closure of the ESD Project, the TACG members maintain informal collaboration and no longer meet for formal regular meetings.

6.3 INTEGRATION OF ESD INTO TRAINING AND RETRAINING OF CIVIL SERVANTS

The training and retraining of civil servants do not consistently integrate ESD. However, with support from the ESD Project, representatives from the ministries responsible for education and the environment, as well as other public institutions at national, sub-national and local levels, participated in the TACG, sub-TACGs and other ESD activities, receiving dedicated training on ESD from 2019 to 2023 (see Box 6.1). Beyond the ESD Project, civil servants do not receive ESD training, nor is ESD integrated into the organized in-service training (see Chapter 1). Additionally, the ministry responsible for the environment promotes the creation of sustainable offices by greening workspaces across the government at national, *aimag* and local levels. This initiative has progressed with the adoption of Green Workspace Guidelines and the development of criteria and an implementation manual for Green Offices, supporting the enhancement of organizational commitment to environmental stewardship.

Photo 6.2: Water utility building in the countryside



6.4 INTEGRATION OF ESD INTO NON-FORMAL AND INFORMAL EDUCATION

Integration of ESD into non-formal education

Non-formal education is overseen by the National Centre for Lifelong Education, under the Ministry of Education. The content of non-formal education is open, and learning is organized in a flexible format to meet the needs of the population. According to the 2023 General Law on Education, the curriculum of non-formal education is designed to reacquire the content of general education. However, as of 2024, ESD is not consistently integrated into non-formal education. During the decade-long implementation of the ESD Project, ESD was integrated into non-formal education to some extent.

The Mongolian National Institute for Educational Research has been running a dedicated webpage (<https://esd.mn>) to encourage the public to acquire basic ESD knowledge and skills and to share the concepts of ESD with society through digital learning materials.²⁰⁵

The Eco-Schools international programme, run by ITCNE in Mongolia in cooperation with the ministries responsible for the environment and education, supports the promotion of ESD in non-formal education at the school level. As of 2024, nearly 41 per cent of all 885 schools in Mongolia participate in the Eco-Schools programme, with half of these schools actively participating. Interest in kindergartens becoming eco-kindergartens has increased, with 20 per cent (nearly 300 of 1,407) kindergartens in the country having joined the Eco-Schools programme. Since the First EPR of Mongolia in 2018, the country has made significant progress in Eco-Schools. ITCNE has a website “Environment and Climate Change e-Learning Centre” (www.edueco.mn) to provide information, materials and tools to support teachers in integrating ESD into their respective subjects.

Furthermore, during the decade of implementing the ESD Project, there has been an increase in community-based ESD activities focusing on local environmental issues and sustainable practices. These activities often involve collaboration between NGOs, local governments and educational institutions. Efforts have been made to build the capacity of educators and community leaders to deliver ESD. Trainings and workshops have been conducted to equip them with the necessary skills and knowledge.

Promoting ESD in non-formal education faces several main challenges. Limited financial and human resources have been significant barriers to the widespread implementation of ESD in non-formal education. Many programmes rely heavily on external funding, which can be inconsistent. Mongolia's diverse cultural and linguistic landscape poses challenges in creating ESD materials that are accessible and relevant to all communities. There is often a lack of coordination between different stakeholders involved in ESD, leading to fragmented efforts and duplication of activities. Effective monitoring and evaluation mechanisms are missing to assess the impact of ESD programmes. Without these, it is challenging to measure progress and make necessary adjustments.

Integration of ESD into informal education

Mainstreaming ESD into informal education is led by the Ministry of Environment and Climate Change, with active involvement from civil society organizations. The Ministry carries out public awareness campaigns to promote sustainable development practices among the general population, aiming to foster a culture of sustainability through various media and community events.

Various media platforms, including social media, radio and television, are utilized to disseminate information about sustainable development, effectively reaching a broader audience. Mongolia has developed dedicated TV and radio programmes to promote environmental protection and sustainable development. TV programmes include “Green Mongolia,” which focuses on various environmental issues, including conservation efforts, sustainable practices and the impact of climate change on Mongolia. It features interviews with experts, documentaries and educational segments aimed at raising public awareness. The “Eco Life” programme promotes sustainable living, covering topics such as renewable energy, waste management and eco-friendly practices, often including practical tips for viewers to adopt more sustainable lifestyles.

Radio programmes include the “Nature and Us” show, which discusses the relationship between humans and the environment, highlighting the importance of conservation and sustainable development. It features guest speakers from environmental organizations and government agencies. “Green Wave” is a popular radio programme that covers a wide range of environmental topics, including biodiversity, pollution control and sustainable agriculture. It also provides updates

²⁰⁵ UNESCO (2024a).

on environmental policies and initiatives in Mongolia. These programmes play an important role in educating the public and promoting a culture of sustainability in Mongolia.

With the support of the ESD Project (see Box 6.1), community engagement to promote sustainable practices has been enhanced. Local initiatives and grassroots movements have played a significant role in spreading awareness about sustainability. NGOs have been instrumental in delivering ESD through informal channels, organizing workshops, campaigns and hands-on activities to educate the public about sustainability. Efforts have been made to integrate traditional knowledge and cultural practices with modern ESD concepts, making ESD more relatable and acceptable to local communities.

Despite the use of various media, reaching remote and rural areas remains a challenge. Infrastructure limitations and digital divides hinder the effective dissemination of ESD information. During COVID-19, efforts were increased to address the lack of digital infrastructure in remote areas. Another challenge is the sustainability of programmes, as many informal ESD initiatives rely on short-term funding and volunteer efforts, which can affect their long-term impact. Assessing the impact of informal ESD initiatives is challenging due to the lack of standardized metrics and evaluation frameworks. In some cases, there is resistance to adopting new sustainable practices due to deeply rooted cultural norms and beliefs.

6.5 RESEARCH AND DEVELOPMENT

As of 2025, there is a lack of action to enable the research and development of ESD and the continuous production of ESD materials for both theoretical and practical learning, tailored to the specific needs of Mongolia. Nonetheless, some research and development on ESD is carried out to a limited extent by the Mongolian National Institute for Educational Research. The Institute is responsible for developing curricula and educational materials and has gained significant knowledge on ESD as the national implementing partner of the ESD Project.

Additionally, ITCNE is actively engaged in ESD research and development, including its role as the implementation partner for the Eco-Schools international programme in Mongolia. Most research and development activities on ESD are project-based and supported by international partners, such as the United Nations Educational, Scientific and Cultural Organization (UNESCO). Consequently, ESD in Mongolia does not benefit from continuous research and development activities.

The Mongolian National University of Education and the National University of Mongolia also conduct studies to explore the use of STEM (science, technology, engineering and mathematics) education to develop competencies for sustainability in Mongolia. Despite the strong interest in STEM, this approach has not been directly integrated into the objectives, content and methods of general education. Since 2017, the ministry in charge of education has been supplying all primary schools with STEM tools (kits).²⁰⁶

An article titled “Piloting a Self-Assessment Tool for a Whole School Approach to Sustainability in Mongolia”, showcasing the experience of implementing the WSA model in 30 schools, has been published in Springer Nature.²⁰⁷ Written by ITCNE with support from the Mongolian National Institute for Educational Research, this publication is a global recognition of Mongolian schools’ efforts in achieving SDG 4.

6.6 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

As of 2024, the country does not have a law specifically regulating ESD. The legal framework for ESD is based on the 2016 Order No. A/458 of the then Minister of Education and Culture on “Main guidelines and requirements for integrating ESD teaching and learning in the general secondary education”. This established ESD as the overarching principle in the education sector, requiring all formal education institutions to incorporate and adhere to ESD.

The 2023 edition of the General Law on Education stipulates principles of education, including cherishing human rights, freedom, statehood, history, cultural traditions and values, and respecting democratic and humanistic values. The Law prescribes the obligatory content to be included in educational programmes at all levels, such as personal and family development, life skills, common values of humanity, human rights education and gender equality, civil ethics and

²⁰⁶ Dembereldorj (2024).

²⁰⁷ Shinetsetseg (2024). Piloting a Self-Assessment Tool for a Whole School Approach to Sustainability in Mongolia. Available at https://link.springer.com/chapter/10.1007/978-3-031-56172-6_13.

behaviour education, health education, education for sustainable development, crime prevention, disaster protection, safe living, career orientation, the harmful effects and prevention of narcotic and psychoactive substances and screen-related risks. Thus, the revised Law mandates the inclusion of ESD content into education.

The 2023 edition of the Law on Pre-school and General Education stipulates the educational content of preschool education in the areas of movement, physical activity, health, language, basic mathematical and electronic technology concepts, environmental and artistic knowledge and skills development, and the development of good communication habits and routines. Further to that educational content, kindergartens may implement additional activities. The content of general education is to cover the areas of developing knowledge and skills in mathematics, natural sciences, social sciences, humanities, language, communication, physical education, art, aesthetics, electronic and design technology, civic education and life skills. The Law allows adapting the curricula to reflect the history, culture, nature and geography of the respective local area. ESD is not explicitly stipulated in the Law.

The 2023 edition of the Law on Technical and Vocational Education and Training regulates the organization of TVET with the purpose of supporting social development and economic productivity, to prepare citizens with professional skills that meet the demands and requirements of the labour market and skills, and to meet the need for continuous professional development and improvement. The Law stipulates TVET principles, including that TVET is to be consistent with development policies of the country. The Law reflects ensuring gender-sensitivity and gender equality in TVET. ESD is not explicitly stipulated in the Law.

The 2023 edition of the Law on Higher Education specifies the purpose of higher education to contribute to social and economic development, to develop and creatively use progressive new ideas, research and innovation, and to prepare ethical citizens who are capable of working and living in a multicultural environment. ESD is not explicitly specified in the Law.

The 2018 Law on Supporting Teacher Development, applying to teachers working at all levels of formal and non-formal educational institutions operating in Mongolia, regulates teacher professional development and training, including in-service training and re-training at national, local and institution levels. ESD is not explicitly reflected in the Law.

The majority of the national education standards²⁰⁸ for primary and secondary education, currently in force, date back to 2004. ESD is not reflected in these standards. In 2020, the ministry in charge of education initiated a reform of the education standards in cooperation with Cambridge Assessment International Education to reform the secondary education aligning it with international standards.

The 2017 Law on Waste included provisions for integrating public awareness content into the curricula at all educational levels, which were removed in 2023 following the enactment of the 2023 edition of the General Law on Education.

The 1995 Law on Environmental Protection has provisions on environmental awareness and education in several articles, including on providing financial support from the budget for environmental education and training. Additionally, the Law includes a separate article on environmental education and upbringing, which was revised in 2023, in line with the 2023 edition of education laws. The revision removed provisions regarding the organization of environmental education in educational institutions. Consequently, the revised article focuses on promoting environmental knowledge, national traditions and customs, and laws on environmental protection through the press and media.

In 2023, the Government adopted the National Standard “Green Office” (MNS 7002:2023 Environmental Management. Green Workplaces – Implementation Guidelines), developed with support from ITCNE, the ministry in charge of the environment and the Mongolian National Institute for Educational Research.²⁰⁹ ITCNE and the ministry in charge of the environment also drafted Green Office criteria, created an implementation manual, and established Environment Information Centres in two provinces. In 2021, ITCNE enhanced its capacity for ISO 14001:2015 for Environmental Management Systems (EMS) by facilitating the online training of 44 sub-TACG members in internal auditing and certifying 31 of them.

Policy framework

The 2018 National Programme on Education for Sustainable Development (2018 Government Decree No. 209) was implemented in the period 2018–2021. The Programme’s four goals and related activities aimed to enhance education policies and curricula to promote sustainability, ensure stakeholder participation in sustainable practices, provide continuous and accessible ESD and improve policy coherence and interdisciplinary cooperation. Ministers in charge of

²⁰⁸ Mongolian Agency for Standardization and Metrology (Electronic Database of Standards).

²⁰⁹ Mongolian Agency for Standardization and Metrology (2023).

education and the environment were mandated to jointly approve an action plan operationalizing the Programme and oversee its implementation. The ministers in charge of finance, the environment and education, along with governors of provinces (*aimags*) and the capital city, were responsible for securing funding for implementing the Programme, including from state and local budgets, and through loans and assistance from international organizations. As of 2025, an assessment of the results of implementing the Programme is not available. Additionally, as of 2025, Mongolia has no action plan to guide the coherent implementation of ESD in the country.

Further to the National Programme on ESD, at the province level, a local sub-programme on ESD was approved in Khovd *aimag* (Decree No. 60) implemented in the period 2021–2024. The sub-programme was implemented with the involvement of children, citizens, the general public, government and non-government organizations, teachers, experts and other employees with the aim to engage parents and citizens in sustainable development activities with student participation; implement a WSA to ESD; increase access to ESD information and services; and create and expand a network of ESD schools.

“Education for Sustainable Development 2030: Mongolia’s Initiative”, developed in 2021, aims to consolidate the efforts and interests of stakeholders and the public on priority action areas and key activities needed to transform learning and education to make ESD a reality. It contributes to achieving the SDGs by creating opportunities and conditions for all organizations and citizens to work together.²¹⁰

The National Curriculum Concept for Preschool and General Education (2024–2036) was approved by the Government of Mongolia in April 2024 (Government Decision No. 176, annex), in which ESD is one of the general competencies across the curricula and one of the cross-curricular themes that must be supported by the proposed learning areas and subject-specific syllabi. The Concept defines ESD as an educational approach that equips students with the skills to creatively address current and future global challenges, fostering a more sustainable and adaptive society. The Concept acknowledges that the curricula implemented from 2018 to 2022 primarily focused on cognitive and memory levels, neglecting applied and creative aspects. Despite frequent reforms, content-centred curricula remain predominant. The Concept stipulates that, while taking into account international good practice, the education development must integrate national characteristics and sustainable development principles into curriculum design and implementation. As of 2024, the curricula for preschool and general education are undergoing revision. This process is led by the ministry in charge of education in consultation with other authorities, including the ministry in charge of the environment and representatives from civil society organizations in an advisory capacity.

Mongolia integrates ESD into its national development policies.²¹¹ The 2020 “Vision–2050” Long-term Development Policy outlines a long-term development strategy, emphasizing education as the foundation for personal growth, family security and national progress (see Chapter 1). “Vision–2050” addresses critical issues such as climate change, urbanization, new technologies, environmental sustainability, inclusiveness and gender equality, all of which shape the future of education. The Medium-term Development Plan for Education 2021–2030 aims to provide quality, open, inclusive and flexible education, enhancing the capacity of Mongolian citizens to thrive in the modern era. The Plan aligns with the United Nations SDGs and relevant national policies, underscoring the importance of harmonizing education with the objectives of “Vision–2050”.

Following the adoption of the Law on Development Policy and Planning and its Management, Mongolia repealed several policy documents (see Chapter 1). These repealed documents, which addressed ESD principles, include the 2016 Sustainable Development “Vision–2030”, the 2014 Green Development Policy for 2014–2030 and the Government Policy for Education 2014–2024.

The 2016–2020 Action Plan of the Government aimed to make schools centres for human development. Schools were envisioned to not only provide knowledge and skills but also foster healthy, morally upright and patriotic individuals. The plan included reforming curricula and textbooks to reflect global trends and Mongolia’s history and culture. It emphasized developing children into humane, patriotic citizens who love their country, protect the environment, have good communication skills, respect others, and are responsible and capable of trusting others.

Delivering on global commitments to enhance education and awareness for sustainable lifestyles and climate resilience

Progress in ESD is measured globally by an indicator that assesses how well ESD is integrated into four components: national education policies; curricula; teacher education; and student assessment (SDG indicators 4.7.1, 12.8.1 and 13.3.1). Each component is scored between zero and one based on several criteria, with data collected over three-year periods

²¹⁰ UNESCO (2022).

²¹¹ UNESCO (2024a).

(2017–2020, 2021–2023, 2024–2027, 2028–2030). High scores help countries evaluate their progress towards achieving SDG targets 4.7, 12.8 and 13.3, which focus on promoting sustainable development, providing relevant information for sustainable lifestyles and improving education on climate change.

Table 6.1 presents Mongolia's progress towards achieving these three SDG targets. The indexes were developed based on data provided in the country reports on the implementation of the UNESCO 1974 Recommendation concerning Education for International Understanding, Co-operation and Peace and Education relating to Human Rights and Fundamental Freedoms. Since data are available only for the first measurement period, it is not possible to estimate trends and determine whether Mongolia is on track to achieve these SDG targets by 2030. Nonetheless, the indexes for all components, except "curricula," are high. With the introduction of new curricula, which are being developed in 2024–2025, the score for this component is expected to increase. Additionally, with the completion of the ESD Project in 2023, the scores for other components are also expected to rise in the second monitoring period (2021–2023). Thus, Mongolia could be on track to implement ESD by 2030, provided that the Government maintains, replicates and further develops ESD across the country.

In comparison with several other countries, Mongolia has similar indexes for mainstreaming ESD into national education policies and for teacher education as Finland (0.875 and 0.850, respectively) and for student assessment as Sweden (0.833). Mongolia could benefit from enhanced cooperation on ESD with countries such as France and Germany, which have achieved high scores above 0.9 for all four components, with France scoring 1 for all except for ESD in curricula.

Table 6.1: Mainstreaming ESD in the education system, 2017–2020, index

	2017–2020
National education policies	0.875
Curricula	0.750
Teacher education	0.850
Student assessment	0.833

Source: UN Statistics SDG Indicators Database, 2025.

Mongolia has nationalized the global SDG indicators measuring progress in ESD, retaining the same wording for national indicators as the global indicators. According to the Mongolia SDG Dashboard²¹², data are not yet available to report on SDG indicators 4.7.1, 12.8.1 and 13.3.1. The ministry in charge of education is responsible for delivering on all indicators, including the implementation of related policies.

The Mid-term Progress Report of SDG 4 in Mongolia (2016–2021)²¹³ prepared by the ministry in charge of education, in cooperation with the ministry in charge of the environment, other relevant institutions, civil society organizations, UNESCO and the United Nations Children's Fund (UNICEF), includes an assessment of progress made to achieve SDG target 4.7. The report states that, as of 2021, there has been inadequate development of the content, criteria, indicators and measurement methodology required to evaluate the progress of the target, and the measurements have not been fully stabilized. Nonetheless, the report provided an assessment of implementing ESD in Mongolia in 2018–2021, including through project-based activities with support from the international community.

The ESD Project was instrumental in advancing ESD in Mongolia and, thereby, contributing to reporting under ESD-related SDG targets and indicators. Mongolia has made good progress in integrating ESD into its national curriculum. This includes incorporating topics such as human rights, gender equality and environmental sustainability into various subjects. Efforts have been made to train teachers on ESD principles to ensure they can effectively deliver this content to students. This includes professional development programmes and workshops. There has been an increase in student awareness and understanding of sustainable development issues. Surveys and assessments indicate that students are more knowledgeable about topics like climate change, biodiversity and social justice. Despite these advancements, challenges remain. These include limited resources for comprehensive ESD implementation, the need for more localized content that reflects Mongolia's unique cultural and environmental context, and ongoing efforts to ensure all schools, especially in rural areas, have access to quality ESD materials.

²¹² Sustainable Development Goals of Mongolia (<http://sdg.gov.mn/>).

²¹³ Ministry of Education and Science (2024).

The Mongolia: Budget Credibility and the Sustainable Development Goals²¹⁴ report, prepared by the Open Society Forum Mongolia with support from the International Budget Partnership, addressed budgetary spending for the education sector in the period 2018–2020 towards achieving SDG 4 (Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all). The report states that Mongolia's education sector is performing well, with the sector's performance assessed as "SDG achieved" and its trend as "on track or maintaining SDG achievement." However, there are still challenges in Mongolia's education sector, with setbacks tracing back to the COVID-19 outbreak. The budget deviation for the education sector is -11.8 per cent. On some education indicators, Mongolia is performing lower compared to the world and East Asia and Pacific countries. For instance, Mongolia's government expenditure on education as a share of GDP stands at 4.1 per cent (as of 2019), while the global indicator is 4.5 per cent. Although the sector has the highest share of spending in the central budget, it continues to struggle with moving from "access to education" to "access to quality education". This challenge will require a corresponding reduction in the sector's budget deviation.

Mongolia participates in the global multistakeholder initiative, the Greening Education Partnership under UNESCO, which is designed to help countries address the climate crisis through education. The initiative aims to deliver coordinated and comprehensive actions that equip every learner with the knowledge, skills, values and attitudes needed to combat climate change and promote sustainable development. The Greening Education Partnership is structured around four key pillars of transformative education: greening schools, greening every curriculum, greening teacher training and education system capacities, and greening communities. Implementation activities for greening schools include establishing an accreditation system for green school quality standards, to harmonize accreditation criteria for schools committed to sustainability through a whole institution approach to ESD. As of 2024, Mongolia has yet to establish such an accreditation system.

Institutional framework

As of 2025, Mongolia has no formal institutional framework on ESD in place. Since 2017, Mongolia has made progress in developing the institutional framework for ESD with the support of the ESD Project implemented in the country in the period 2013–2023 (see Box 6.1). The National Technical Advisory and Coordination Group (TACG),²¹⁵ established in May 2020 as a multidisciplinary group, evolved into a unique cross-sectoral collaboration model in the education sector. Initially, the TACG members enhanced their understanding of ESD pillars through training and then disseminated this knowledge. They successfully organized three National Conferences on ESD (digitally in May 2020 and in person in June 2022 and May 2023) and mentored 30 ESD pilot schools, aiding in ESD integration through WSA and by piloting and developing School-Based Curricula.

Several institutions participating in TACG have integrated ESD into their core operations, becoming national ESD experts and developing training modules on ESD themes. At the third National Conference on ESD in 2023, the TACG parent institutions signed a memorandum of understanding committing to continue collaborating on ESD to sustain the ESD activities beyond the ESD Project. Furthermore, nine Sustainability Committees in the TACG Parent Institutions have been established, promoting experiential learning and reducing ecological footprints. Despite the COVID-19 pandemic challenges, capacity development was effectively carried out using virtual platforms, leading to sustained ESD activities and enhanced policy making.

Additionally, an innovative partnership model for ESD development was created, strengthening collaboration between ESD schools, communities, local governments and NGOs through establishing sub-TACGs in six provinces (*aimags*) and two districts of Ulaanbaatar. Sub-TACGs became ESD champions on the ground, leading this local partnership approach, resulting in new initiatives and successful fundraising efforts for advancing ESD.

After the completion of the ESD Project, the national TACG and local sub-TACGs no longer operate. While several former TACG members reportedly maintain informal communication, no formal operational framework exists to advance ESD in the country.

Ministry in charge of education

The Ministry of Education is the primary authority responsible for integrating ESD into the national education system. It oversees the development and implementation of educational policies, curricula and teacher training programmes related to ESD. As of 2024, no specific staff are solely dedicated to overseeing ESD implementation.

²¹⁴ Open Society Forum (2023).

²¹⁵ The Group is a multistakeholder body composed of representatives of the ministries in charge of education and of the environment, a number of educational authorities (Mongolian National Institute for Educational Research, General Agency for Education, the Education Inspection and Education Evaluation Centre), Mongolian National University of Education, Freshwater Resources Nature Conservation Centre and media representatives.

The establishment in January 2023 of the General Agency of Education, merging several institutions (the Institute of Teacher's Professional Development, the National Centre for Lifelong Learning and part of the Education Evaluation Centre), represents progress in rationalizing the use of resources and could facilitate the development and promotion of ESD in the country. The Agency has several key functions, including teacher professional development, promoting lifelong learning, education evaluation, educational policy implementation and coordinating and supporting the smooth functioning of the education sector.

The Institute of Teachers Professional Development provides in-service training for various educational professionals, including preschool educators, secondary school teachers, TVET staff and administrators. Environmental and sustainable development topics are integrated across subjects rather than taught separately. Since its reestablishment in 2012, the Institute has developed and reviewed training programmes to align with the 2030 Agenda for Sustainable Development and the SDGs. Participation in the ESD Project since 2014 has enabled the Institute to introduce the ESD concept to teachers and develop relevant training modules and guidelines. The Institute's online portal offers ESD training modules and shares best practices and curriculum support materials.

The Mongolian National Institute of Educational Research²¹⁶ develops curricula and training materials. The Institute was the national implementing agency in the ESD Project (2013–2023), coordinating the development of ESD capacities at national level in cooperation with other relevant institutions. Thus, the Institute plays a key role in implementing ESD.

Province (*aimag*) educational departments are involved in implementing ESD by fulfilling the role of coordination, supporting the adaptation of national ESD policies to the local context and overseeing the implementation of ESD programmes in schools. They provide teacher training and support, by organizing professional development programmes focused on ESD and ensuring schools have access to necessary ESD resources and materials. The departments monitor the progress of ESD initiatives and collect feedback, reporting on ESD implementation to national authorities. They facilitate the engagement of local communities and stakeholders in ESD initiatives. The departments support schools by providing guidance and assistance for ESD projects and by recognizing and rewarding schools excelling in ESD.

Ministry in charge of the environment

The Ministry of Environment and Climate Change collaborates with the Ministry of Education to incorporate ESD principles into environmental education and tourism-related programmes. It plays a key role in promoting sustainable practices and environmental awareness. The Ministry led the development of the National Programme on ESD (2018–2021). The Ministry actively participated in the implementation of the ESD Project, including by chairing TACG. In the framework of the ESD Project, cooperation with UNESCO was strengthened, resulting in Mongolia's selection as a pilot country for implementing the UNESCO ESD Framework. The ministry in charge of the environment received funding from UNESCO for capacity development on ESD. As of 2024, no specific staff member is solely dedicated to overseeing ESD implementation.

The Freshwater Resources and Nature Conservation Centre is a public service organization that has been steadily operating in the field of environmental education and research (see Chapter 1). In 2019, the Centre signed a memorandum of understanding with the Centre for Natural Resources and Environmental Policy of the University of Montana, United States of America, to cooperate on developing the capacity of river basins councils and other natural resources professionals in Mongolia in the field of public participation, collaborative problem solving and conflict resolution, including developing resource materials and conducting training workshops and surveys.

Ministry in charge of labour

The Ministry of Family, Labour and Social Protection oversees the development and implementation of TVET, in cooperation with the Department of Vocational and Technical Education within the Ministry of Education. The ministry's mandate in TVET includes organizing and coordinating the implementation of legislation, policies, strategies and programmes on TVET. It also involves developing proposals for updating TVET standards and curricula, implementing policies to develop the national qualification system and providing professional and methodological support. As of 2024, no specific staff are dedicated to overseeing ESD implementation in TVET.

National Academy of Governance

The National Academy of Governance (www.naog.gov.mn) under the Cabinet Secretariat of the Government is a comprehensive training and education centre for civil servants, offering various courses and programmes tailored to the needs of professionals in the public sector. As of 2024, ESD is not integrated consistently into the training offered by the

²¹⁶ The website of the Institute provides access to the curricula and other materials (www.news.mnler.mn).

Academy. In 2025, training commissioned by the National Geological Survey (<https://ngs.gov.mn/>) included the theme of human rights and ethics.

Local governments and educational institutions

Local governments and individual schools play a crucial role in implementing ESD at the grassroots level. They adapt national policies to local contexts and engage students and communities in sustainability initiatives.

Various schools, including eco-schools, have integrated ESD into their curricula and extracurricular activities, promoting sustainable practices among students. As of 2024, Mongolia has a total of 1,407 kindergartens (including 1,024 public kindergartens), attended by 264,818 children, with 20 per cent of kindergartens participating in the Eco-Schools programme. Mongolia has 885 general education schools (primary and lower and upper secondary), attended by about 797,900 children, with nearly 41 per cent of schools participating in the Eco-Schools programme. With support from the ESD Project, 30 pilot schools (27 of the 30 selected schools are Eco-Schools) selected in six provinces (*aimags*) and two districts of Ulaanbaatar, received in-depth support to implement ESD, including through a WSA and School-Based Curriculum (see Box 6.1). All pilot schools have made progress in their school management maturity level towards introducing WSA, customized for Mongolia by ITCNE. The average school management maturity level improved from 2.47 in 2020 to 3.37 in 2022, including: school governance from 2.42 to 3.30 (+0.88); human capacity development from 2.56 to 3.59 (+1.03); teaching, learning and curriculum from 2.48 to 3.27 (+0.79); school grounds and operations from 2.54 to 3.30 (+0.76); and partnership and collaboration from 2.37 to 3.38 (+1.01).²¹⁷ It is foreseen to replicate the experience acquired to other schools across the country.

Public schools face significant challenges in integrating ESD due to limited financial and human resources. Funding constraints hinder their ability to implement ESD effectively. School facilities are also strained, with demand for places three times higher than capacity, leading to oversized classes and three shifts.

Additionally, public-private partnerships are lacking to support the advancement of ESD implementation in all schools and educational institutions. With the exception of international grants and funding (e.g., the ESD Project) and partnering with NGOs, other potential sources of co-financing ESD such as corporate sponsorships, philanthropic contributors and using part of environmental taxes and levies, are not explored as of 2024.

According to a 2024 UNESCO report, ESD is reflected in education quality assurance criteria of education institutions, such as the then Minister of Education and Science Order on evaluating schools and preschool education organizations, and Education Inspection Checklists for preschools, schools and higher education institutions.²¹⁸

Civil society organizations

The Information and Training Centre for Nature and Environment NGO is the main driving force behind ESD in Mongolia (www.feemongolia.mn/). The Centre serves as the implementation partner for the Eco-School international programme in Mongolia. In the ESD Project, the Centre acted as the local implementing partner. With extensive experience in ESD, the Centre has been continuously promoting it across formal, non-formal and informal education in Mongolia. Additionally, the Centre is involved in revising the curricula for preschool, primary and secondary education in an advisory capacity. It collaborates with the ministries responsible for the environment and education, as well as with several national and international organizations, including the Mongolian National Commission for UNESCO and UNEP.

Civil society organizations (CSOs) have played a significant role in supporting and enhancing the implementation of ESD in Mongolia. Their efforts have contributed to raising awareness, building capacity, engaging communities and providing valuable resources and feedback. CSOs have been instrumental in raising awareness about the importance of ESD among the public, educators and policymakers. For example, the “SDGs and CSOs” network, established in December 2017, has been key in implementing SDGs, including ESD.²¹⁹ CSOs have also been involved in monitoring and evaluating ESD initiatives, providing feedback and recommendations. Additionally, the network has reported on SDG implementation, identifying challenges and opportunities for further progress.

²¹⁷ The schools' progress in WSA is illustrated in the annex 7 to the Mongolia Final Report to ESD Project containing “Summary of Findings from WSA School's Self-Assessment” that is based on information provided by 16,994 respondents from 30 schools.

²¹⁸ UNESCO (2024a).

²¹⁹ Mongolian National CSOs Network on SDGs (2019).

CSOs have facilitated community engagement and partnerships to support ESD initiatives at the local level. Various local NGOs have partnered with schools and local governments to implement ESD projects, such as the Eco-School programme and community-based sustainability initiatives. In the framework of project-based activities, CSOs have provided training and capacity-building programmes for teachers, school administrators and community members to enhance their understanding and implementation of ESD. Furthermore, these organizations have developed and disseminated educational materials and resources to support ESD in schools.

Other actors

The Mongolian National Commission for UNESCO supports the integration of ESD into Mongolia's educational policies and practices. It collaborates with various national and international stakeholders to promote ESD initiatives. The Commission has been involved in reporting on Mongolia's ESD initiatives to the UNESCO ESD for 2030 framework. In December 2021, Mongolia finalized its country initiative on ESD "ESD for 2030" and submitted it to UNESCO.

Although not a national authority, SDC has been a significant partner in supporting Mongolia's ESD efforts. SDC collaborates with the ministries in charge of education and of the environment to mainstream ESD practices in the country, notably through the ESD Project implemented in 2013–2023 (see Box 6.1). SDC, in collaboration with the Government of Mongolia and CSOs, has supported activities that include mainstreaming ESD into curricula, training programmes for teachers and the development of ESD model schools, including by creating web-based platforms for sharing best practices and information on ESD, making resources accessible to educators and practitioners.

6.7 ASSESSMENT AND RECOMMENDATIONS

Assessment

Mongolia has been committed to integrating ESD into its system, supported by a national programme (2018–2021) and a decade-long ESD Project (2013–2023). In 2019, curricula for preschool, primary and secondary education were revised to improve quality, though they continue to focus mainly on cognitive and memory skills. The National Curriculum Concept for Preschool and General Education for 2024–2036 emphasizes ESD as a general competency and cross-curricular theme, with further curriculum revisions planned for the 2024–2025 academic year.

The TVET curriculum, approved in 2019, includes themes related to environmental protection and sustainable development, with updates expected following the 2024 revisions. In higher education, ESD is taught as an independent course for future teachers and integrated into other courses. Universities offer programmes on ecology, environmental protection and green economy concepts. Teacher education includes a dedicated ESD course; however, challenges remain, such as the lack of ESD textbooks and learning materials. In-service teacher training suffers from resource limitations and includes ESD on an ad-hoc basis, largely supported by international partners such as the ESD Project. Training for civil servants does not consistently integrate ESD, although the ESD Project has provided targeted training to representatives of relevant ministries.

Non-formal education initiatives, such as the Eco-Schools Programme, have made progress, but ESD integration remains inconsistent due to limited resources and funding. The Ministry of Environment and Climate Change, supported by CSOs, leads efforts to promote ESD in informal education through public awareness campaigns and community engagement. Challenges include reaching remote areas and sustaining programmes due to short-term funding.

Research and development in ESD remain limited and project-driven, with key roles played by the Mongolian National Institute for Educational Research and the Information and Training Centre for Nature and Environment NGO. The ESD Project has significantly supported national action on ESD.

Mongolia's legal framework on education, updated in 2023, establishes ESD as a key principle of education policy. The National Curriculum Concept for Preschool and General Education 2024–2036 identifies ESD as a general competency and cross-curricular theme, while the 2023 General Law on Education mandates the inclusion of ESD content in educational programmes. Despite these developments, effective integration of ESD across all education levels remains a challenge.

Mongolia lacks a coherent action plan for ESD implementation. The National Programme on ESD 2018–2021 aimed to enhance policies, stakeholder participation, accessibility and coherence for ESD, but no official assessment of its outcomes is unavailable. National and local initiatives like "Education for Sustainable Development 2030: Mongolia's Initiative" and the sub-programme in Khovd *Aimag*, contribute to ongoing efforts. While national policies emphasize sustainability, earlier policy documents addressing ESD principles have been repealed.

Mongolia's progress in ESD is monitored by global indicators assessing integration into national education policies, curricula, teacher education and student assessment. Mongolia performs strongly across most components, with further improvement expected in curriculum indicators following recent developments. The ESD Project significantly advanced ESD nationwide. However, challenges remain, including limited resources and the need for localized content. The education sector is performing well towards SDG 4, though it faces ongoing difficulties in transitioning from access to education towards ensuring access to quality education, compounded by budgetary constraints and the impacts of the COVID-19 pandemic.

Mongolia is part of the UNESCO-led Greening Education Partnership, which seeks to address the climate crisis through education by promoting greener schools, curricula, teacher training and communities. Mongolia is working on implementing the initiative but has not yet established an accreditation system for green school quality standards as of 2024.

Mongolia does not yet have a formal institutional framework for ESD. Since 2018, however, progress has been made, supported by the ESD Project. The TACG has fostered cross-sectoral collaboration and mentored ESD pilot schools. The Ministry of Education oversees ESD integration, supported by various agencies and CSOs. Key partners include the Mongolian National Commission for UNESCO and SDC.

As of 2025, major challenges remain, including the absence of a unified vision for ESD curricula, insufficient financial resources and limited teacher professional development. The lack of adequate resources to support ESD implementation at all levels remain a key bottleneck. Effective integration of ESD across all education levels continues to be difficult. Reaching remote areas and ensuring the sustainability of programmes amid short-term funding are also significant obstacles. Public-private partnerships are underdeveloped and alternative sources of co-financing for ESD have not been fully explored.

Recommendations

Institutional framework for Education for Sustainable Development

Recommendation 6.1:

The Government should mandate the ministry in charge of education to oversee the implementation of education for sustainable development (ESD).

Recommendation 6.2:

The Government should establish a National Council on Education for Sustainable Development, led by the ministry in charge of education, and ensure:

- (a) The participation of the ministry in charge of the environment and other relevant stakeholders, including civil society organizations, and the involvement of international organizations represented in Mongolia;*
- (b) Secretariat support for the National Council's work by an organization experienced in ESD, including the organization of regular meetings and the facilitation of the implementation of decisions and activities;*
- (c) The nomination of ESD focal points in all relevant authorities and institutions, at central and local levels, including ministries in charge of education and the environment.*

Policy framework for ESD

Recommendation 6.3:

The Government should:

- (a) Develop, adopt and implement comprehensive national action plan(s) on ESD;*
- (b) Monitor the implementation of action plan(s) on ESD and, as necessary, adapt measures and activities to the local circumstances and needs.*

ESD in curricula*Recommendation 6.4:*

The Government should develop further ESD and enhance its efforts to integrate ESD into curricula and education programmes across all levels, including:

- (a) Preschool education;*
- (b) Primary education;*
- (c) Lower and upper secondary education;*
- (d) Technical and vocational education and training;*
- (e) Higher education;*
- (f) Education of future teachers and in-service training of teachers;*
- (g) Life-long learning.*

Resources for ESD*Recommendation 6.5:*

The Government should:

- (a) Allocate adequate human and financial resources for implementing ESD in formal, non-formal and informal education across the country;*
- (b) Support research and development on ESD;*
- (c) Ensure the production of ESD materials;*
- (d) Develop public-private partnerships to advance ESD at national and local levels across the country;*
- (e) Replicate the experience acquired in the ESD Project and Eco-Schools Mongolia;*
- (f) Enable other sources of co-financing to broaden the implementation of ESD.*

International processes on ESD and Greening Education*Recommendation 6.6:*

The Government should:

- (a) Ensure monitoring and reporting at national and global levels on achieving the Sustainable Development Goal targets related to ESD, namely targets 4.7, 12.8 and 13.3;*
- (b) Fulfil its commitments under the global initiative Greening Education Partnership, including by establishing an accreditation system for the green school quality standard.*

CHAPTER 7

CLIMATE CHANGE

7.1 CURRENT AND FORESEEABLE ECONOMIC AND ENVIRONMENTAL IMPACTS FROM CLIMATE CHANGE

Environmental impacts from climate change

According to the results of scenarios of general circulation models for the period of 2000–2070, the annual mean temperature is expected to increase by 2–4°C, consequently leading to an increase in the warm period, a shortening of the period of soil frost, a decrease in the snow cover area, a reduction of permafrost and an increase in precipitation. A dry and windy period (May–April) and heavy rain showers characterize the continental climate of Mongolia during the summer, which causes severe surface washing.²²⁰

Water

Mongolia faces significant challenges in the safeguarding of its freshwater resources, especially in the context of climate change. The country is likely to experience increased water scarcity and depletion, as well as greater variability in precipitation patterns and increased frequency of extreme weather events. Furthermore, water scarcity, droughts and floods will be exacerbated by climate change, which in addition leads to a loss of ecosystems and vegetation decline. Some regions experience next to no rainfall at all, and small year-to-year variations in rainfall can lead to severe drought events. Water stress has also become worse due to a steady decline in the water level of Mongolia's lakes since 1993, where some lakes have dried up and the glacier area has receded by about 30 per cent over 70 years. Water shortages are likely to worsen in low-water periods during the summer, reducing the amount of water in the aquifers from which 80 per cent of drinking water is drawn.²²¹

Freshwater availability has, over the past decades, become a major concern in Mongolia due to climate change and increased desertification. Over 12 per cent of rivers and 15 per cent of springs have already dried up in Mongolia. The river flow volume remained well below the long-term average for much of the period. This resulted in a reduction in the area of lake cover of around 7 per cent and the drying up of approximately 600 lakes, which is about 21 per cent of lakes in the country. Furthermore, glacial melting is believed to have accelerated, with the glacial surface area in Mongolia reducing by around 14 per cent between 2000 and 2011. Notably, over 50 per cent of the runoff flowing from the Altai Mountains region in the west of Mongolia currently derives from melting snow and glaciers. Studies have also shown an increase in the frequency of drought over the period 1965–2010. This trend is supported by local knowledge and observations and is suggested to have driven an increase in the frequency of dust storms over Mongolia's drier areas.²²²

Water resources might decline intensively in the middle of the 21st century. The decline in water resources is expected to be more pronounced in the Gobi Desert and desert-steppe areas where most of the lakes are located. Air temperature during the warmer season is expected to increase by 2.4°C by the middle of this century and, by the end of the period (2081–2100), air temperature is expected to increase by 5.8–5.9°C. These expected changes are used to calculate the future trend of glacier mass balance by the energy-balance model. The melting of the Turgan glacier, which belongs to the category of valley-type glacier, has an increasing tendency of 72 per cent in 2021–2040, which is the most intensive compared to others. Future increases in temperature and evaporation rates may result in the depletion of the glacier and snow sources that feed the rivers.²²³

Key types of floods affect that Mongolia's communities are river flooding and flash flooding. As of 2010, assuming protection for up to a 1-in-10-year event, the population annually affected by flooding in Mongolia is estimated at 10,100 people. Taking the climate change component into consideration, by 2030, it is expected that this will increase by a further 4,000 people annually affected by river flooding. The projected impact is to increase the population exposed to extreme floods by around 6,000–28,000 people by 2035–2044. The climate change influence on flash flooding is less well understood,

²²⁰ Mongolia (2001).

²²¹ GIZ (2024a).

²²² ADB (2021).

²²³ Mongolia (2001), Mongolia (2024).

but the model ensemble projects under the Climate Change Knowledge Portal a rise in the quantity of rainfall deposited during extreme rainfall events in the order of 5–15 per cent by the 2090s, depending on the model and emissions pathway selected.²²⁴

Photo 7.1: Rain clouds in the Gobi Desert



Photo credit: Anton Petrus/stock.adobe.com.

Soil

Some studies have confirmed that natural phenomena caused by climate change have a significant impact on soil erosion.²²⁵ The desert area is projected to shift to the north, expanding its range. The compounding effect of this desert expansion and the expected increase in the number of livestock in Mongolia is a likely acceleration of desertification and sand movement in desert-steppe and desert zones. By 2040, the soil organic nitrogen is expected to be slightly higher in the forest-steppe and steppe zones, and lower in the desert-steppe and steppe zones compared to the level in 2001. Mongolia can be characterized as an arid or semi-arid region. Thus, the whole territory of the country is at risk of soil degradation and desertification. Anthropogenic activities often intensify soil erosion caused by natural factors. They include pasture overgrazing, use of certain vehicles and climate change. Until 2070 an increase in temperature of 2–4°C is possible, which in turn can lead to an increase in the warm period, shortening of the period of soil frost, decrease of in the snow cover area, the reduction of permafrost and increased precipitation.²²⁶

In Mongolia, permafrost has a sporadic to discontinuous distribution and is complicated not only by climate conditions, but also by mosaic land cover, surface geology, surface waters, hydrogeology and geotectonic activity. The main parameters of change in permafrost are its temperature at some depth and its thickness. Permafrost is the product of climate change, and it is more sensitive to climate change. Due to climate change, the southern or lower limits of permafrost have shifted to the north and up; *taliks* have formed in the Altai and Khangai ranges; and the disappearance of shallow permafrost is observed in the Khentii range. Changes in permafrost due to climate warming are manifested in the form of desertification, the disappearance of springs and streams, as well as changes in the water cycle in the ground within the mountain system, which will subsequently lead to ecological imbalance.

²²⁴ ADB (2021).

²²⁵ Tuvshinjargal (2023).

²²⁶ Mongolia (2001).

The presence of permafrost plays an indirect role in water circulation, restricting percolation of rain/melt water into the soil and favouring persistence of high soil moisture in the active layer after melting and after rain. In the first half of the 21st century, the permafrost melting may potentially cause the formation of new springs and small karstic lakes, over icing, swamping of pasture and hay lands. Snow cover plays an important role in soil heat and moisture balance. It also has an influence on domestic water use and animal watering during wintertime in the forest-steppe, steppe and Gobi.²²⁷

Higher temperatures increase the rate of microbial decomposition of organic matter, adversely affecting soil fertility in the long run. Moreover, potential water loss increases because of warming. This effect is expected to be relatively small in the early period, but after 2040, the soil moisture deficit will be considerably larger than at present because of the higher evaporative demand of vegetation. Therefore, peak standing biomass would be higher by 2040 and lower in all regions (except for the Altai Mountains) by 2070. According to these simulation results, climate change would have favourable effects by 2040 and negative effects by 2070 on soil fertility and plant production.²²⁸

Climate change has already had various impacts on agriculture and food production. While there might be positive impacts on agricultural production through increasing temperatures, it is expected that overall impacts are likely to be negative due to reduced water availability, decreasing soil fertility, reduced pasture productivity and increasing desertification.²²⁹ The impacts of rising temperatures, changes in rainfall, more winter snowfall and mounting pressures on water resources all negatively affect the traditionally important agricultural sector and especially livestock herding. The increased frequency and intensity of natural hazard related disasters like *dzuds*, intense rainfall, heavy snowfall, dust storms and floods have resulted in a doubling of the damage to livelihoods over a 20-year period. Pasture degradation has been increasing in recent years across the country following worsening droughts, higher temperatures and the drying up of water sources.²³⁰

Several experimental studies describing the effects of increased CO₂ on various plants have indicated positive effects on plant biomass. It affects photosynthesis and reduces plant transpiration. This is because as pore conductance decreases, transpiration per unit leaf area decreases. An increase in photosynthesis and a decrease in transpiration means an increase in the plant's water use coefficient, or a decrease in the amount of water needed to produce a unit of biomass.

Forests

Due to climate change and irresponsible human activities, there are increased negative effects of fires and insect pests on the forest ecosystem in Mongolia, the forest cover has reduced significantly and forest resources have decreased. At present, with global warming and drought, the frequency of forest fires and outbreaks of insect pests has increased, which has become the main factor in the depletion of forests. Since 2021, the area damaged by insect pests has increased again and, in 2022, insect pests have infected 732,700 hectares of forest area. Besides all these factors, the impacts of climate change on forestry are not sufficiently understood in Mongolia, and a detailed study on this topic is lacking.

The forest area is expected to decrease or increase by no more than 1 per cent in the future due to climate change, but this change will occur differently depending on the location. Due to the current warming of the climate in the territory of Mongolia, the upper border of the forest in the high mountains may rise and the forest belt may shrink. In the future, due to the melting of frost in the high mountain belt, wetting of the surface soil and the increase of heat accumulation during the growing season, the upper border of the forest will rise. Thus, the intensity of photosynthesis will likely increase, while the conditions for forest growth in the lowlands between the mountains and the mountains will likely shrink even more.

In Mongolia, the growth and productivity of trees and stands of subalpine, taiga and sub-taiga forests would be increased as global warming progresses. In the future, as global warming increases, forests will grow in the upper parts of high mountains, the upper boundary of forest distribution may rise higher, however, the area of boreal taiga forests on permafrost will decrease and their distribution boundary may move to the north. Extreme weather conditions have a direct negative impact on forest ecosystems and woody plants.

Forest fire is one of the external factors that influence the regeneration of trees, growth and development of trees and forests, and the plant community. The occurrence and spread of forest and steppe fires are possible only in prolonged dry weather, but more than 90 per cent of fires are caused by human negligence. The increase in air temperature leads to an increase in the number of forest and steppe fires. When the temperature increases by 1°C in the fire-hazard period, the area of forests affected by fire increases by 15–17 per cent. Climate change causes an increase in the reproduction and spread of insect pests, which creates opportunities for large dispersals in places where they were not previously distributed

²²⁷ Ibid.

²²⁸ Ibid.

²²⁹ GLZ (2023a).

²³⁰ GLZ (2024a).

and causes damage to forests. Warming will change the geographical location of insect pests, make it easier for them to overwinter and accelerate their life cycle, which will lead to an increase in the number of dead trees and an increase in the frequency of forest fires, and burnt trees will become more vulnerable to insect attacks.²³¹

The impacts of climate change on boreal forests are cumulative. Fires and insect pests have always been a natural part of the boreal ecosystem, but climate change and human activities are upsetting the balance. Warmer winter temperatures can enable insect pests like the Siberian silk moth to expand their range, while drought and water stress make trees more susceptible to insects. But the impacts are also likely to be complex, according to climate change experts. In some parts of the boreal region, warming temperatures, fewer frost-free days and longer growing seasons could make forests grow better. On balance, whether the increased growth will outweigh the negative effects – or vice versa – is hard to predict.²³²

Livestock

The number of extremely hot days unsuitable for livestock grazing in summer is expected to increase along with a decrease in pasture yield. Hot weather conditions disturb the heat balance of animals and have a negative effect by reducing grazing time, weakening the body and reducing fatness. On a clear day without wind, sheep start grazing at 22°C and Mongolian cattle at 28°C in forest and steppe areas. According to observational data, the number of hot days unfavourable for livestock grazing in forest-steppe areas is expected to increase in the future.²³³

According to the future climate projections, the intensity of droughts and *dzuds* will increase significantly in Mongolia in the future (see Chapter 15). As of September 2024, there is no control on the number of livestock relative to their grazing capacity in an early adaptation manner, to reserve nearby pastures for use when there is a risk of drought, protect grazing pastures for herd migration during drought and restore degraded pastures. In recent years, to adapt to climate change, farmers have neglected the benefits they get from animals and have taken measures to prevent calving in some drought years, only in order to get good fattening and keep the animals healthy. When Mongolian sheep are hotter than the regional average of 20–22°C, their grazing stops and the amount of grass they eat decreases. According to the future trend of climate change, for example, regional changes that will hinder the grazing of Mongolian sheep.²³⁴

In recent years, the amount of weight loss due to insufficient fattening of livestock in summer and autumn, and insufficient grazing capacity in winter and spring, tends to increase significantly. On the other hand, researchers and herdsman alike criticize the fact that the traditional way of herding animals has changed, and there is an increase in rapid herding of animals by cars and motorcycles. Thus, the decrease in the weight of animals and the decrease in meat yield will create certain biological and economic consequences. The ability of exhausted animals to replenish their fat in summer and autumn is weakened, which is the main condition for animals to gain weight and grow properly.

Human health

The adverse effects of climate change threaten the quality of air and drinking water, food supply, livelihoods and safe housing. Geographical barriers exist for both urban and rural populations. Those living in peri-urban areas tend to have heightened exposure to climate risks, but these areas also have limited public health infrastructure and services, potentially widening the health disparities between the poor and the wealthy. In the rural context, geographical barriers manifest due to the long distances (and associated travel costs) to reach healthcare facilities. Isolation in remote areas is likely to increase with climate change as snow blizzards, snowfall and ice make road travel particularly dangerous and cut people off from access to fuel supplies, medical services and facilities. For the people cut off from healthcare services, this can result in severe conditions (e.g., pneumonia) being left untreated for months, as well as babies being delivered in unsafe and unsanitary conditions, leading to complications for mother and child, amongst others.²³⁵

Extreme heat and air pollution can have major effects on cardiovascular health; in particular, higher temperatures can increase the occurrence of heart attacks and strokes in people susceptible to cardiovascular disease. High obesity levels, high levels of air pollution in the capital city and the strong exposure of agricultural activities to heat and cold stress are factors that will become more prevalent as climate change continues.²³⁶

²³¹ Mongolia (2024).

²³² UN-REDD (2019).

²³³ Mongolia (2024).

²³⁴ Ibid.

²³⁵ IFRC (2021), UNEP (2021).

²³⁶ IFRC (2024).

Health risks related to climate conditions include various infections. Cold-related respiratory infections, tuberculosis risk and ischaemic heart disease increase if families have to stay indoors more and use more fuel for cooking. At the same time, vector-borne diseases pose significant health impacts and are highly sensitive to changing climatic conditions (temperature, rainfall, humidity). Despite the relatively high use of unimproved water sources (such as springs, wells, surface water) that have been shown to be contaminated (e.g. with *E. coli*), incidences of acute watery diarrhoea and foodborne diarrhoea are low. Acute watery diarrhoea shows a strong seasonal trend, increasing in spring (May), peaking in summer and decreasing in autumn (October). The positive correlations between temperature and bacteria (such as *E. coli*) indicate that further warming is likely to increase the risk of bacterial water pollution. This risk is exacerbated as water is likely to become scarcer. Severe droughts, which have led to the drying of small rivers and springs, have been linked with acute watery diarrhoea, salmonella and deaths in children under five years old.²³⁷

Mongolia faces a double burden of malnutrition. A sizeable proportion of the population is obese, and yet some chronic undernutrition persists, resulting in stunted children. The impact of climate change on traditional pastoralist lifestyles is not only reducing the availability of food (e.g., livestock deaths) but also influencing migration dynamics. Urban populations, who may find themselves trapped in informal seasonal employment, are reliant on markets and can only afford the abundant low-quality, highly processed foods that are high in fat, sugar and salt. Obesity and other comorbidities increase an individual's likelihood of suffering from heat exhaustion and heat stress as temperatures continue to rise. Therefore, whilst obesity is not directly caused by climate change, it is inextricably linked to the secondary risks and impacts influenced by a changing climate. Furthermore, undernutrition has been linked to catastrophic *dzud* events. For example, in 2009–2010 a *dzud* caused 10.3 million livestock to perish, and children from herding households showed slowed growth in the subsequent years (see Chapter 15). The death of livestock leads to severe food shortages in spring, which can affect adults, but especially children by causing lowered immunity, increasing the risk of infectious diseases and increasing the risk of malnutrition. As dietary diversity is generally low, micronutrient deficiencies are high throughout the population.²³⁸

Climate change has also been shown to lead to mental health issues. It can increase anxiety and depression, possibly related to concerns over diminishing livelihoods and physical stresses on the body.²³⁹

Climate change will also impact water-related infrastructure. Regions that abstract water from shallow groundwater via wells are particularly at risk, as they can easily be contaminated from nearby unsealed pit latrines or from the excreta of animals.²⁴⁰

Mongolia's health sector belongs to the WHO's Western Pacific region, which has a high rate of premature mortality due to environmental health. The Sustainable Development Vision 2030 recommended an increase in the national capacity to adapt to climate change and strengthen the system to prevent dangerous weather phenomena and natural disasters.²⁴¹

The incidence of tick-borne encephalitis is moderately correlated with air temperature and rainfall as the number of ticks increases. There is a direct, strong correlation with an increase in the number of tick-borne diseases and an increase in infections among the population.

Research has shown a relationship between the activity and/or number of mosquitoes and some climatic parameters (air temperature and humidity). For example, mosquito activity peaks between 7–9 a.m. in the morning and 18–20 p.m. in the evening, when there is high humidity and low wind speed. The researchers found a weak positive correlation between the number of mosquitoes, air temperature and relative humidity. West Nile fever, Japanese encephalitis and Dengue infection have been found in mosquitoes in Mongolia, and some cases these mosquito-borne diseases have been recorded. In Mongolia, cases of human diseases transmitted by mosquitoes have been registered. The drought will intensify according to future projections. As a result, the number of plant species will decrease due to dryness, and then the number of human diseases related to marmots will be reduced.

According to the 2018 UNICEF report, the impact of climate change on education can generally be divided into two main categories: direct and indirect impacts. Climate-related issues in general, have a direct impact on education. These events can lead to problems such as injuries or fatalities among parents, teachers, or students, as well as the psychological stress caused by such incidents. Additionally, school buildings may be damaged or destroyed.²⁴² Indirect impacts also stem from natural disasters. These can lead to challenges such as parents' inability to finance school expenses or migration-related

²³⁷ IFRC (2021); ADB (2021).

²³⁸ Ibid.

²³⁹ IFRC (2021).

²⁴⁰ GIZ (2024a).

²⁴¹ Mongolia (2016).

²⁴² UNICEF (2019).

disruptions. On the teachers' side, issues may include the inability to teach due to illness or a lack of equipment to support stressed students. The school environment may also indirectly hinder educational success if there is a reduced availability of safe water or school meals. Increased heating or cooling needs can also pose difficulties. Furthermore, the Government and governors may face added pressure due to rising costs associated with addressing climate-related challenges, the necessity to develop new policies, or the need to acquire additional expertise.²⁴³

Natural disaster

Due to the rapid changes in the global climate, the frequency and intensity of disasters and their damages increasing yearly. In the future, the frequency of *dzuds* and droughts will likely increase, negatively affecting Mongolia's national security and pastoralism. Forest and field fires are natural disasters caused by climate change and human activities. Additionally, the change in the future heat risk will remain almost unchanged in 2021–2040 under the average GHG scenarios.²⁴⁴

According to future climate projections, due to the intensity of drought and *dzud*, livestock deaths will increase by 4.3 per cent between 2011 and 2030, and 10 per cent between 2046 and 2065. Therefore, herders' households with less than 200 animals (42.3 per cent of all herding households) and the middle-income households with 201–500 animals (34.4 per cent of all herding households) have a high risk of poverty during harsh winters. Thousands of people are expected to leave their settlements and migrate to survive and prevent poverty caused by the increasing frequency and severity of natural disasters linked to climate change.

Economic impacts from climate change by sector and costs of mitigation and adaptation

Energy

According to the second Biennial Update Report, 2.8 trillion tugriks are needed to increase renewable energy sources, 1.4 trillion tugriks to improve production efficiency and 3.08 trillion tugriks for the construction of a large new source of clean energy with high technology.²⁴⁵

To increase the efficiency of energy consumption, necessary investments are estimated at 1,120 billion tugriks for industry, 840 billion tugriks for buildings and 980 billion tugriks for transport. The total investment needed in the energy sector is estimated to be 10.22 trillion tugriks.²⁴⁶

Industry

According to the 2019 NDC, a study of the industry sector contrasts more than 10 national and sector-level policy documents which are implemented in Mongolia, including the Government's policy on industry, high-tech industry, mineral resources and oil, among others.²⁴⁷ In the future, according to strategic documents such as, Vision 2050 Long-term Development Policy, the State Industry Policy, the State Oil Policy, the State Mineral Resources Policy and the Investment Programme of Mongolia 2018–2021, the Government plans to implement large projects such as an oil refinery, copper smelter, synthetic natural gas from coal, and steel complex. Long-term emissions of GHGs from industrial processes and product use (IPPU) are predicted to increase dramatically.

According to the second Biennial Update Report, US\$23 million is financial requirement for this sector to establish a pretreatment system in the industrial sector.

Agriculture

Agriculture, forestry and fishing are among of the key economic sectors, covering 13.2 per cent of Mongolia's GDP by sector. Herding is the source of subsistence for the rural population, which largely relies on natural pastures, as harsh environmental conditions hinder traditional farming.²⁴⁸ Two-thirds of the rural population is engaged in nomadic or semi-nomadic livestock herding. The increasing number of livestock per hectare has continuously exceeded the country's pasture capacity over the last decades. Mongolia is characterized by a short vegetation period and limited scope for crop production. Due to the rather low crop productivity and the small area under cultivation, the country is dependent on food

²⁴³ UNICEF (2019), Figure 1.

²⁴⁴ Mongolia (2024).

²⁴⁵ Mongolia (2023a).

²⁴⁶ Mongolia (2019).

²⁴⁷ Ibid.

²⁴⁸ FAO (2021).

imports. Certain crops are planted in rain-fed areas (over 90 per cent of grain crops, 60 per cent of potatoes and 70 per cent of cultivated fodders) and thus are mainly dependent on the climatic conditions of the growing seasons.

Anthropogenic climate change, associated with gradual changes in temperature and rainfall patterns, is projected to increase temperatures and rainfall, which, on average, are beneficial to agriculture. According to a study on climate change and nutrition in Mongolia, winter crops are expected to increase in yield; spring crops will see declining yield, and climate change may allow the planting of winter crops in places that were previously too cold.²⁴⁹

The net effects of biophysical (changes in temperature and rainfall) and economic (farmer's response to price signals) impacts of climate change in 2050 on Mongolia's crop yields suggest an overall increase in yields of around 4 per cent for cereals and a much higher 28 per cent-increase for potatoes, while yields of fruits are expected to decline. Given the growing global adverse impacts of climate change on food production, food prices are expected to substantially increase by 2050 compared to a scenario without climate change. Potato prices are expected to increase by 36 per cent, pulses by 14 per cent, poultry by 14 per cent, vegetables by 12 per cent and wheat by 8 per cent.

Fishery

Thirty-one species and subspecies of fish are of economic importance in Mongolia. In this landlocked country, the present annual catch of about 600 tons comes mostly from lakes, both freshwater and saline. The estimated commercial fishery potential is 3,000 t/y; however, the sport fishery catch is not known. Lake Hovsgol has a fishery potential of 200–400 t/yr. In the past, the lake, shared by Mongolia and China, had the highest fish production of all Mongolian lakes. However, due to overfishing, catches in the Mongolian sector have declined from an average of 537 t/y in the late 1950s to 40 t/y in the 1996–1998 period. At present, Mongolia has no aquaculture, largely due to the extremely harsh continental climate, with annual temperatures ranging from +30°C to -50°C, with long winters and thick ice cover on lakes and rivers. There is a proposal to test, in a pilot project, the possibility of raising local fish species in hatchery/farm conditions.²⁵⁰

Apiculture

As of January 2022, 13,770 bee colonies were counted in 35 enterprises and 680 households. To develop the honey industry, honey producers were trained and provided with knowledge on honey production technology improvement, honey origin, certification, and the legal environment for conducting business. In 2021, the Supreme Council of the Mongolian Beekeepers Associations, in collaboration with the branch associations of Bulgan, Khuvsgul, Uvurkhangaï, Arkhangai and Darkhan-Uul *aimags*, provided training and internships to more than 300 beekeepers under the Japan International Cooperation Agency. The training comprised 15 sessions of beekeeping technology instruction, conducted online and included beekeepers. Teachers received training at the Agricultural Vocational College in Bulgan *aimag* on pre-winter care of bee colonies. The College has opened a new Beekeeping class, updated the curriculum and is working with the school to provide instruction in beekeeping technology. The foundation of the Honey Cluster System was laid based on honey producers and their contracted suppliers, beekeepers, within the framework of a project of the Japan International Cooperation Agency. A scientific paper was developed on Honey Bee Diversity and Health Status in Asia, concluding that Mongolia is a great place for beekeeping and honeybee research.²⁵¹

Forestry

Looking at the direct contribution of the forest sector to Mongolia's GDP in 2016, it was less than 0.5 per cent, approximately 66 billion tugriks (US\$35 million at 2016 currency exchange rates). At first glance, it would be easy to believe that forests have little value for the national economy. However, the reality is very different. A study carried out by the UN-REDD found that boreal forest ecosystem services are worth around 430 billion tugriks a year to the national economy.²⁵²

Timber and fuelwood, at current levels, were estimated to have an annual value of almost 200 billion tugriks and generated 66 billion tugriks in operating profits to producers. Just over half of this value comes from unlicensed removals, particularly firewood. The National Forest Inventory, which sampled forest stocks across the country, identified that there are many areas where, under strict regulations, the current stocks would benefit from harvesting or thinning to improve growth and resilience. Non-wood forest product (NWFP) collection has a value of almost 16.5 billion tugriks a year, benefiting around half of the rural population in *soums* with boreal forest. More than 90 per cent of this value comes from unlicensed

²⁴⁹ FAO, UNICEF (2023).

²⁵⁰ Dulmaa (1999).

²⁵¹ Chantawannakul (2018).

²⁵² Emerton (2013).

removals, and three-quarters is accounted for by home-consumed products, which never enter the market but are of vital importance for communities.

Grassland areas in forests are an important source of seasonal pasture for livestock, contributing more than 34.5 billion tugriks to herders' gross margins. Management of forest edges not only ensures grazing benefits for farmers, but also is regulated to ensure forest regeneration otherwise forests will eventually disappear in grazing areas. The area covered by forests decreased by 729,000 ha, or 5.5 per cent, between 2006–2020. The burned forest area increased by 939,000 ha, or 133 per cent between 2006 and 2020. The forest area destroyed by insects increased by 76,000 ha or 127 per cent between 2010 and 2015. The change in forest area is expected to decrease by 0.32 per cent (723.1 km²) in 2050.

Transport

The transport sector of the country comprises four sub-sectors: roads, railways, airways and waterways. Out of the country's total road networks—14,919 km of national roads and 96,125 km of local roads in 2018—only 9,023 km are paved roads.²⁵³ The country also possesses 1,900 km of railways and 132 km of waterways. Water transportation is not well developed due to limited domestic waterways. The country's transport infrastructure suffers from deficiencies due to a lack of investment in repair and maintenance.

An increase in near-surface temperature may further damage asphalt road surfaces and cause thermal expansion of bridge joints and paved surfaces. Temperature fluctuations may cause cracks and expansion of joints in railway tracks. Droughts and extreme summer temperatures may threaten water availability for the waterway transport network and further reduce its capacity. An increased frequency of extreme weather events such as *dzuds* and blizzards may limit transport connectivity and affect the supply of food and essential items, which would result in tangible social consequences. Floods may damage rail and road infrastructure by washing out road surfaces, damaging tunnels and railway tracks. Extreme rainfall events and floods may also trigger landslides in mountainous regions, which may heavily affect road connectivity.

Tourism and leisure

Mongolia's natural and cultural resources are the main factors for attracting foreign tourists. Mongolia currently ranks 93rd out of 140 countries, with 3.5 points in terms of tourism competitiveness.²⁵⁴ Several studies describe the impact of tourism on the country's economy at the macro level. However, studies that explain how it affects household income and participation are limited to questionnaires.

In 2024, work was carried out by combining the input-output model, cost-effectiveness analysis and questionnaire research methods.²⁵⁵ At the macro level, the share of tourism in GDP is predicted until 2035 using the multiplier method, and the share of tourism income is expected to increase from 11 per cent to 20 per cent within this period.

When determining the positive and negative economic effects of tourism through a survey of domestic and foreign tourists, more than 70 per cent of the respondents agreed that it would increase the employment rate, create new investments and support the local economy. In addition, it was found that domestic travellers travel for an average of 4–6 days and spend more than 1 million tugriks.

Costs of inaction

According to the World Bank, climate change poses substantial risks to the economy and people of Mongolia. The country is highly exposed to both the risks of a changing climate and the global shift away from coal.²⁵⁶

Model simulations show that, over a three-year period, 20 per cent of Mongolia's annual GDP is at risk in a worst-case scenario that could see a convergence of several low-probability but high-impact events, including consecutive *dzuds* (as was last experienced in 2000–2002), extensive flooding (akin to the 1966 events in Ulaanbaatar) and a loss of coal exports to China (due to unforeseen mitigation policies). More than 14 per cent of people would either be unemployed or unable to work, while all sectors of the economy would be affected, particularly agriculture, mining and services. Poverty rates would inevitably increase, undoing recent gains. Furthermore, repeated incidents of *dzuds* and floods would undermine long-term development pathways.

²⁵³ Chepelianskaia (2022).

²⁵⁴ Erdenetuul (2024).

²⁵⁵ Scientific Research Publishing (2024).

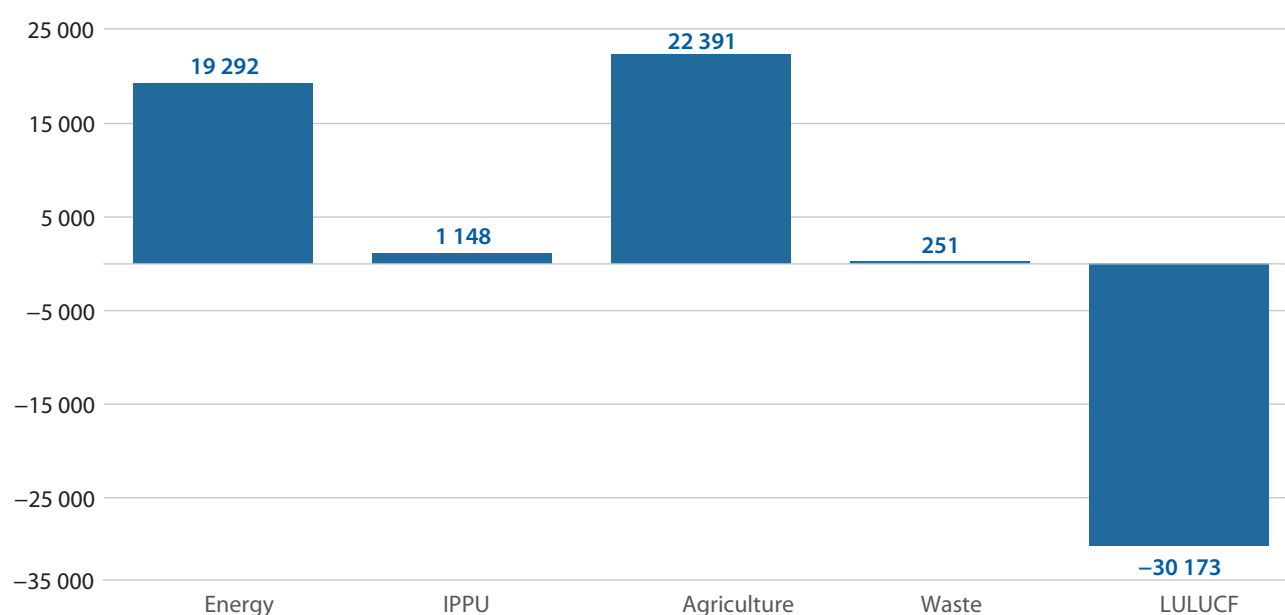
²⁵⁶ World Bank (2024b).

Photo 7.2: Stones and boulders in Gobi Desert

7.2 GREENHOUSE GAS EMISSIONS FROM ECONOMIC SECTORS

In 2020, total GHG emissions were 43,081.62 Gg CO₂e excluding land use, land-use change and forestry (LULUCF)²⁵⁷ (Figure 7.1). This represents an 82.17 per cent increase from the 1990 level of 23,648.79 Gg CO₂e and a 6.20 per cent decrease from the 2019 level of 45,927.72 Gg CO₂e. Net GHG emissions in 2020 were 12,909.10 Gg CO₂e, including LULUCF. This represented a 340.02 per cent increase from the 1990 level of -5,378.40 Gg CO₂e and 1a 7.92 per cent decrease from the 2019 level of 15,726.84 Gg CO₂e. In general, emissions/removals from each sector (Figure 7.2) showed an increase in 2020 compared to the base year.

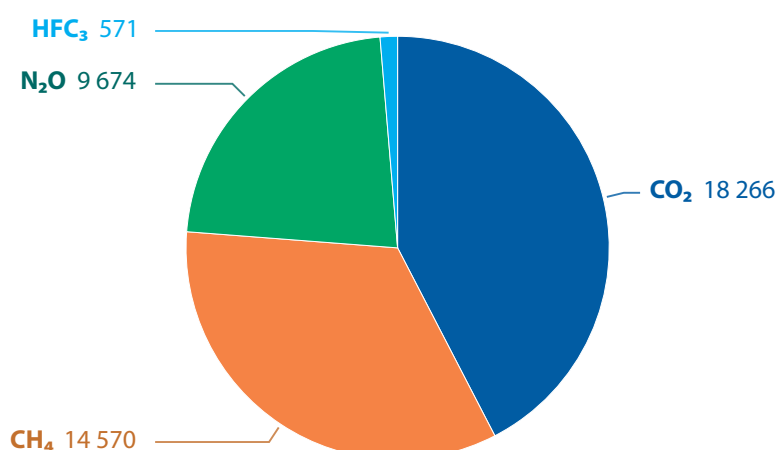
Figure 7.1: Aggregated GHG emissions and removals by sectors, expressed in Gg CO₂e for the year 2020



Source: NSO, 2025.

²⁵⁷ Mongolia (2023a).

Figure 7.2: Total GHG emissions (excluding emissions from LULUCF sector), for the year 2020 by gases



Source: NSO, 2025.

Energy

The energy sector is the second largest contributor to GHG emissions (without LULUCF), accounting for 44.78 per cent (19,292.48 Gg CO₂e) of the country's total GHG emissions in 2020. Within this sector, the energy industry (mainly from fuel combustion) has the highest share, contributing 57.51 per cent of GHG emissions. This is followed by the transport sector at 25.38 per cent, and other sectors, including commercial, residential, agriculture and forestry, which account for 5 per cent.

Industry

The IPPU sector contributed 2.66 per cent (1,147.75 Gg CO₂e) of the total GHG emissions in 2020. The main contributor subcategory was the mineral industry, accounting for 50.11 per cent of the sector's total GHG emissions. The second highest contributor was products used as substitutes for ozone-depleting substances, accounting for 49.78 per cent. The remaining subcategories contributed a minor share, with 0.11 per cent of the sector's total emissions in 2020.

Agriculture

The agriculture sector is the most significant source of GHG emissions (without LULUCF), accounting for 51.97 per cent (22,390.57 Gg CO₂e) of the total GHG emissions in 2020. Within this sector, emissions from enteric fermentation from livestock contributed 56.90 per cent of sectoral GHG emissions. The aggregated sources and non-CO₂ emissions sources on land subcategory contributed 41.60 per cent, while manure management accounted for 1.49 per cent of sectoral GHG emissions.

Forestry

Mongolian forests are the largest contributors to GHG removals, while land conversions (loss of forests) are notable contributors to GHG emissions. Since 1986, the conversion of grassland into settlements, wetlands and croplands has affected approximately 1,037,932 ha. In 2020, the total removal was -30,172.52 Gg CO₂e, which was 3.80 per cent higher compared to the 1990 level. This increase mainly occurred in the forest land category. However, there was a 0.09 per cent decrease compared to the 2019 level.

Transport

In 2020, GHG emissions from the transport sector contributed 25.38 per cent of the overall emissions from the energy sector. This is one of the most important sectors of energy consumption, with the volume of freight and passengers being key indicators of GHG emissions. Due to the increase in population and intensive socioeconomic development, freight volume doubled in 2020 compared to 2010, and passenger numbers also doubled in 2019 compared to 2010.

Tourism and leisure

There are no data on GHG emissions from the tourism and leisure sector.

7.3 ADAPTATION AND MITIGATION

Commitments and scenarios

In 2020, Mongolia enhanced its mitigation commitments with a target to reduce GHG emissions by 22.7 per cent (excluding LULUCF) below the business-as-usual scenario (BAU) by 2030. This is equivalent to an annual reduction of approximately 16.9 Mt CO₂e of economy-wide emissions. Mongolia's NDC outlines a series of policies and measures that the country has committed to implementing through 2030 in the sectors of energy production, energy consumption (transportation, construction, industry), agriculture, industrial processes and waste.

In addition, Mongolia's NDC identified conditional measures such as carbon capture and storage, and waste-to-energy technology, as well as the carbon removal potential in the forest sector. If these additional measures are implemented, the total GHG reduction target could reach 44.9 per cent by 2030, compared to the BAU baseline of 2010.

At the World Leader's Summit organized as part of the twenty-seventh Conference of Parties of UNFCCC, which was held in November 2022 in Egypt, the President of Mongolia announced that Mongolia is endeavouring to achieve carbon neutrality by the mid-of this century.²⁵⁸ Mongolia has also joined the Global Methane Pledge.²⁵⁹

Adaptation and mitigation measures

Energy

The energy sector's overall GHG mitigation potential is shown in Table 7.1. This sector will be able to cut GHG emissions by 5.9 Mt CO₂e (by 2025), 9.3 Mt CO₂e (by 2030), 11.5 Mt CO₂e (by 2040) and 14.0 Mt CO₂e (by 2050), if all the stated projects and actions are successfully implemented.

According to NDC, the energy sector will be responsible for 66.7 per cent of the overall reduction in GHG emissions in 2030, which is estimated to be 16.9 Mt CO₂e. Increasing the use of renewable energy and improving the efficiency of energy production and consumption are the two primary strategies outlined in the development documents for reducing GHG emissions in the sector.

Table 7.1: Total GHG mitigation potential in the energy sector, 2025–2050, Mt CO₂e

	2025	2030	2040	2050
Use of renewable energy	2.100	3.100	3.500	3.900
Energy efficiency	3.800	6.200	8.000	10.100
Energy	5.900	9.300	11.500	14.000
Total emission reductions	8.535	14.938	20.369	26.650

Source: NDC, 2019.

Industry and mining

Both measures for GHG emission reduction, presented in Table 7.2, are related to the cement plants (utilizing waste heat from cement plants and fly ash in cement manufacturing). By implementing the actions outlined in the industrial sector, GHG emission reductions in 2025, 2030, 2040 and 2050 are projected to be 52,700 t CO₂e, 99,400 t CO₂e, 192,800 t CO₂e and 286,200 t CO₂e, respectively, or reductions of 2.5 per cent, 3.4 per cent, 3.5 per cent and 3.5 per cent, respectively, compared to the baseline scenario.

Table 7.2: Total GHG mitigation potential in the IPPU sector, 2025–2050, Gg CO₂e

	2025	2030	2040	2050
Utilizing waste heat from cement plants	9.7	13.4	20.8	28.2
Utilizing fly ash in cement manufacturing	43.0	86.0	172.0	258.0
Total GHG emission reduction	52.7	99.4	192.8	286.2

Source: NDC, 2019.

²⁵⁸ Mongolia (2022a).

²⁵⁹ Global Methane Pledge (Pledges).

Agriculture, fishery, apiculture

The main areas of adaptation in the agricultural sector, as outlined in the NDC goals and plans, are related to creating conditions for the sustainable provision of healthy food for the population with agricultural products, fodder for livestock husbandry and raw materials for the food industry. To meet this goal and adapt to climate change, the use of synthetic film and straw mulch in agricultural production, the introduction of drip and seepage irrigation technologies, the introduction of reduced and zero irrigation technologies, and the establishment of forest strips have been included.

With regard to the potential for mitigation of GHG emissions in the agriculture sector, the primary goal of minimizing GHG emissions from livestock is to restrict the quantity of livestock and develop an optimum herd structure ratio to adjust to pasture capacity. Table 7.3 shows the GHG mitigation potential from the livestock sector by 2050. GHG emission reductions in the livestock sector are projected to be 17.4 per cent, 34.5 per cent, 44.6 per cent and 53.0 per cent in 2025, 2030, 2040 and 2050, respectively, compared to the baseline scenario.

Table 7.3: Total GHG mitigation potential in the livestock sector, 2025–2050, Gg CO₂e

	2025	2030	2040	2050
BAU	13 848	15 091	17 849	21 047
Mitigation scenario	11 443	9 890	9 890	9 890
Total GHG emission reduction	2 405	5 201	7 959	11 157

Source: NDC, 2019.

No measures are proposed for fishery and apiculture.

Forestry

During the preparation of the Third Climate Change Communication, a specific index was developed to assess the current and future vulnerability of the country's main natural and socioeconomic sectors.²⁶⁰ The forest resources were assessed as very vulnerable.

Forest fires and the spread of harmful insects caused by the side effects of climate change are causing significant damage to the forests of Mongolia. According to 2020 data from the Forestry Research and Development Centre, the burned forest area was about 1.65 million ha, and the forest area destroyed by harmful insects was 102,200 ha. There is no policy or strategy for adapting the forest sector to climate change impacts. In the 2019 NDC and its implementation plan, carbon sequestration-related measures, along with the introduction of sustainable management and actions to improve the natural ecosystem of the forest, were included in the forestry sector targets and measures. In particular, the possibility of using technology in the forestry sector to adapt to climate change is defined in the plan for the implementation of NDC. This includes strengthening the capacity of forestry professionals and organizing training courses on forest clearing technologies and methods to create adaptive capacity. The forest area is expected to decrease by 0.92 per cent (2,115.6 km²) during the period from 2021–2040 and by 0.32 per cent (723.1 km²) during the period from 2041–2060, and it is likely to increase by 0.70 per cent (1,592.5 km²) during the period from 2081–2100 (Table 7.4).

Table 7.4: Expected change of forest area in Mongolia

	2021–2040	2041–2060	2081–2100
Percentage	-0.92 ↓	-0.32 ↓	+0.60 ↑
Area (km ²)	-2 115.6 ↓	-723.1 ↓	+1 592.5 ↑

Source: NDC, 2019.

Transport

The two measures proposed to reduce GHG emissions in the transport sector include reducing the fuel consumption of vehicles and engines and lowering fuel and solid-liquid consumption that contributes to GHG emissions by enhancing the infrastructure for roads and transportation.

²⁶⁰ Mongolia (2018).

Tourism and leisure

In general, climate change impacts, vulnerabilities and risks are increasing in all sectors except tourism. For tourism, the risk would decrease slightly due to the increase in favourable climate conditions, especially, in winter. The average value of tourism climate index²⁶¹ (Umnugobi, Ulaanbaatar, Bayan-Ulgii, Uvs, Khuvsgul) is 61.3, which is considered suitable (good category).²⁶² The tourism climate index value is expected to increase by 3.4 per cent by 2050. No adaptation measures are proposed for the tourism sector in NDC.²⁶³

7.4 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Mongolia joined UNFCCC in 1993, the Kyoto Protocol in 1999 and the Paris Agreement on Climate Change in 2016 (see Chapter 8).

Legal framework

Mongolia does not have a specific law on climate change that regulates cross-sectoral and nationwide climate change actions. A draft law on climate change has been completed and is under review by the Ministry of Justice. In terms of reporting under UNFCCC, the Law on Air mandates the central environmental administration body with the responsibility of conducting the national GHG inventory in accordance with the decisions and guidelines of the Conference of the Parties to UNFCCC. However, a legal framework concerning the preparation of the GHG inventory and the monitoring, reporting and verification system of GHG emissions is missing.

Policy framework

Significant changes have been made in the legal and policy environment as the Parliament of Mongolia amended the Law on Development Policy and Planning and Management in 2020 to ensure the sustainability and correlation of development policy planning and implementation (see Chapter 1). The Law prescribes the framework structure for the national development policies – which must consist of a single long-term policy, seven cross-sectoral mid-term (10 years) targeted programmes, two of four- or five-year planning documents, and an annual action plan and budget. Altogether there should be 12 types of national development policy documents adopted at the long-, mid- and short-term.

Subsequent to the initial Biennial Update Report submission, the Parliament and Government approved the 2020 Vision 2050, 2021 New Revival Policy, 2019 NDC, 2020 Action Programme of the Government, 2020 five-year development guidelines for 2021–2025, and the 2017 National Programme for Reducing Air and Environment Pollution (See Chapter 1).

Vision 2050 integrates the existing long-term and medium-term policy documents into one pillar, causing rearrangements and consolidations among the previous strategies and concepts. The policy sets out three phases of achieving the objective in 2021–2030, 2031–2040 and 2041–2050. The section on Green Development in Vision 2050 includes the objective of maintaining ecosystem balance, ensuring environmental sustainability, creating benefits for present and future generations, and improving human quality of life. Adaptive activities related to climate change are reflected under the main contents of nature and primary ecosystems, benefits of natural resources, valuable water and green development with low carbon, efficient and accessible technologies.

In the Five-Year Development Guidelines for 2021–2025,²⁶⁴ Goal 6 ensures the right of the people to live in a healthy and safe environment through the implementation of climate change mitigation and adaptation policies designed to reduce environmental pollution and degradation, promote appropriate use of natural resources and their restoration, and introduce environmentally friendly green technologies.

The 2021 medium-term New Revival Policy is expected to be implemented over 10 years and is aimed at creating an effective implementation of Vision 2050.

Mongolia has not fully achieved SDG indicator 13.2.1 (Number of countries with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the UNFCCC). Mongolia developed an updated NDC in 2019 and submitted it in 2020. Furthermore, Mongolia submitted its national

²⁶¹ Mieczkowski (1985).

²⁶² Mongolia (2024).

²⁶³ Mongolia (2024a).

²⁶⁴ State Great *Khural* (2020).

adaptation plan in April 2025. However, the future submission of a more ambitious NDC from 2025, referred to as the NDC 3.0, would help the country to accelerate implementation and the effectiveness of its NDC. Additionally, the Government is in the process of developing a long-term low emission vision to be followed by the preparation of a long-term low emission strategy. Thus, as of April 2025, Mongolia has an updated NDC and a national adaptation plan but still lacks a long-term strategy and NDC 3.0 to advance the achievement of SDG target 13.2 (Integrate climate change measures into national policies, strategies and planning).

The 2019 NDC outlines measures to reduce the negative impacts and risks of climate change and adapt to projected scenarios. This report also specifically addresses the most vulnerable sectors, demonstrating Mongolia's proactive stance in climate change adaptation. It has an unconditional emissions reduction target of 22.7 per cent and a conditional target of 44.9 per cent by 2030 as compared to the 2010 BAU scenario. NDC covers energy, agriculture, IPPU and waste sectors. It also states qualitative adaptation targets related to animal husbandry and pastureland, arable farming, water resources, forest resources, biodiversity, natural disasters, public health, livelihood and social safeguards. For its implementation, NDC requires an estimated US\$11.5 billion in financial support. Mongolia's Partnership Plan, developed in 2018, is currently under implementation.

Recommendation 7.4 (a) of the First EPR of Mongolia asked the Government to adopt a national adaptation plan on climate change. The National Adaptation Plan has been developed and submitted to UNFCCC in April 2025, fulfilling this recommendation. Additionally, the recommendation in Box 7.2 of the First EPR of Mongolia on developing a national adaptation plan, which would support the achievement of SDG target 13.2 related to the integration of climate change measures into policies, strategies and planning, was implemented.

Institutional framework

The Ministry of Environment and Climate Change is the central state administrative organization in charge of climate change policy. The Ministry is the national entity responsible for organizing and coordinating the compilation of the national communication reports and Biennial Update Reports at the policy level and submitting them to the UNFCCC Secretariat.

Since 2011, the Climate Change Coordination Office was the responsible unit for fulfilling Mongolia's duties and responsibilities in terms of reporting under the UNFCCC framework. Subsequently, the Office was rearranged and established as a Climate Change Project Implementing Unit in 2015 due to a structural change in Government. In 2020, the Unit was transferred with the same duties and responsibilities to a newly established body, CCRCC. CCRCC conducts the national GHG inventory and prepares the reports under UNFCCC and the Paris Agreement. It operates under the policy guidance of the Ministry of Environment and Climate Change with the purpose of enabling cooperation and coordination among concerned government agencies, private business entities, NGOs and CSOs by organizing national and international events, and supporting the initiative and efforts to introduce new technologies to combat climate change. CCRCC includes the Secretariat of the GCF National Designated Authority (NDA) and Joint Crediting Mechanism (JCM)²⁶⁵ within the Mongolia-Japan Low Carbon Development Partnership agreement.²⁶⁶ Recommendation 7.4 (b) of the First EPR of Mongolia on the establishment of a body specifically dedicated to coordination among line ministries relevant to climate policy has been therefore implemented.

As of September 2024, the National Committee on Climate Change is active and composed of a chairman (Deputy Prime Minister of Mongolia), a deputy head (Minister of Environment and Climate Change) and other members (key ministers and heads of main related agencies, among others).

NEMA was established with the duty to conduct nationwide activities for disaster protection and prevention. All the 21 provinces and the capital city have a NEMA emergency management division and department. Its main duties are to develop environmental legislation on disaster protection, provide strategic management, evaluate disaster risk and vulnerability, and implement activities on disaster prevention, disaster reduction and disaster preparedness at all levels. NEMA is also responsible for coordinating the activities of different stakeholders who are involved in the disaster response. This includes non-governmental and governmental organizations, the private sector, community groups and international organizations.

²⁶⁵ JCM Mongolia-Japan.

²⁶⁶ Ibid.

NAMEM is responsible for environmental monitoring, including water and climate monitoring. It provides the public with warnings and reminders of the potential risks of natural disasters. The Agency works with the following priorities:

- Organizing monitoring and quality control analysis of water, climate and environment, providing users with information promptly and issuing early warning of potential disasters due to extreme water and weather phenomena;
- Providing, expanding and strengthening the capacity of the state network of water, climate and environmental monitoring with an integrated management and methodology;
- Continually improving the environmental monitoring network, collecting information, ensuring technical reliability and delivering it to users promptly, and carrying out continuous technical and technological innovation;
- Managing and organizing the creation of water, climate and environment archives and an integrated database, serving users with information;
- Coordinating with the World Observatory, the World Meteorological Organization and countries on relevant international programmes and agreements.

Within NAMEM, there is the Information and Research Institute of Meteorology, Hydrology and Environment that works on the following areas:

- Providing information on the real and future status of the climate;
- Developing methods and technologies of the country's network of water, meteorological and environmental monitoring, and production testing;
- Conducting research on climate, environment, remote sensing research and information technology;
- Introducing results into production, developing and implementing technology, projects and programmes;
- Performing the role of the national meteorological centre in the World Meteorological Information Network;
- Performing the role of the national remote sensing centre;
- Performing the role of the environmental information centre and managing day-to-day databases.

Regulatory, economic and information measures

Mongolia has successfully implemented the Clean Development Mechanism (CDM)²⁶⁷ and has experience in trading project level emission reductions on the international market. Five projects have been officially registered in the CDM in Mongolia.

Additionally, within the framework of the Paris Agreement, Mongolia has advanced its efforts by implementing JCM. The Governments of Mongolia and Japan signed a bilateral cooperation document for the introduction of JCM. The JCM goal is to reduce GHG emissions or enhance their removals through quantitative evaluation and the application of measurement, reporting and verification methodologies to achieve emission reductions targets in both Japan and Mongolia. Since then, several projects within the JCM scheme of cooperation have been implemented, focusing on renewable energy use, energy efficiency and improvement of heating facilities. A total of US\$150 million has been invested, with about US\$40 million provided as grants from the Government of Japan. As of October 2024, certified emission reductions equivalent to 53,730 t CO₂ credits have been issued to five registered projects in Mongolia.²⁶⁸

The Ministry of Environment and Climate Change is working to develop and implement the measures mentioned in the list of Nationally Appropriate Mitigation Actions by approaching various international financing mechanisms.

Voluntary markets rely more on private sector initiatives than formally regulated carbon markets. Three projects have been registered from Mongolia in the international voluntary carbon market: Gold Standard, Verra and Plan Vivo.²⁶⁹

Mongolia adopted a green taxonomy in 2019, with an extended version approved under the Mongolia SDG taxonomy in 2023. This framework facilitates the provision of green loans and provides information on green loan categories and products. Moreover, Mongolia was among the first countries in the region to launch a climate financing strategy in 2022.

²⁶⁷ Climate Development Mechanism.

²⁶⁸ JCM Mongolia-Japan.

²⁶⁹ Mongolia (2023a).

In the same year, the Financial Stability Council approved the National Sustainable Finance Roadmap, outlining targets for green financing.

In 2020, the Bank of Mongolia approved a regulation mandating commercial banks to report their green finance issuance according to the Mongolian Green Taxonomy. Green loans account for a small fraction of total outstanding loans, with 3 per cent of the total loan portfolio issued by commercial banks as of Q1 2024.²⁷⁰ Compared to the need for climate finance as estimated in NDC as US\$11.5 billion, commercial green finance does not make up 1 per cent (approximately 0.8 per cent) of the climate finance needed in Mongolia. In parallel, to enable the concessional financial sources, the Government and commercial banks jointly developed a project to establish the national green finance vehicle, the Mongolian Green Finance Corporation, and submitted it to GCF, which was successfully approved in 2020. However, the project has not been implemented yet. The Ministry of Finance, supported by UNDP, has started working on developing a roadmap on green budgeting, which is recommended to be further endorsed by the National Committee on Climate Change.

Concerning information measures, the following information are publicly available in Mongolia: the information on the national GHG inventory and the national climate change reports,²⁷¹ the information on the JCM Mongolia-Japan and its projects²⁷² and the climate services system.²⁷³

Mongolia reports that climate change is not fully integrated into the education sector, including formal, non-formal and higher education programmes (SDG indicator 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula). The lack of reporting on SDG target 13.a does not allow for an assessment of its achievement.

7.5 ASSESSMENT AND RECOMMENDATIONS

Assessment

Recent changes in institutional arrangements present both opportunities and challenges for climate change coordination in Mongolia. However, a well-established mechanism for coordination and cooperation across sectors and among national, subnational and local stakeholders remains limited. The effective implementation of climate change policies and plans is further constrained by insufficient human and financial resources. Additionally, the country lacks a comprehensive law to regulate and strengthen cross-sectoral and nationwide climate action.

As a Party to UNFCCC and the Paris Agreement, Mongolia is required to develop and adopt a long-term low-emission development strategy and an ambitious NDC 3.0. However, these documents have not yet been developed or adopted, and the country has not submitted its National Adaptation Plan.

Most climate projections for Mongolia, based on global climate models, indicate that by the mid-century, a drier climate will dominate, with prolonged droughts and frequent floods due to short but intensive rainfall. Nevertheless, climate change considerations are not adequately mainstreamed into sectoral policies. No specific actions have been proposed to address the impacts of climate change on the tourism or human health sectors, and no policy or strategy for adapting the forest sector to climate change impacts.

Although climate change-related issues are addressed to some extent in Vision 2050, the document does not include a carbon neutrality target, define mitigation objectives for key emitting sectors, or refer to a low-carbon economic transition. Overall, climate change is not reflected in a comprehensive or systematic manner that would establish clear obligations for emitting sectors. Existing targets are listed under a general green development objective, which alone cannot overcome the numerous challenges and barriers to mitigating GHG emissions. Nor does it address weaknesses in interdisciplinary coordination, multilateral cooperation or the mobilization of finance. Additionally, the concept of nature-based solutions is not incorporated into any existing policy document.

²⁷⁰ World Bank (2024b).

²⁷¹ CCRCC.

²⁷² JCM Mongolia-Japan.

²⁷³ Climate Service System.

Mongolia also lacks a legal framework governing the preparation of its GHG inventory and the establishment of a monitoring, reporting and verification system for GHG emissions. Moreover, climate-related data (including gender-disaggregated data) and information are not readily accessible to government agencies, the private sector, academia and civil society organizations. Improving access to climate-related data and information would enhance transparency and accountability, enable coordination and facilitate the monitoring of progress towards environmental and climate-related targets.

Further, climate change is not yet fully integrated into the education sector, including formal, non-formal and higher education programmes, to the extent needed to drive the transformational change required for achieving low-carbon and climate resilient development.

Recommendations

Enhancement of the legal framework

Recommendation 7.1:

The Government should finalize the draft law on climate change and submit it to the Parliament for adoption.

Fulfilling international commitments on climate change

Recommendation 7.2:

The Government should develop, adopt and submit to the United Nations Framework Convention on Climate Change:

- (a) A long-term low emission strategy;*
- (b) A Nationally Determined Contribution 3.0.*

Integration of climate change into sectoral policies

Recommendation 7.3:

The Government should:

- (a) Enhance inter-sectoral coordination and cooperation for further mainstreaming climate change mitigation and adaptation objectives and targets into sectoral policies and align them with the national budget;*
- (b) Assess the impact of and adaptation to climate change in relevant sectors;*
- (c) Use nature-based solutions in sectoral policies where appropriate.*

Climate change data and information

Recommendation 7.4:

The Government should:

- (a) Establish a sustainable measurement, reporting and verification system for greenhouse gas emissions and their projections;*
- (b) Enhance access to climate related data and information, including gender disaggregated data.*

Climate change and education

Recommendation 7.5:

The Government should further integrate climate change into the national educational system.

CHAPTER 8

IMPLEMENTATION OF INTERNATIONAL AGREEMENTS AND COMMITMENTS

8.1 GENERAL PRIORITIES FOR INTERNATIONAL COOPERATION RELATED TO THE ENVIRONMENT, SUSTAINABLE DEVELOPMENT AND GREEN DEVELOPMENT

International, regional and bilateral cooperation play a central role in environmental policy, with a strong emphasis on sustainable development and green growth. Mongolia has actively engaged with global sustainability initiatives, aligning its domestic policies with international environmental agreements. The Vision 2050 integrates global sustainability goals into national strategies (see Chapter 1). A key focus is green development, emphasizing ecosystem balance, environmental sustainability and an improved quality of life. By aligning with international frameworks and leveraging global expertise, Mongolia seeks to transition to a green economy and strengthen its role in global environmental governance.²⁷⁴

Mongolia recognizes the importance of regional cooperation in addressing transboundary environmental issues and promoting sustainable development. The country collaborates with neighbouring countries, such as China and the Russian Federation, on cross-border environmental initiatives, including managing shared water resources, combating desertification and protecting migratory species. Mongolia actively participates in regional forums like and ESCAP, engaging in broader regional strategies for sustainable development.²⁷⁵

8.2 GLOBAL AND REGIONAL AGREEMENTS

Participation, reporting and follow-up

Mongolia has been party to major multilateral environmental agreements (MEAs) since the 1990s. The country participates in MEA decision-making bodies, typically ensuring the presence of at least one representative, and often includes multiple delegates, particularly for technically complex meetings where scientific experts are involved. This approach helps Mongolia stay informed and contribute effectively to international environmental policy discussions. There has been some progress on the implementation of Recommendation 6.1 (a) of the First EPR of Mongolia on the analysis of the administrative and technical capacity and financial needs of the bodies and units charged with the implementation of the obligations. However, the lack of technical capacity and language skills of some focal points hampers its full implementation. Recommendation 6.1 (d) of the First EPR of Mongolia has not been implemented and remains valid. Additionally, MEA secretariats are not informed when a new focal point is nominated. Recommendation 6.1 (c) has not been implemented and remains valid.

As of February 2025, no specific mechanism to promote synergies in the implementation of the Convention on Biological Diversity (CBD), UNFCCC and the United Nations Convention to Combat Desertification (UNCCD) has been established. Linkages among the Rio Conventions are reflected in the legal and policy implementation framework of each Convention. Recommendation 7.5 of the First EPR of Mongolia was partially implemented and remains valid.

Convention on Biological Diversity

Mongolia has actively engaged with CBD since its ratification in 1993. Supported by international organizations, Mongolia has been meeting its reporting obligations by submitting its sixth national report on CBD and the Aichi Targets in 2019. The country has incorporated CBD principles into its legal and policy framework through comprehensive policies and strategies focused on biodiversity conservation and sustainable use. Key initiatives include the National Biodiversity Programme (NBP) for the period 2015–2025 which includes the National Biodiversity Strategy and Action Plan (NBSAP). The programme outlined 14 goals, 29 objectives and 74 outputs under four main strategies: increasing awareness and knowledge on biodiversity, developing and implementing science-based policy on conservation and sustainable use of biological resources, ensuring the sustainable use of biodiversity and improving policies and the legal environment for conservation. However, the NBP was annulled following the adoption of the Law on Development Policy and Planning and

²⁷⁴ Mongolia (2020).

²⁷⁵ Korea Environment Institute (2017).

its Management (see Chapter 1). As of October 2024, and with support of the UNDP- GEF project “Umbrella Programme to Support NBSAP Update and the 7th National Reports” (US\$490,000), a new biodiversity-related plan for 2025–2030 was under preparation and expected for adoption in 2025 (see Chapter 12).

Mongolia regularly participates in CBD Conferences of the Parties (COP) and related activities and has been involved in various international collaborations and projects to strengthen biodiversity conservation efforts. The Ministry of Environment and Climate Change oversees the implementation of the biodiversity strategic document and ensures regular submission of national reports. The 2019 Sixth National Report detailed the measures taken, their effectiveness and the associated obstacles.²⁷⁶ The 2024 UNDP-GEF project is assisting the Ministry in preparing Mongolia’s seventh national report on CBD implementation and the Kunming-Montreal Global Biodiversity Framework (GBF), due by February 2026. Biodiversity financing remains a key challenge. Like many countries, Mongolia lacks reliable data on the financial resources required to implement NBP effectively. The UNDP Biodiversity Finance Initiative (BIOFIN) — funded by the GEF, the European Commission and the governments of Germany, Switzerland, Norway, Belgium (Flanders), the United Kingdom, Canada and France — has helped Mongolia address this issue. BIOFIN in its third phase notably improved the effectiveness of the Natural Resource Use Payment (NRUP) Law, increasing environmental protection budgets, including for biodiversity conservation. In 2023, revenues from the NRUP Law reached US\$11.9 million, a 170 per cent increase compared to the 2016–2021 average. Projections for 2024 indicate an even higher increase to US\$22.4 million.

Mongolia’s efforts to protect its biodiversity have been supported by a network of international organizations, bringing both opportunities and challenges. Through partnerships with entities such as the GEF, UNDP and WWF,²⁷⁷ the country has received crucial financial and technical assistance. Significant support for NBP implementation came from various donors, including the GEF, which reported USD 7.2 million in utilized funds between 2016 and 2026.²⁷⁸

However, Mongolia still faces significant challenges in its quest for effective biodiversity conservation. Despite international support, resource constraints—both financial and human—continue to limit the full implementation of policies and programmes. Additionally, coordination across governmental agencies and sectors remains complex, making it difficult to integrate biodiversity considerations into broader national policies. Public awareness and participation represent another hurdle. While substantial efforts have been made to educate the public about conservation, fostering meaningful engagement at the community level requires continuous investment in innovative outreach strategies.

Mongolia ratified the Nagoya Protocol on Access and Benefit-sharing (ABS) in 2014. From 2017 to 2025, Mongolia took steps to implement the Nagoya Protocol on ABS. In 2017, the Ministry of Environment and Climate Change, acting as the national focal point, submitted Mongolia’s Interim National Report on the Implementation of the Nagoya Protocol. With support from the GEF-funded global project “Strengthening Human Resources, Legal Frameworks and Institutional Capacities to Implement the Nagoya Protocol”, Mongolia developed a national ABS policy and legal framework for adoption. A significant milestone was the approval of the Law on Animal Genetic Resources in 2017. To support the approval of the Law on Animal Genetic Resources, the project supported a socioeconomic study and a survey on the monetary and non-monetary value of genetic resource utilization. Additionally, a Knowledge, Attitude and Practice survey was carried out to assess awareness and understanding of ABS principles.

The 2017 Law on Animal Genetic Resources was amended in 2021 and 2023 to introduce provisions related to the registration and status determination of livestock genetic resources, the use, research and development of livestock genetic resources, the preservation and protection of livestock genetic resources, and the implementation of activities related to livestock genetic resources. These amendments were accompanied by 14 draft law revisions, five regulations and six model contracts, further strengthening Mongolia’s legal framework for ABS. Additionally, with the support of the same project, Mongolia established three ABS-related partnerships and strengthened the capacities of 700 individuals, including 486 women. Among them, 49 national Government officials received training since the project’s inception. Furthermore, 130 researchers and scientists from the agriculture, pharmaceutical and biotechnology sectors were trained on ABS legislative procedures. Around 500 local community members also participated in capacity-building activities focused on ABS rules, procedures and agreement negotiations. Mongolia’s pharmaceutical sector has been proactive in incorporating ethical use principles and requiring ABS procedures for registering genetic materials in medical research. However, commercial agreements have been delayed due to lengthy legal approval processes. Recommendation 7.2 (b) and (c) of the First EPR of Mongolia have been implemented.

²⁷⁶ Mongolia (2019c).

²⁷⁷ WWF-Mongolia (n.d.).

²⁷⁸ GEF (n.d.).

In 2018, Mongolia joined the International Agreement on Plant Genetic Resources for Food and Agriculture, enabling the free exchange of seeds and genetic samples between countries. Despite these efforts, commercialization challenges and legal delays remain key obstacles in fully implementing the Nagoya Protocol. Continued policy refinement, institutional strengthening and stakeholder engagement will be crucial for Mongolia to advance its ABS commitments effectively.

Photo 8.1: Gorkhi-Terelj National Park in autumn



Conservation of Wetlands of International Importance especially as Waterfowl Habitat

Mongolia became a contracting party to the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) in 1998. Although much of Mongolia is arid and the dominant habitats are steppe and semi-desert, there are some rich wetlands that support important breeding and migratory populations of waterbirds. Currently, 11 sites have been designated as Ramsar sites in the country.²⁷⁹

The NBP outlined strategies for the conservation and sustainable use of biodiversity, including wetlands. While the programme focused on a broader spectrum of issues related to biodiversity and nature preservation, it closely follows the aligned goals of the Ramsar Convention.²⁸⁰

Mongolia does not have specific legislation to protect wetlands. The legal framework to protect wetlands is composed of provisions contained in several laws, such as the 1995 Law on Environmental Protection, the 1994 Law on Special Protected Areas, the 1997 Law on Special Protected Area Buffer Zones, the 2012 Law on Fauna, the 2012 Law on Hunting, the 2012 Law on Forest and the 2012 Law on Water. The development of a national wetland law is underway to protect wetlands and water-related bird species.

The Mongolian Bird Conservation Centre (MBCC) is actively involved in wetland conservation across Eastern Mongolia. One major initiative focuses on protecting wetlands along the Ulz River by balancing livestock grazing with habitat conservation, using the White-naped Crane as an umbrella species. The project aims to develop a wetland management plan based on livestock movement and crane tracking, promote birdwatching tourism with cultural integration and establish a wetland research and training centre. In 2019, the MBCC, in partnership with WWF-Mongolia, assessed the management effectiveness of six nature reserves to strengthen wetland protection strategies. The organization also played a crucial role

²⁷⁹ Wildlife Science and Conservation Centre of Mongolia (n.d.).

²⁸⁰ Ministry of Environment, Nature and Tourism (2015).

in conserving Lake Ogii, a Ramsar wetland site threatened by overgrazing, working with local herders, tour companies and stakeholders from 2017–2018 to implement sustainable conservation measures.²⁸¹

Wetlands International and its partners have launched a five-year initiative (2024–2029) to restore 25,000 hectares of degraded peatlands in Mongolia. Aligned with the national Mongolian Strategic Plan for Peatlands Conservation and Wise Use, which was developed with support of ADB and the Government of Japan, the project targets four key areas—Gatchuurt, Khurkh, Khashaat and Orkhon—to enhance ecosystem health and biodiversity while addressing climate change. The degradation of these wetlands, caused by overgrazing, unsustainable land conversion, excessive groundwater use and climate-related impacts, has led to permafrost thawing, biodiversity loss and increased extreme weather events. To counteract this, the project will implement nature-based solutions such as restoring hydrology, promoting sustainable grazing practices and improving water management.²⁸²

With the Eternal Mongolia Initiative, launched in 2024, the Government started a conservation effort aimed at securing the country's vulnerable lands, forests, waterbodies and biodiversity. The initiative focuses not only on the protection of wetlands but also includes their conservation.²⁸³ Recommendation 6.3 of the First EPR of Mongolia on approving the Ramsar site management plans of Lake Ganga, Lake Buir, Lake Achit and Lake Terkhiin Tsagaan has been implemented.

The GEF also launched a large project in 2020 to develop the capacity for enhancing ecosystem services of peatlands and the capacity of indigenous reindeer herders to reduce land degradation and improve the provision of ecosystem services and increase community resilience.²⁸⁴

Convention on International Trade in Endangered Species of Wild Fauna and Flora

Mongolia has been a party to the CITES since 1996. The Ministry of Environment and Climate Change serves as the Management Authority. The National University of Mongolia and Irbis Mongolia Centre NGO have been serving as the scientific authorities. From 2017 to 2024, the country has further strengthened legislative, regulatory, and enforcement measures to ensure compliance with CITES obligations and to combat illegal wildlife trade. During the evaluation period and following the formal warning of the CITES Standing Committee issued at its 69th meeting, Mongolia carried out comprehensive legislative reforms to enhance the implementation of the Convention.²⁸⁵ The relevant legislation was revised, and other measures were implemented.

During the period of 2017–2023, Mongolia maintained a strong compliance record, submitting three national annual implementation reports covering the period of 2016–2024, along with two illegal trade reports in 2017 and 2018. Due to the high staff turnover at the ministry responsible for the environment, the country has lacked a dedicated focal point for the Convention for the past five years.²⁸⁶

The Sub-commission on Prevention of Environmental Crimes in Mongolia was established on 18 August 2017, by the Minister of Justice and Home Affairs. This platform unites governmental agencies, including those responsible for justice, environment and climate change, mining, customs and law enforcement, to prevent environmental crimes. The scope of work of the Sub-commission includes conducting wildlife training at cross-border points, fostering cooperation with China on wildlife-related cases, creating a unified database for illegal wildlife activities, organizing a nationwide anti-trap campaign and raising awareness. The Law on Environmental Protection, the Law on Fauna, the Law on Natural Flora and the Criminal Code contain provisions that address the investigation, prosecution and sentencing for CITES-related offenses. Mongolia has undertaken several initiatives to conserve and manage CITES-listed species, such as the Mongolian saiga, snow leopard and Gobi bear (see Chapter 12). Additional data from eight mountain regions are being integrated to provide more localized assessments, helping to pinpoint areas where conservation efforts are most urgently needed.

Convention on the Conservation of Migratory Species of Wild Animals

In 1999, Mongolia ratified the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention). In addition to the Ministry of Environment and Climate Change, the Institute of Biology of the Academy of Sciences, the National University of Mongolia, the WWF-Mongolia Programme Office, the Snow Leopard Conservation Foundation and the Wildlife Conservation Society are also involved in activities for the conservation of migratory species. Research on

²⁸¹ Ramsar (2021).

²⁸² Wetlands International (2024).

²⁸³ The Nature Conservancy (2024a).

²⁸⁴ GEF (2020).

²⁸⁵ CITES (2017).

²⁸⁶ CITES (2022).

migratory wild species has been conducted in collaboration with international experts, mainly from Austria, Germany, Japan, the Russian Federation and the United States of America.

Under the auspices of the Bonn Convention, Mongolia has signed three memoranda of understanding on: the Siberian crane in 2004, birds of prey (raptors) in 2008 and the saiga antelope in 2010. The country adopted several national programmes/action plans on the conservation of migratory species, including the saker falcon in 2003, the snow leopard in 2005, the saiga antelope and the taimen in 2007 and the argali sheep in 2008, and on the protection and fish farming in 2008.

In 2014, the Bonn Convention COP11 adopted the Strategic Plan for Migratory Species 2015–2023, adapting for migratory species the CBD Strategic Plan for Biodiversity 2011–2020, including the Aichi Biodiversity Targets.²⁸⁷ The five goals and corresponding performance targets must now be integrated into relevant policies and planning instruments. However, Mongolia has not yet put in place measures towards the implementation of the goals and targets of the Strategic Plan for Migratory Species 2015–2023. That shows a partial implementation of Recommendation 7.1 of the First EPR of Mongolia on the continuation of implementation of the NBP, with a view to complying with CBD and achieving the Aichi Biodiversity Targets. A full implementation is currently hindered by the continuing lack of resources.

Notable progress in implementation was achieved during CBD COP12 in October 2017, when Mongolia successfully advocated for the inclusion of the Gobi bear, Przewalski's horse and the steppe eagle in the Convention Appendices.²⁸⁸

In February 2024, CBD COP14 adopted a resolution to regularly review the conservation status of migratory species at alternate meetings, starting from COP16. This decision aims to enhance the effectiveness of conservation measures and ensure adaptive management strategies are in place.²⁸⁹

Furthermore, Mongolia has been actively involved in the Central Asian Mammals Initiative, which aims to address threats to migratory mammals in the region through international cooperation and coordinated conservation actions.²⁹⁰

Convention concerning the Protection of the World Cultural and Natural Heritage

Mongolia ratified the World Heritage Convention on 2 February 1990. Since then, the country has been actively engaged with UNESCO in various conservation efforts, reflecting its commitment to balancing sustainable development with environmental preservation. In 2024, UNESCO published its Country Strategy 2023–2027 for Mongolia, outlining key priorities for the coming years. This strategy aims to support Mongolia in achieving its national development goals in alignment with the 2030 Agenda for Sustainable Development, strengthen the role of UNESCO within United Nations mechanisms and enhance collaboration with key stakeholders.²⁹¹

One of the most significant recent developments is the designation of four new biosphere reserves, including the Khar Us Lake Biosphere Reserve in Khovd *Aimag* in 2024.²⁹²

Out of Mongolia's six UNESCO World Heritage sites, two natural sites—Uvs Nuur Basin (inscribed in 2003) and Landscapes of Dauria (2017)—are listed under criteria (ix) and (x) for their outstanding natural value.

Mongolia's commitment to conservation is reflected in its efforts to protect the Uvs Nuur Basin, a transboundary biosphere reserve shared with the Russian Federation. Efforts to preserve the Uvs Nuur Basin involve coordinated management between Mongolia and the Russian Federation, with a focus on monitoring water quality, preventing habitat degradation and maintaining sustainable resource use. Conservation measures include wetland protection, wildlife monitoring and community engagement programmes to promote environmentally friendly practices among local populations.²⁹³

The Landscapes of Dauria, a transboundary World Heritage site shared by Mongolia and the Russian Federation, holds significant ecological importance. It was inscribed on the UNESCO World Heritage List in 2017, under criteria (ix) and (x), for its outstanding natural value. Despite its recognition, the Landscapes of Dauria face multiple conservation challenges. Mining activities pose risks to biodiversity. In Mongolia, concerns have been raised regarding the Onon-Ulz Dam project,

²⁸⁷ CBD (n.d.).

²⁸⁸ Mongolian National News Agency (2017).

²⁸⁹ International Institute for Sustainable Development (2024).

²⁹⁰ Wildlife Conservation Society (2020).

²⁹¹ UNESCO Regional Office for East Asia (2024).

²⁹² UNESCO (n.d. a); UNESCO (2024).

²⁹³ UNESCO Regional Office for East Asia (2024).

which has been suspended pending an EIA. Studies indicate that this project could irreversibly impact the Ulz River and Torey Lakes, threatening water resources and regional biodiversity.²⁹⁴

The Landscapes of Dauria include steppe ecosystems, forests, grasslands, wetlands and lakes, supporting species like the white-naped crane and the Mongolian gazelle. Following the construction of the Onon-Ulz Dam by Mongolia, the UNESCO World Heritage Centre and Advisory Bodies made several decisions in 2021 and 2023, notably to:

- Suspend the Onon-Ulz Dam project until an EIA is conducted with the Russian Federation and China.
- Express concern over reports that construction may have resumed.
- Highlight potential impacts on local communities, the Ulz Basin, Torey Lakes and migratory birds along the East Asian-Australasian Flyway.
- Encourage cooperation under the DIPA (Dauria International Protected Area) framework for monitoring species and maintaining transboundary watercourses.
- Recommend discussions on property expansion.
- Request a joint state of conservation report with the Russian Federation.
- Urge Mongolia to finalize and implement revised management plans for Ugtam Nature Refuge and Mongol Daguur Strictly Protected Area.

Mongolia continues to expand its engagement with UNESCO by identifying new potential World Heritage sites. The country is working on its Tentative List, evaluating natural and cultural heritage sites that could be nominated for future inclusion on the World Heritage List. Efforts to develop this List involve scientific research, stakeholder consultations and feasibility assessments to determine which sites meet UNESCO's Outstanding Universal Value criteria. By strengthening its World Heritage portfolio, Mongolia aims to enhance international recognition of its unique landscapes and attract conservation funding to support sustainable management initiatives (see Chapter 12).²⁹⁵

Mongolia actively participates in the UNESCO Man and the Biosphere (MAB) Programme. The country's biosphere reserves, including Uvs Nuur and Khar Us Lake, serve as living laboratories where scientists, policymakers and local communities collaborate to test sustainable land-use practices. Under the MAB framework, Mongolia has prioritized integrating traditional knowledge with modern conservation strategies, supporting community-based conservation projects that empower local populations and developing ecotourism initiatives to promote economic sustainability while protecting natural ecosystems.²⁹⁶

Mongolia does not report on SDG indicator 11.4. However, in 2020, the country reported that 24.66 tugriks per capita was spent on preservation, protection and conservation of all cultural and natural heritage and in 2021 12.28 tugriks per capita (Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional and local or municipal)).

United Nations Framework Convention on Climate Change

Mongolia joined UNFCCC in 1993, the Kyoto Protocol in 1999 and the Paris Agreement in 2016. Mongolia has pledged to reduce GHG emissions by 22.7 per cent below the business-as-usual scenario by 2030, with the potential to achieve a 44.9 per cent reduction with additional measures. The country also aims for net-zero emissions by 2050. The country has integrated the UNFCCC principles into its national legal framework through various policies and strategies aimed at addressing climate change (see Chapter 7). Mongolia's climate change policies and laws have been progressively refined, and efforts have been made to integrate them into sectoral policies and development plans. The two key documents guiding this effort are the updated NDC and the National Adaptation Plan, both of which align with the Paris Agreement and Vision 2050.

The Ministry of Environment and Climate Change is the national authority responsible for the implementation of climate-related policies and programmes. Mongolia has submitted regular national communications and biennial update reports. In the absence of a dedicated Climate Change Law, the objectives, priority actions and implementation principles of climate change mitigation, adaptation and cross-sectoral actions in Mongolia are reflected in Vision 2050, NDC, the 2020 Government Action Programme and the 2021 New Revival Policy. NDC outlined a series of policies and measures

²⁹⁴ Ibid.

²⁹⁵ UNESCO Regional Office for East Asia (2024); UNESCO (2025).

²⁹⁶ UNESCO (n.d. a).

that the country has committed to implementing in the energy, agriculture, industrial processes and waste sectors. In 2020, Mongolia established CCRCC, which is a state-owned enterprise operating under the guidance of the Ministry of Environment and Climate Change of Mongolia. In 2024, Mongolia submitted its Fourth National Communication, prepared with UNEP assistance and GEF funding.²⁹⁷

As of February 2024, Mongolia does not have a specific law regulating climate change issues, and these are regulated by sector-specific laws. The Government has started drafting a climate change law, which is under discussion by national expert working groups. The objective of the law is to create a national regulatory framework to promote collective work through close cooperation among all relevant stakeholders to address emerging issues arising from climate change, promote climate change mitigation and adaptation measures, support climate change research and innovation, fulfil the country's obligations under international agreements.

Mongolia relies heavily on international partners, including the Climate Adaptation Fund, ADB, the German Corporation for International Cooperation (GIZ) and EBRD, for UNFCCC implementation and reporting. Since joining GCF in 2017, Mongolia has secured 13 approved projects totalling US\$483.8 million.²⁹⁸ Additionally, the GEF allocated US\$1.6 million for 2022–2026 and US\$2.4 million for 2018–2021.²⁹⁹

Despite these efforts, Mongolia still faces challenges such as the lack of a specific law on climate change to regulate cross-sectoral efforts, limited institutional capacity due to staff turnover and funding constraints and insufficient private sector engagement in climate initiatives.

United Nations Convention to Combat Desertification

Mongolia ratified UNCCD in 1996. In 2021, a National Committee on Climate Change and Desertification Reduction was established with the aim of coordinating efforts across sectors to combat desertification.³⁰⁰ The Committee oversees OBTNM implementation and meets quarterly to address financing and policy objectives. A working group has been formed to support sapling farms, aiming to plant 100 million seedlings annually until 2030.³⁰¹

Since 2017, Mongolia has introduced several key policies and regulations that contribute to combatting desertification. The 2016–2030 National Forestry Policy aims to increase forest coverage (see Chapter 13). The Ministry of Environment and Climate Change issued an order on reclamation methods for mining-disturbed land. In 2020, the Law on Livestock Tax was enacted, and the Ministry of Environment and Climate Change approved a decree on forest ecology and economic assessment. In 2022, Mongolia signed a memorandum of understanding on a forest partnership with the European Union, further reinforcing its commitment to sustainable forestry and environmental protection.³⁰²

As of February 2025, the 2022 report³⁰³ to UNCCD provides comprehensive data on land cover, productivity and soil organic carbon stocks, along with qualitative assessments of trends and challenges. The report also highlights several challenges that hinder the successful implementation of the UNCCD provisions in Mongolia. Since 2001, Mongolia has developed, revised and amended its action plan to combat desertification five times. However, monitoring efforts are often based on performance indicators that are not aligned with on-the-ground realities. The implementation of these action plans tends to be reactive to national circumstances, with weak capacity-building efforts leading to a shortage of skilled professionals and limited knowledge capacity. Additionally, the report highlights the lack of funding for the 2010 National Action Programme to Combat Desertification for the period 2010–2020, which was not cancelled (see Chapter 1). The programme lacked financial and resource mobilization indicators. Since 2020, in relation to the national budgeting and resource mobilization actions related to SDGs, line ministries have started to allocate direct and co-financing budgets to their related work. On the other hand, due to the global COVID-19 pandemic, the Government's priority in the state budget and revenue policy has shifted in favour of emergency actions. Recommendation 12.3 (a) of the First EPR of Mongolia on mobilizing domestic and international financial resources and fostering capacity building for the effective implementation of the Programme was not implemented and remains valid.

Mongolia actively participates in international and regional activities organized under UNCCD. The country has been involved in capacity-building workshops, technical assistance programmes and regional action plans. For example,

²⁹⁷ Mongolia (2024).

²⁹⁸ GCF (n.d.).

²⁹⁹ GEF (n.d.).

³⁰⁰ Munkhzul (2021a).

³⁰¹ Forest Department (n.d.).

³⁰² FAO (2015).

³⁰³ Mongolia (2023d).

Mongolia has participated in the Drought Initiative.³⁰⁴ Recommendation 7.3 (c) of the First EPR of Mongolia has been implemented.

Mongolia has received substantial financial and technical assistance from international organizations, such as the GEF, GCF, UNDP³⁰⁵ and the Food and Agriculture Organization of the United Nations (FAO).³⁰⁶ These resources have been crucial in implementing the National Action Plan to Combat Desertification (NAPCD) and enhancing national capacities for sustainable land management. Mongolia is also working to develop multifocal project proposals and secure additional international and bilateral funding to tackle remaining challenges.³⁰⁷ However, Mongolia faces significant financial and human resource limitations that hinder the full implementation of the NAPCD and other related programmes. Ensuring accurate data collection and continuous monitoring of land degradation remains a challenge. Recommendation 7.3 (a) of the First EPR of Mongolia on continuing to use the 10-year Strategy of UNCCD and maintaining engagement has been implemented.

Mongolia actively participates in the ongoing negotiations under the Convention and will also host the 17th meeting of the Convention's Conference of the Parties in 2026.³⁰⁸ Recommendation 7.3 (b) of the First EPR of Mongolia has been implemented.

Convention on the Law of the Non-Navigational Uses of International Watercourses

Mongolia is not a party to the Convention on the Law of the Non-navigational Uses of International Watercourses, although accession to the Convention is currently under consideration.

Convention on the Protection and Use of Transboundary Watercourses and International Lakes

Mongolia has taken part, as an observer, in the Meetings of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes in 2009, 2012 and 2015. It has also participated in numerous other meetings and activities under the Convention.

Mongolia's environmental policies also consider the Lake Baikal, one of the world's largest and most ecologically significant freshwater ecosystems. Although the Lake Baikal is located within the Russian Federation, its hydrological system is connected to Mongolia's watercourses, raising concerns about upstream activities that could impact its ecological balance. Mongolia has committed to conducting EIAs for projects that could affect the hydrology and water quality of Lake Baikal, ensuring compliance with international conservation standards.³⁰⁹

The SDG indicator 6.5.2 shows a value of 100 for all three of its targets concerning the proportion of transboundary basins (river and lake basins and aquifers) with an operational arrangement for water cooperation, the proportion of transboundary aquifers with an operational arrangement for water cooperation, and the proportion of transboundary river and lake basins with an operational arrangement for water cooperation.

Recommendation 6.2 (b) of the First EPR of Mongolia on the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the 1997 Convention on the Law of the Non-navigational Uses of International Watercourses was not implemented.

Convention for the Protection of the Ozone Layer

In 1996, Mongolia joined the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol, along with its London and Copenhagen Amendments. The country subsequently ratified the Montreal Amendment in 2002, the Beijing Amendment in 2008 and the Kigali Amendment in July 2022. The Hydrochlorofluorocarbon (HCFC) Phase-out Management Plan Stage II was approved at the 86th Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol Meeting in December 2020. Its goals are to reduce the country's HCFC consumption by 78.6 per cent of the baseline level by 1 January 2025, and to completely phase out HCFCs by 1 January 2030. The Ministry of Environment and Climate Change, through the National Ozone Authority, is the primary body responsible for implementing the plan. Recommendation 6.2 (a) of the First EPR of Mongolia has been implemented.

³⁰⁴ UNCCD (n.d.).

³⁰⁵ UNDP (2024i).

³⁰⁶ FAO (n.d.).

³⁰⁷ UNCCD (n.d. a).

³⁰⁸ UNCCD (2025).

³⁰⁹ UNESCO Regional Office for East Asia (2024).

Two Verification Reports of HCFC Consumption covering the years 2016–2022 have been submitted to the Secretariat of the Convention. In 2016, the composition of the National Committee on Ozone Layer Protection was renewed, and it includes 20 members from various ministries and agencies, such as the National Ozone Authority, the Ministry of Health and the Ministry of Mining and Heavy Industry. To meet the Montreal Protocol obligations, the Government amended several laws and introduced a licensing system for imports and sales. The Ministry of Environment and Climate Changes determines annual ODS import quotas and related equipment. It also issues licenses for their import, trade and use. Mongolia restricts the import of ODS materials without proper authorization under the Law on Customs. The National Ozone Authority cooperates with Customs authorities to monitor imports and prevent illegal imports or unlabelled ODS.

Technical assistance has played a crucial role in facilitating the phase out of ODS by Mongolia. As of December 2024, the Executive Committee of the Multilateral Fund has approved a total of US\$3,237,621 for Mongolia, which includes US\$952,640 for ongoing projects focusing on HFC phase-down and HCFC phase-out management. These projects have not only supported Mongolia in meeting its compliance obligations under the Montreal Protocol but have also contributed to the development of relevant legislative and institutional frameworks.³¹⁰

Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

Mongolia acceded to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal in 1997. The country made limited progress in implementing the Convention during the period 2017–2025. As of April 2025, Mongolia had not ratified the 1995 Ban Amendment and the 1999 Protocol on Liability and Compensation to the Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.

Some regulatory steps were taken, including the country's endorsement of amendments to Annexes II, VIII and IX of the Convention in 2020. Additionally, several regulations were adopted to improve hazardous waste management, such as the 2018 Regulation on the national waste database, the Regulation on the passport of hazardous waste and the Regulation on the classification and categorization of hazardous waste. These measures aimed to enhance data collection and classification of hazardous materials; however, enforcement remains weak. The 2017 Waste Law prohibits the import and cross-border transportation of hazardous waste. The Law prohibits importing hazardous waste into Mongolia for the purpose of use, storage, temporary placement, or disposal and its transportation across borders. However, Mongolia still lacks any legislation restricting the export of hazardous waste for final disposal and recovery. According to the 2020 national report, hazardous waste exports occurred, but no details or quantities were reported.

Mongolia submitted two national reports to the Basel Convention Secretariat in 2017 and 2020. However, the 2020 report requires improvements, particularly in providing more precise responses to Convention requirements. No statistical data on hazardous waste generation, treatment, or transboundary movement were reported, and challenges in implementing the Convention were not documented.³¹¹

The Ministry of Environment and Climate Change serves as the National Focal Point and has participated in several Basel Convention seminars and working groups. However, its engagement has not translated into significant improvements in national implementation. Some key challenges for the implementation of the Convention include, weak national reporting mechanisms, including hazardous waste data collection process and gaps in the national legislation vis-à-vis the Convention's requirements.

Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

Mongolia ratified the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade in 2001. The Ministry of Environment and Climate Change is the Contact Point, and the National Chemicals Management Council is the Designated National Authority for industrial chemicals and pesticides.

The country has been actively participating in capacity-building activities to bolster its implementation of the Rotterdam Convention. These efforts include regional training on tools for pesticide registration and the Convention's implementation.³¹²

³¹⁰ Ozone Secretariat (Country Profile – Mongolia).

³¹¹ Basel Convention (n.d.).

³¹² Rotterdam Convention Project Mongolia (2024).

Furthermore, Mongolia has undertaken projects to enhance its hazardous waste management system, aligning with its obligations under the Basel, Minamata, Stockholm and Rotterdam Conventions. These projects aim to improve analytical capacities, establish sound hazardous waste management practices and increase public awareness regarding hazardous waste.³¹³

Convention on Persistent Organic Pollutants

Mongolia ratified the Stockholm Convention on Persistent Organic Pollutants (POPs) in 2004, demonstrating a strong commitment to eliminating or restricting the production and use of POPs. The Ministry of Environment and Climate Change is responsible for overseeing the implementation of the Stockholm Convention. The country has integrated the principles of the convention into its national legal framework through various laws and regulations, including the 2006 Law on Toxic and Hazardous Chemicals and the 2017 Law on Waste.

Mongolia has ratified all amendments to the Stockholm Convention. However, no legal or administrative measures have been taken regarding hexabromobiphenyl.³¹⁴ Mongolia has diligently fulfilled its reporting obligations under the Convention. Over the past seven years, the country has submitted two regular reports to the Convention's Secretariat, outlining the measures taken to implement its provisions and evaluating their effectiveness. The most recent report, submitted in 2023, provides comprehensive data on POPs inventories, management practices and legislative actions. However, the quality of reporting needs improvement as many of the measures regulating POPs were introduced over a decade ago and require updates. Representatives regularly attend Meetings of the Parties of the Convention (2019, 2021/2022, 2023). As of September 2024, Mongolia had not undertaken a systematic analysis of POPs in the environment but had participated in the Environmental Monitoring of Persistent Organic Pollutants in East Asian Countries workshops coordinated by Japan's.³¹⁵ Initial data on POPs presence in ambient air through measurements using active air samplers were provided. The analyses of POPs were performed in samples of water, air and human milk. Later, testing included soil/sediment and different types of food and meat. As a result, legacy industrial POPs (polychlorinated biphenyls, hexachlorobenzene, hexachlorocyclohexanes) were more abundant than organochlorine pesticides, and perfluorinated POPs were very low in water and comparatively low in air and human milk samples. However, as of February 2024, the catalogue of sites contaminated with POPs is not complete.

Mongolia developed its first National Implementation Plan (NIP), which was subsequently updated in 2014 to cover the period of 2014–2030. The updated NIP outlines actions aimed at protecting the environment and human health from the harms of POPs and implementing the actions under five objectives. These are: strengthening the regulatory and implementation mechanism of the Convention; reducing the release of POPs into the environment and further reducing adverse effects on human health through the establishment of proper management of collection, recycling and environmentally sound disposal of wastes containing new industrial POPs chemicals; reducing the release of dioxins (PCDD/Fs) from unintentional sources; identification and remediation of sites contaminated by POPs pesticides and achieving a PCB-Free Country.

Mongolia has received financial and technical assistance from international organizations, particularly the United Nations Industrial Development Organization (UNIDO) and GEF,³¹⁶ which have been instrumental in implementing the NIP and enhancing national capacities for POPs management. The project raised awareness among local ger communities about the health impacts of open waste burning and provided some recommendations on best available technologies to address these issues. However, Mongolia faces financial constraints, insufficient technical capacity and human resource limitations that hinder the full implementation of the NIP. In addition, as of February 2025, gaps exist in the legal and institutional frameworks, particularly regarding the regulation and management of new chemicals and pesticides that exhibit characteristics of POPs.

Minamata Convention on Mercury

Mongolia ratified the Minamata Convention on Mercury on 28 September 2015. As of February 2025, a National Focal Point was designated, however, there have been multiple changes in this position over the past five years, causing some discontinuity. Mongolia is not represented in any of the Convention's bodies, nor does it hold membership in the Convention Bureau.

³¹³ UNEP (n.d.).

³¹⁴ Mongolia (2023c).

³¹⁵ Ministry of the Environment of Japan (n.d.).

³¹⁶ GEF (2023a).

Mongolia has actively engaged in the COP meetings, including COP4³¹⁷ and COP5.³¹⁸ Key focus areas under the Convention include mercury supply sources and trade, mercury-added products, manufacturing processes involving mercury, artisanal and small-scale gold mining (ASGM), emissions, releases and contaminated sites.

Mongolia submitted the following reports to the Secretariat during the 2017–2021 period:

- 2020 National Action Plan on ASGM was submitted to the Secretariat of the Convention as part of the country's strategy to reduce mercury pollution, especially in artisanal mining.³¹⁹
- 2019 First National Short Report identified the challenges that Mongolia should overcome, including legal, financial resources, technical and capacity building to meet the Convention's objectives.³²⁰
- 2019 Minamata Initial Assessment Report includes an inventory of mercury emissions, sources of mercury and the state of implementation of regulatory measures.³²¹

As of October 2024, the country has not submitted the second report, due in December 2023. During the 2017–2023 period, Mongolia progressed in strengthening relevant policy frameworks. The 2019 amendment to the Law on Water Pollution Fees introduced a polluter pays principle, mandating high fees for hazardous pollutants, including mercury.³²² The 2017 amendment to the Law on Waste focuses on hazardous waste management, specifically addressing the handling, disposal and monitoring of mercury and other toxic substances. For the mining sector, the law outlines responsibilities for managing mercury waste produced during mining activities. It also mandates strict regulations on ASGM practices to reduce mercury pollution. The Government classified mercury as a hazardous chemical and has banned its use in mining.³²³

Since 2017, Mongolia has been successful in attracting and implementing projects on reducing and eliminating the use of mercury in ASGM. The GEF GOLD Mongolia-Philippines: Contribution Towards the Elimination of Mercury in the ASGM sector from Miners to Refiners³²⁴ project is aimed at eliminating mercury use in ASGM in Mongolia. The project facilitated the introduction of mercury-free processing systems (MFPS) in multiple mining areas, including Mandal and Tunkhel in Selenge *aimag*, and supported miners in transitioning to formal, environmentally sustainable mining practices.³²⁵ By mid-2023, progress had been made in constructing two MFPS facilities, with mercury reduction goals set to be achieved once these systems become fully operational.³²⁶ The 2022 ASM Regulation led to the formalization of 413 miners across several *aimags*.³²⁷

Despite the progress achieved, as of February 2025, the legal framework related to ASM is not fully aligned with the Minamata Convention's requirements. No stand-alone law was adopted to regulate ASM specifically, addressing environmental management, occupational health and safety standards, and mercury use. The absence of clear legislation tailored to ASM has led to challenges in implementing the necessary environmental controls and mercury reduction practices, particularly in relation to mercury-free processing systems and emissions standards.

Additionally, specific policies on gender issues to ensure equal participation and address the distinct challenges faced by women miners have not developed. Furthermore, institutional and enforcement capacities related to ASM are limited. There is no ongoing capacity building for local officials, miners and other stakeholders to improve awareness of legal requirements, promote mercury-free alternatives and support the formalization of ASM operations. Funding posed a significant barrier, as the Government depended on external financing from international organizations for many initiatives. Local budget allocations were often insufficient to support long-term mercury management projects.

Strategic Approach to International Chemicals Management

Mongolia has been actively involved in the Strategic Approach to International Chemicals Management (SAICM) and the Global Framework on Chemicals. This involvement includes participation in policy frameworks and the implementation of various national and regional projects aimed at improving chemical safety and management. Mongolia has been a part of

³¹⁷ United Nations (2022).

³¹⁸ United Nations (2023).

³¹⁹ Mongolia (2019c).

³²⁰ Ministry of Environment and Tourism (2019d).

³²¹ Ministry of Environment and Tourism (2019b).

³²² Ministry of Environment and Tourism (2019e).

³²³ Mongolia (2017).

³²⁴ planetGold (2018).

³²⁵ planetGold (2023).

³²⁶ UNEP (2023).

³²⁷ planetGold (2022a).

the SAICM since its inception, focusing on minimizing the adverse impacts of chemicals on health and the environment. The country has a dedicated SAICM focal point, responsible for coordinating national efforts and liaising with international bodies.³²⁸

Mongolia established the National Council for Policy Regulation of Hazardous and Toxic Chemicals in 2006. This council, under the direct guidance of the Prime Minister, provides professional support on policies related to toxic and hazardous chemicals. The country has been actively implementing national strategies to manage chemicals and waste, aligning with the goals of the SAICM and the Global Framework on Chemicals.³²⁹ Mongolia has also benefited from the SAICM Quick Start Programme, which provides initial capacity-building and implementation support for developing countries. The UNEP Special Programme has also supported Mongolia in strengthening institutional capacity for the implementation of the Basel, Rotterdam and Stockholm Conventions, which complement the SAICM goals. The project was expected to be completed by March 2025, but no information is yet available.³³⁰ Moreover, the country participates in regional initiatives aimed at improving chemical safety. These include collaborative projects with neighbouring countries and regional workshops focused on best practices for chemical management and safety.³³¹

From 2020 to 2022, SDG indicator 12.4.1 shows a value of 58.62 for the Rotterdam Convention, 40.00 for the Basel Convention, 50.00 for the Stockholm Convention, 100.00 for the Montreal Protocol and 33.33 for the Minamata Convention. No data are available from 2023.

8.3 BILATERAL AND MULTILATERAL COOPERATION ON ENVIRONMENT, SUSTAINABLE DEVELOPMENT AND GREEN ECONOMY

Bilateral cooperation

Mongolia has established bilateral cooperation agreements on transboundary water management. These agreements, signed with China in 1994 and with the Russian Federation in 1995, have led to regular bilateral meetings.

Bilateral cooperation with the Russian Federation has been particularly focused on shared watercourses, including the Selenga River Basin, which flows into Lake Baikal. Between 2018 and 2023, Mongolia and the Russian Federation undertook joint research and monitoring programmes to assess water quality and manage pollution in the Selenga River Basin. These initiatives supported by international organizations, have aimed to develop comprehensive water management strategies, promote sustainable land use and reduce industrial pollution. The Baikal Basin Project, implemented by the UNDP, focused on protecting this critical ecosystem through joint efforts such as workshops, capacity-building programmes and cross-border pollution control measures. Both Mongolia and the Russian Federation have made progress in addressing shared water resource challenges, including reducing pollutants entering Lake Baikal and empowering local communities through water monitoring programmes.

Mongolia's cooperation with China focuses on key transboundary water bodies, such as Lake Buir, and the Kherlen, Khalkh and Bulgan Rivers. While 93 per cent of Lake Buir's basin lies within Mongolia, China harvests the fish stock due to Mongolia's limited use of this resource. However, there may be future considerations regarding a system of compensation for the biological resources which Mongolia maintains. The Khalkh River is well-managed, with no significant concerns about pollution from either side. Mongolia plans to use water from the Kherlen River, although as of February 2025, no major economic activity occurs along this river.

Cooperation with other countries has continued to advance over the past two decades. According to the Ministry of Environment and Climate Change in 2022, in addition to longstanding cooperation with its direct neighbours, the Russian Federation and China, Mongolia signed bilateral agreements related to environmental protection with about 40 countries, including with the United Arab Emirates, Austria, Czechia, Cuba, Hungary, Norway, Japan, Poland and others.

Mongolia and Japan have strengthened their cooperation, particularly in green development, renewable energy and climate change mitigation. Large-scale projects aimed at reducing GHG emissions, promoting eco-friendly technologies and adapting to climate change remain a priority. The introduction of hydrogen and ammonia-based energy solutions, along with energy efficiency initiatives in Mongolia's urban infrastructure, has gained prominence in recent years.

³²⁸ ADB (2024); SAICM Mongolia (n.d.).

³²⁹ Ibid.

³³⁰ UNEP (2021a).

³³¹ SAICM Mongolia (n.d.).

Additionally, combating dust storms remains a joint priority, with Japan providing technical and financial assistance to enhance Mongolia's climate resilience and early warning systems. The annual policy dialogue for the environmental sector, first established in 2006, remains an important mechanism for bilateral cooperation. A renewed Memorandum of Understanding was signed in 2023, reinforcing commitments to green finance, carbon neutrality and biodiversity conservation.³³²

Green development remains a central focus of Mongolia's partnership with the Republic of Korea, particularly within the framework of the Korea Partnership for Green Growth. Since 2010, this cooperation has expanded to include areas such as new energy-efficient technologies, green jobs and carbon market development. Since 2020, Mongolia and Republic of Korea have collaborated on water resource management, with a focus on the construction of sustainable water and sanitation facilities in urban and rural areas. The partnership has also addressed environmental rehabilitation of abandoned mining sites and strategies to mitigate mercury pollution from artisanal mining activities.³³³

In addition to EU cooperation efforts, individual member states, particularly Germany and France, have launched bilateral initiatives to assist Mongolia's environmental governance. Germany has provided technical assistance for the modernization of Mongolia's energy sector, while France has supported Mongolia's efforts in sustainable urban development and waste management.³³⁴ The German Corporation for International Cooperation (GIZ) implements programmes on biodiversity conservation, sustainable resource management and climate change adaptation.³³⁵

Other key donors include the Japan International Cooperation Agency, which focuses on ecosystems, waste management and disaster risk reduction.³³⁶

Multilateral cooperation

Mongolia has continued its active engagement with the ESCAP, contributing to various initiatives aimed at sustainable development. The country remains a proactive participant in the North-East Asian Subregional Programme for Environmental Cooperation (NEASPEC) and has been involved in activities addressing transboundary air pollution, nature conservation, marine protected areas, low-carbon cities and combating desertification and land degradation.³³⁷ In 2017, ESCAP initiated the Sustainability Outlook for Mongolia, making it the first country to undergo such a process. This comprehensive assessment provided a baseline for Mongolia's status concerning all SDGs as of that year. The Outlook included SDGs profiling, an evaluation of institutional frameworks supporting SDG implementation and an analysis of sectoral priorities and commitments to international agreements. It also mapped environmental, social and economic aspects related to the national vision across sectors and policy integration at various levels.³³⁸ Since then, Mongolia has actively participated in this annual forum, which provides a platform for diverse stakeholders to exchange perspectives on SDG implementation. In 2022, the forum was held in Ulaanbaatar, focusing on clean water and sanitation, affordable and clean energy, industry, innovation and infrastructure, sustainable cities and communities, and partnerships for the goals.³³⁹

The UNDP has been a significant partner in promoting sustainable development in Mongolia. The NDC Partnership is a key initiative that supports Mongolia in achieving its climate goals by enhancing national capacities, promoting green financing and integrating climate change adaptation into development planning.³⁴⁰ Additionally, the Sustainable Cashmere Platform focuses on promoting sustainable livestock management practices, reducing land degradation and improving the livelihoods of herders.³⁴¹

The World Bank is another major player in advancing Mongolia's environmental goals. Noteworthy projects include the Ulaanbaatar Clean Air Project, which addresses air pollution in the capital by supporting the transition to cleaner heating technologies and enhancing air quality monitoring. The Third Sustainable Livelihoods Project supports rural communities by promoting sustainable land management and reducing vulnerability to natural disasters.³⁴²

³³² Ministry of the Environment of Japan (2023).

³³³ Ministry of Foreign Affairs of Republic of Korea (2024).

³³⁴ European Parliament (2024).

³³⁵ GIZ (2024).

³³⁶ JICA (n.d.).

³³⁷ NEASPEC (n.d.).

³³⁸ ESCAP (2018).

³³⁹ United Nations Mongolia (2022a).

³⁴⁰ UNDP (2023a).

³⁴¹ UNDP (2024h).

³⁴² World Bank (2024c).

ADB plays a significant role in aligning with Mongolia's green economy aspirations. ADB supports the establishment of the Mongolia Green Finance Corporation, a national institution aimed at mobilizing private sector investment in green projects. The Ulaanbaatar Urban Services and Ger Areas Development Investment Programme focuses on improving urban resilience, infrastructure and environmental sustainability in Ulaanbaatar's ger areas (informal settlements).³⁴³

The GEF funds various projects to address Mongolia's environmental challenges. The Land Degradation Neutrality Target Setting Programme assists Mongolia in achieving land degradation neutrality by 2030 through sustainable land management practices and policies. The Mongolia Sustainable Cities Integrated Urban Development Project promotes sustainable urban planning and infrastructure development in the country's cities.³⁴⁴

Since the signing of the 2013 Partnership and Cooperation Agreement, relations with the EU have deepened in areas such as climate change, energy transition, sustainable agriculture and biodiversity protection. The EU has supported Mongolia's transition to renewable energy, particularly wind and solar projects, through various funding mechanisms such as the EU Global Gateway initiative. Cooperation in SFM and ecosystem restoration has expanded, with EU member states funding afforestation and land rehabilitation programmes. The EU has also contributed to Mongolia's green economy transition through several grants and technical assistance programmes. The SWITCH-Asia Programme supports sustainable consumption and production practices in Mongolia, focusing on eco-innovation and resource efficiency. Additionally, the Forest Conservation and Climate Change Adaptation Programme enhances the resilience of forest ecosystems and local communities to climate change impacts.

Mongolia is a member of the Global Green Growth Institute. The Institute supports Mongolia in implementing green growth policies, particularly in reducing GHG emissions to achieve its NDC target, providing access to clean energy and sustainable transport, improving air quality by implementing energy efficiency measures and introducing clean technologies.³⁴⁵

Mongolia has partnered with GCF to finance climate resilience projects. These projects include improving water management, promoting sustainable agriculture and enhancing the capacity of local communities to adapt to climate change. GCF support helps Mongolia implement its NDC under the Paris Agreement.³⁴⁶

8.4 PARTICIPATION IN NON-BINDING PROCESSES RELATED TO THE ENVIRONMENT, SUSTAINABLE DEVELOPMENT AND GREEN ECONOMY

10-year framework of programmes on sustainable consumption and production patterns

The Government has actively contributed to the One Planet Network, an initiative led by UNEP aimed at promoting sustainable consumption and production patterns worldwide. Examples include the National Green Development Policy Action Plan for Implementation of the Green Development Programme (2016–2030) and the National Programme on Education for Sustainable Development.³⁴⁷ However, Mongolia does not have sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies (SDG indicator 12.1.1 of target 12.1 (Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries)).

Partnership for Action on Green Economy (PAGE)

Mongolia became the first country to join the Partnership for Action on Green Economy in 2013, a significant step in integrating sustainability into its economic policies and development planning. Through the Partnership, Mongolia has developed the National Green Development Policy and its corresponding Action Plan, which emphasizes sustainable economic growth, reducing GHG emissions and promoting renewable energy. This partnership has helped Mongolia establish various standards and policies aimed at fostering a green economy.³⁴⁸

³⁴³ ADB (2023f).

³⁴⁴ GEF (n.d.); GEF (n.d. a); GEF (2023).

³⁴⁵ GGGI (2021).

³⁴⁶ GCF (n.d.).

³⁴⁷ One planet (n.d.).

³⁴⁸ UNEP (2016).

United Nations Sustainable Development Cooperation Framework

In collaboration with 23 United Nations agencies, Mongolia launched the United Nations Sustainable Development Cooperation Framework 2023–2027, focusing on human development, green and inclusive growth, and governance.³⁴⁹ This framework aims to accelerate progress towards achieving the SDGs by implementing 158 targeted interventions across various sectors, from grassroots initiatives to strategic policy areas.

Voluntary National Reviews

Mongolia actively participates in the VNRs process, a critical component of the High-Level Political Forum on Sustainable Development. The 2023 VNR provided insights into Mongolia's advancements in education, healthcare, digital transformation, renewable energy and economic diversification. These reviews enhance transparency and facilitate international cooperation by sharing Mongolia's progress and challenges in achieving the SDGs.³⁵⁰

Circular Economy Initiatives

Mongolia is engaged in several circular economy initiatives aimed at promoting sustainable consumption and production, plastic waste management. Efforts include developing national policies that support the 3R (Reduce, Reuse, Recycle) principles and integrate circular economy concepts into national development plans. The country's collaboration with ADB and UNEP focuses on creating a resource-efficient economy that minimizes waste and maximizes resource use.³⁵¹

UN REDD+ in Mongolia

Launched in 2019, the National Strategy and Action Plan for REDD+ (NSAP-REDD+) outlines Mongolia's approach to implementing REDD+ from 2020 to 2025. It aligns with the country's broader sustainable development goals, emphasizing the role of forests in providing ecosystem services and supporting rural livelihoods and economic growth. The plan details specific policies, measures, financing, and a monitoring and evaluation framework to track progress, along with implementation arrangements. The Plan aims to strengthen Mongolia's forest sector to promote sustainable management, utilization and protection of forests, reducing deforestation and degradation while supporting green, climate-adapted development. This will be achieved through strategic investments and implementation of key policy objectives and actions.³⁵²

Photo 8.2: Small lake in the Altai Tavan Bogd National Park



8.5 INTERNATIONAL TECHNICAL ASSISTANCE

International technical assistance in Mongolia primarily focuses on climate change mitigation and adaptation, biodiversity conservation, renewable energy, green financing and urban resilience. Projects aim to reduce GHG emissions, enhance resilience to climate impacts and promote sustainable practices across various sectors such as energy, agriculture and urban development. Additionally, efforts are directed at protecting Mongolia's unique biodiversity, preventing desertification

³⁴⁹ United Nations Mongolia (2022).

³⁵⁰ Mongolia (2023b).

³⁵¹ Mohan (2023).

³⁵² Ministry of Environment and Tourism (2019f).

and promoting sustainable land use practices, particularly in rural and peri-urban areas. Assistance is also provided to expand renewable energy capacity and improve energy efficiency, especially in heating and infrastructure. Programmes focused on green financing and sustainable economic development aim to develop financial mechanisms and incentives to support investments in green projects, foster eco-friendly businesses and promote sustainable tourism. Furthermore, initiatives are in place to enhance urban planning, waste management, and water and air quality to create healthier, more sustainable cities.³⁵³

However, Mongolia faces several challenges in effectively implementing international technical assistance programmes. No platform has been established by Mongolia to support coordination among international donors, the national government and local stakeholders to ensure coherent and efficient implementation of programmes and projects. Institutional capacity and public awareness for the successful implementation of these programmes are limited. Financial support from both domestic and international sources is not always secured, which hinders the long-term sustainability of ongoing and future projects. Sometimes, technical assistance does not take into account the socioeconomic dimensions of environmental programmes to ensure that they are inclusive and equitable. Recommendation 7.4 (c) of the First EPR of Mongolia was not implemented and remains valid.

8.6 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

Mongolia's commitment to international environmental agreements remains robust, with international treaties prevailing over national laws. The 1993 Law on International Agreements continues to govern the process of preparing, concluding and ratifying international treaties. This law ensures that international agreements, once ratified or acceded to, are effectively integrated into Mongolia's legal framework.

In recent years, Mongolia has made significant steps in enhancing its legal framework related to MEA implementation. The Government has strengthened its legal frameworks by undertaking reforms to align national laws more closely with international environmental agreements, incorporating provisions from newly ratified treaties.

Policy framework

Mongolia's policy framework for international cooperation is guided by the 2021 Foreign Policy Concept, which outlines the overarching principles for international engagement. Vision 2050 serves as the strategic framework for sectoral and cross-sectoral strategies. This vision aligns with the SDGs and emphasizes sustainable development and environmental priorities (see Chapter 1).

Since the adoption of Vision 2050 and the Green Development Policy in 2014, Mongolia has undertaken efforts to revise and align existing sectoral strategies, legislation and regulations. These revisions aim to integrate sustainable and green development priorities more thoroughly into national policies, programmes and plans.³⁵⁴

Institutional framework

The Ministry of Foreign Affairs plays a supportive role in facilitating international, regional and bilateral environmental cooperation. It assesses the conformity of international agreements with Mongolia's Constitution and international obligations, ensuring cohesive integration into national frameworks.

The institutional framework for international environmental cooperation is primarily managed by the ministry responsible for the environment, i.e., the Ministry of Environment and Climate Change. The renaming of the ministry to include climate change has its efforts in addressing climate issues, reinforcing Mongolia's alignment with its international commitments under the Paris Agreement. To enhance coordination among various stakeholders, the Ministry has established intersectoral committees for conventions like the Ramsar Convention on Wetlands, CITES and the Vienna Convention for the Protection of the Ozone Layer. These committees oversee the implementation of international agreements and ensure proper collaboration among ministries, administrative levels, academia and non-governmental organizations.

³⁵³ UNEP (n.d. a).

³⁵⁴ Ministry of Environment, Nature and Tourism (2015).

The weak collaboration among key stakeholders for the implementation of MEAs hinders the effectiveness and coherence of Mongolia's environmental strategies, preventing more efficient fulfilment of international commitments and national sustainability goals.

No effective coordination and communication among focal points exists to ensure seamless implementation and compliance is institutionalized. No centralized coordination mechanism is in place to mitigate these issues by standardizing processes, retaining institutional knowledge and ensuring continuous communication across relevant departments. Centralized coordination would reduce redundancy, improve resource allocation and ensure that Mongolia's participation in international agreements is consistent and effective. Also, no structured focal point rotation plan is in place, which would help to maintain continuity, while digital tools could enhance real-time communication and collaboration, especially for managing transboundary environmental issues. Recommendation 6.1 (b) of the First EPR of Mongolia has not been implemented and remains valid.

8.7 ASSESSMENT AND RECOMMENDATIONS

Assessment

Mongolia is committed to implementing MEAs by effectively integrating them into the legal and policy framework. However, there are some MEAs to which Mongolia is not yet a party. Accession to these instruments would bring clear benefits, including support for achieving certain SDGs, provided that compliance with the obligations under these MEAs is feasible for the country. The country's alignment with global sustainability goals demonstrates its dedication to addressing climate change, conserving biodiversity and promoting sustainable development. Key achievements include progress in renewable energy development, forest management and pollution reduction, supported by international partnerships and financial mechanisms. However, challenges remain, including gaps in the legal framework, limited institutional capacity and unsecured financing, all of which hinder long-term success in fulfilling international obligations and advancing the national environmental agenda.

There is institutional cooperation between the Ministry of Foreign Affairs and the Ministry of Environment and Climate Change. However, this partnership has not been sufficiently strengthened to ensure the effective integration of international environmental policies into national strategies. Coordination between these two ministries is not always consistent and lacks a strategic approach to addressing environmental challenges at both national and international levels. Broader coordination across ministries, administrative levels, academia and NGOs also remains limited, preventing the alignment of efforts and maximization of the impact of environmental policies. Limited stakeholder engagement hampers effective MEA implementation. Local communities are often insufficiently informed and do not actively participate in environmental conservation efforts due to limited stakeholder engagement. Existing community-based monitoring does not fully support localized data collection or foster a sense of ownership in the way that public campaigns and forums could.

Over the last five years, the high turnover of focal points undermined continuity in leaderships, resulting in the loss of institutional memory and inconsistencies in fulfilling international obligations. The absence of targeted training and capacity-building programmes prevents focal points from acquiring the expertise and skills needed for effective long-term management. Enhancing the stability and competence of focal points would strengthen Mongolia's implementation of MEAs and improve its ability to meet international environmental commitments.

Accurate and timely data are essential for effective environmental management and reporting. Although Mongolia's data collection systems are functional, they lack integration across different MEAs, leading to gaps in reporting and decision-making. The absence of a robust data management system limits transparency and accountability, both of which are critical for national policy development and international compliance.

Mongolia shares environmental resources with neighbouring countries, yet regional collaboration on managing shared resources and addressing transboundary environmental issues remains limited. Inadequate joint monitoring and a lack of shared data hinder the ability to respond effectively to environmental threats. Transboundary agreements are vital to ensuring that all parties are committed to sustainable management practices. The lack of cooperation hinders the effective management of these transboundary resources to address shared environmental challenges like pollution, water scarcity and biodiversity loss. Many policy areas, such as air pollution control and climate protection, are closely linked and an integrated approach offers many synergies. Existing transboundary environmental agreements, however, do not take these linkages and synergies into account.

Mongolia has already benefited from international partnerships, but there is potential to further enhance institutional capacities. By leveraging additional international support, Mongolia can strengthen its ability to meet MEA commitments and address complex environmental challenges. Technical assistance can help align national policies with global best practices, while expanded training programmes and greater participation in international networks would improve Mongolia's capacity to implement, enforce and comply with its environmental commitments.

Recommendations

Coordination and communication among focal points

Recommendation 8.1:

The Government should undertake the necessary changes to the Law on Development Policy and Planning and its Management in order to clarify responsibilities and mainstream obligations from multilateral environmental agreements (MEAs).

Recommendation 8.2:

The Ministry of Environment and Climate Change in coordination with the Prime Minister's Office should:

- (a) *Strengthen the coordination of activities related to the implementation of MEAs to facilitate regular inter-departmental meetings, managing a shared database of MEA activities and maintaining up-to-date records of focal points and their responsibilities;*
- (b) *Implement a Focal Point Rotation Plan that includes a thorough handover process;*
- (c) *Deploy digital tools such as shared calendars, task management software and communication platforms to streamline coordination and ensure that all relevant stakeholders are kept informed.*

Data collection and reporting mechanisms

Recommendation 8.3:

The Government should invest in the development and enhancement of data collection systems that are integrated across different MEAs, ensuring that the country's reporting is accurate, timely and comprehensive.

Fostering regional and international collaboration

Recommendation: 8.4:

The Government should:

- (a) *Cooperate with neighbouring countries to expand and deepen collaboration on transboundary environmental issues such as water management, biodiversity conservation and pollution control;*
- (b) *Strengthen the transboundary commissions with China and the Russian Federation with clear mandates, regular meetings and shared goals for managing shared resources;*
- (c) *Propose the launching of joint monitoring programmes for shared ecosystems which involve regular data sharing, joint field studies and coordinated responses to environmental threats;*
- (d) *Negotiate new or updated transboundary environmental agreements that focus on specific transboundary issues, such as air pollution control, wildlife migration corridors and the management of invasive species.*

Increasing public and stakeholder engagement

Recommendation 8.5:

The Government should:

- (a) *Launch nationwide public awareness campaigns through all mass media, including social media, to sensitize the public on the importance of MEAs and how the public can contribute to their implementation;*
- (b) *Organize inclusive stakeholder forums where stakeholders, including NGOs, the private sector and academia, can provide input on the implementation of MEAs;*
- (c) *Participate in the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management, to access global expertise and standards.*

International support for capacity building

Recommendation 8.6:

The Ministry of Environment and Climate Change should:

- (a) Secure technical and financial assistance to build institutional capacities for the implementation of MEAs;*
- (b) Secure technical assistance to engage international experts and organizations in the development and refinement of national environmental policies;*
- (c) Expand training programmes, including in collaboration with international partners, for government officials, local authorities and enforcement agencies on MEA compliance and enforcement;*
- (d) Increase participation in international networks and forums focused on capacity development and knowledge exchange to learn from other countries' experiences and adopt good practices in implementation of MEAs.*

Ratification of or accession to multilateral environmental agreements

Recommendation 8.7:

The Government should promote accession to the 1995 Ban Amendment to the (Basel) Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, including the necessary preparatory work.

PART II:
MANAGEMENT OF
ENVIRONMENTAL
COMPONENTS
AND POLLUTION

CHAPTER 9

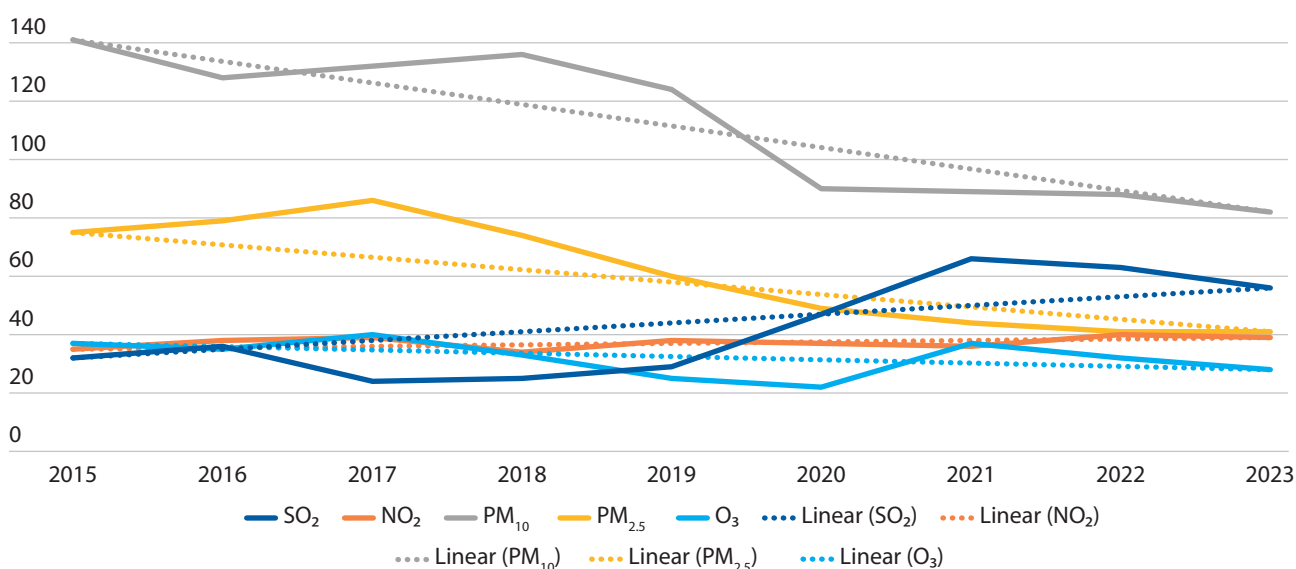
AIR PROTECTION

9.1 URBAN AND RURAL AIR QUALITY, INCLUDING IMPACT ON LIVESTOCK, BIODIVERSITY AND HUMAN HEALTH

Ambient air pollution is the main environmental issue in the urban parts of Mongolia. Due to the concentration of population and economic activities, coupled with geographical and climatic conditions, air pollution is the most serious in Ulaanbaatar, although other cities (Darkhan and Erdenet) also experience high air pollution episodes, especially during the winter season. Heating impact on air quality is particularly acute during winter months. Research shows that air pollution disproportionately affects the health of women and children. For example, pregnant women exposed to high air pollution between November and January are more likely to experience complications such as premature birth, heavy postpartum bleeding, stillbirths and oxygen deprivation in newborns. Pregnant women during winter have a 3.5 times higher risk of foetal death than during summer. Air pollution also poses significant risks to the health of older women and young children.³⁵⁵

Average annual concentrations of air pollutants in the period 2015–2023 show, in general, an increase of concentrations in SO₂ and NO₂ which are monitored all over the country, and a negative trend of concentrations in particulate matter (both PM₁₀ and PM_{2.5}), as well as tropospheric ozone, which are measured by automatic air quality stations, only in Ulaanbaatar (see Figure 9.1). Average annual concentrations of SO₂ and PM exceed national air quality standards. One of the SDG indicators of adverse per capita environmental impact of cities (SDG target 11.6), with particular focus on air pollution, is the annual mean level of fine particulate matter (population-weighted), by location expressed in µg/m³ (SDG indicator 11.6.2). The mean level in all areas decreased from 45.5 µg/m³ in 2017 to 41 µg/m³ in 2019. In 2012, the annual level of PM_{2.5} reached 52 µg/m³. Efforts to reduce air pollution in fact resulted in a reduction of PM concentrations by 40–50 per cent since 2015.

Figure 9.1: Average annual concentrations of air pollutants, 2015–2023, µg/m³



Source: NAMEM, 2024.

High concentrations of PM in Mongolia caused serious concern not only in the country, but also at international level. In February 2018, the WHO issued a set of recommendations for the Government to tackle air pollution.³⁵⁶ In 2018, the National Centre for Public Health and UNICEF published the report *Mongolia's air pollution crisis: A call to action to protect children's health*.³⁵⁷ It was followed by a five-year project on the impact of air pollution on maternal and child health (2018–2023).

³⁵⁵ UNICEF (2023c). UNICEF (2020). ADB (2022).

³⁵⁶ WHO (2018).

³⁵⁷ National Centre for Public Health and UNICEF (2018).

Recommendation 15.6 (a) of the First EPR of Mongolia suggested the Government to develop and implement actions to limit the emission of pollutants into the air and to reduce population exposure to indoor and outdoor air pollution was implemented.

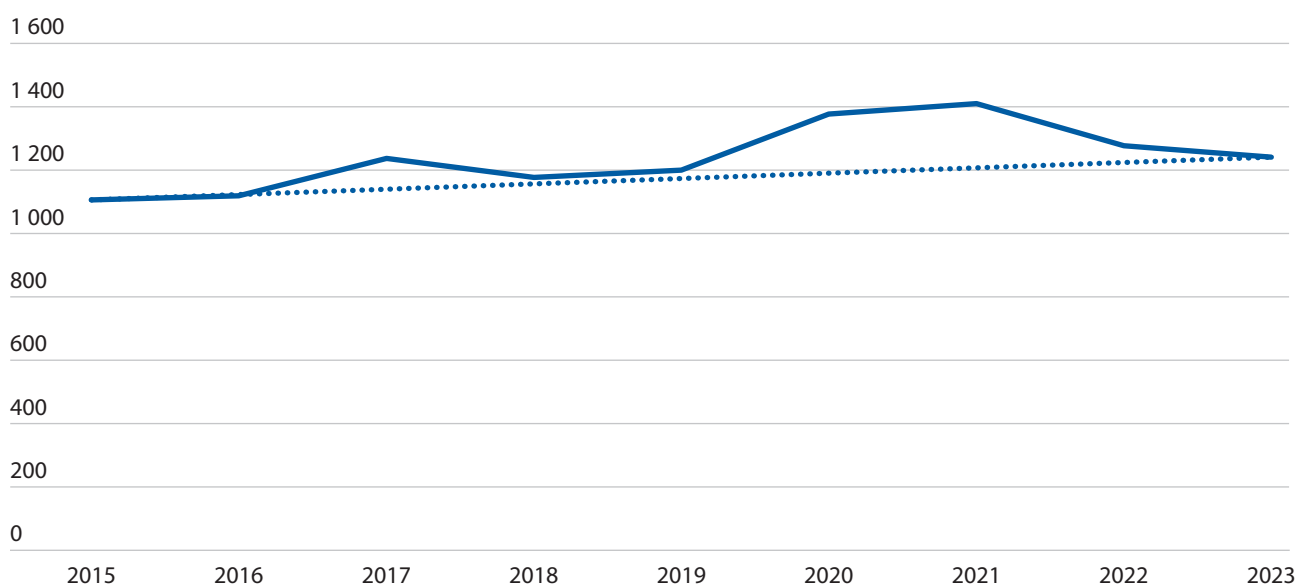
In 2022, UNICEF conducted a small-scale biomonitoring study to determine toxic metals in the blood of young children (1–5-year-old) associated with air pollution exposure in three provinces and two districts of Ulaanbaatar. Lead concentration exceeds the limit of 3.5 µg/dL in 67 per cent of children from Bayanzurkh district of Ulaanbaatar, 58 per cent of the children from Govi-Altai, 58 per cent of the children from Khan-Uul, 40 per cent of the children from Bayankhongor and 3.0 per cent of children from Umnugovi *Aimag*, respectively. In addition, 10.6 per cent of blood samples revealed the presence of mercury.³⁵⁸

The 2019 VNR on the implementation of Sustainable Development Goals notes that “Pollution, especially air pollution, is a growing contributor to premature deaths and morbidity, more so in urban areas.” It dedicates a chapter in the report to this topic, recognizing air pollution as a development challenge in focus. It states that during the period from 2008 to 2018, respiratory complications such as the incidence of acute bronchitis and acute bronchiolitis increased by 6.3 times, reaching 240 per 10,000 population. Among those affected by respiratory disorders, young children and youth are the most vulnerable.³⁵⁹ In Ulaanbaatar, the most common disease among children is acute respiratory diseases, including pneumonia, caused by air pollution, highlights the report. UNICEF reports that 95 per cent of children in Ulaanbaatar have heavy metals in their blood. Although publicly available research to substantiate these figures is limited, academics point to multiple contributing factors. One significant factor is the continued use of lead fuel in cars. The fumes emitted from vehicles create a gas layer containing heavy metals at about one meter above the ground—the height at which children breathe. These metals are inhaled and enter their airways, leading to long-term health issues. However, because the effects of heavy metals take years to manifest, addressing this issue has not been prioritized in policymaking.³⁶⁰

Indoor air quality has a significant health impact in Mongolia. In 2022, total deaths due to household air pollution reached an estimated 4,350 across the country.³⁶¹ The National Public Health Institute is working on indoor air quality standards, but their adoption is still pending.

Average concentrations of carbon monoxide have been rising in the observed period from 2015 to 2023 (see Figure 9.2).

Figure 9.2: Average annual concentrations of CO, 2015–2023, µg/m³



Source: NAMEM, 2024.

³⁵⁸ UNICEF (2023a).

³⁵⁹ Mongolia (2019a).

³⁶⁰ UNICEF (2020).

³⁶¹ UNDP (2024).

Photo 9.1: Industrial sites in Ulaanbaatar

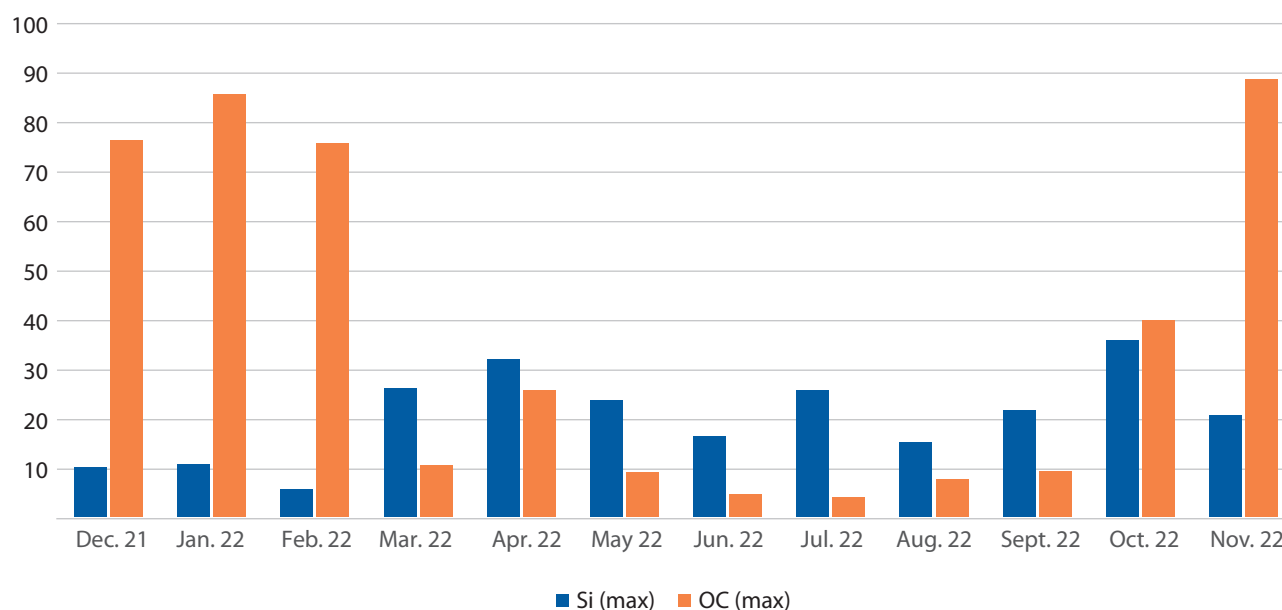
Photo credit: sphraner/stock.adobe.com.

Recommendation 8.2 of the First EPR of Mongolia addressed to NAMEM was aimed at developing expertise for regular analysis of the content of PM. The results of the 2022 analysis are presented in Figure 9.3. It shows a seasonal shift of contribution of combustion and natural contribution to the content of PM. Although the analysis identified many other substances including heavy metals and other elements (Na, Ca, Mg, P, Cl) and ions (SO_4^{2-} , NH_4^+), silicon (Si) is selected as a marker of mineral content of dust, which is generally coming from natural sources such as desert dust and soil resuspension, while organic carbon (OC) is used as a marker of combustion activities. The figure shows maximal monthly values of their content in PM for the period between December 2021 and November 2022. In winter months, there is a large contribution of combustion products, while spring and summer months are marked with a prevalence of natural contribution content. Measurements were performed several times a month on two measurement points in Ulaanbaatar. It can be concluded that Recommendation 8.2 of the First EPR of Mongolia has been implemented. Recommendation 8.3 of the First EPR of Mongolia advised the then Ministry of Environment and Tourism to define a methodology for the exemption of concentration peaks caused by dust storms from the calculation of the annual average concentrations of PM, but its implementation is still pending.

The presence of POPs was assessed in Mongolia in the period 2017–2019 as part of the global monitoring plan implementation for the Stockholm Convention on Persistent Organic Pollutants.³⁶² It was the first systematic survey of POPs in the environment (air, soil and water), foodstuffs and humans in Mongolia. Results showed some presence of hexachlorobutadiene in air samples, which may originate from extensive use of polystyrene foams in building insulation.

³⁶² Surenjav (2023).

Figure 9.3: Maximal monthly content of silicon (Si) and organic carbon (OC) in PM, December 2021–November 2022, $\mu\text{g}/\text{m}^3$



Source: NAMEM, 2024.

9.2 TRENDS IN EMISSION LEVELS

Recommendation 8.7 of the First EPR of Mongolia on developing capacities for compilation and regular update of the national emission inventory was partially implemented in the previous years. Although Mongolia still lacks a national air emission inventory, there were substantial efforts to develop a methodology and build capacities for this important task. This recommendation is partially implemented and still relevant.

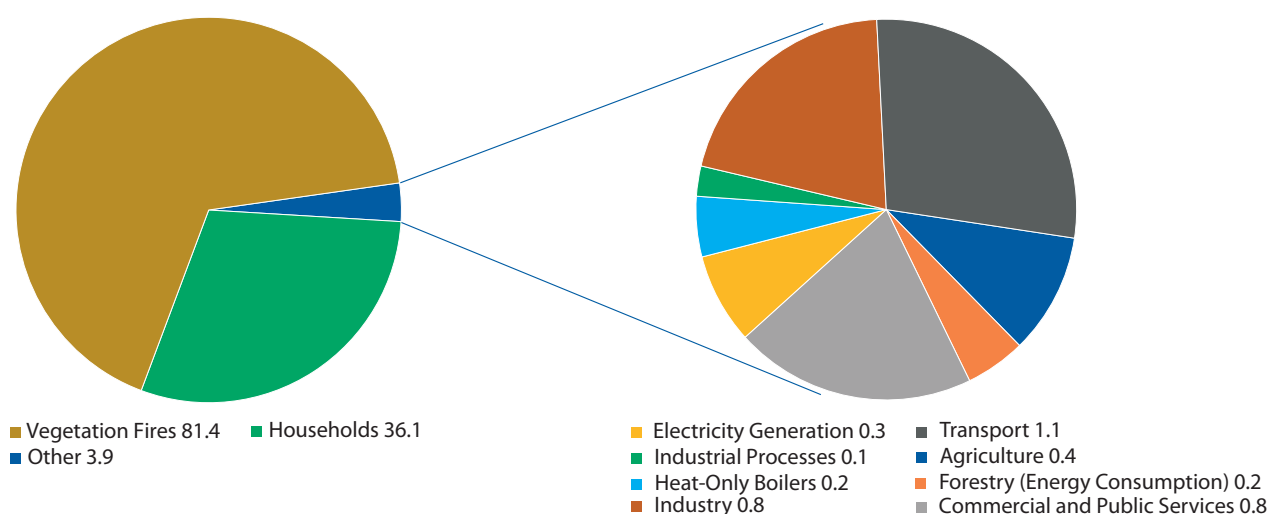
Clean Air Asia's Integrated Programme for Better Air Quality in Asia (IBAQ Programme), in cooperation with NAMEM and the Ministry of Environment and Tourism (now Ministry of Environment and Climate Change), organized several technical trainings on national emission inventory development. Also, in response to Mongolia's request, the Asia Centre for Air Pollution Research developed an Emission Inventory Manual for Mongolia in 2018, as part of the IBAQ Programme.

The Climate and Clean Air Coalition (CCAC) started the SNAP initiative, "Supporting National Planning and Action on short-lived climate pollutants (SLCPs)", which, in cooperation with the Ministry of Environment and Climate Change, works on developing an integrated GHG, SLCP and air pollution inventory to generate scenarios for national mitigation measures. The project on national SLCP planning started in Mongolia in 2019.³⁶³ In the period 2020–2021, CCAC provided additional support to Mongolia, including an analysis of GHG and air pollutant emissions and projections extending to 2050, as well as capacity building within the Ministry of Environment and Climate Change, the Environment and Climate Fund and other key government entities to undertake an assessment of GHG and air pollutant mitigation potential of different plans, policies and strategies. These activities were implemented by the Global Green Growth Institute (GGGI) together with the Stockholm Environment Institute.

The report entitled, *Opportunities from taking integrated actions on air pollution and climate change in Mongolia*, published in 2020 and supported by CCAC and Stockholm Environment Institute, is the most comprehensive available source of data on emissions of air pollutants in Mongolia.³⁶⁴

³⁶³ CCAC (2018).

³⁶⁴ Ministry of Environment and Tourism (2020).

Figure 9.4: PM_{2.5} emissions, 2017, kilotons

Source: GGGI (2021).

The analysis provided in the report mentioned above highlights the key sources of emissions within the selected sectors, (see Figure 9.4) which can be summarized as follows:

- Emissions from the household sector originate from the burning of coal (lignite), primarily for heating. Approximately half of the emissions of black carbon, carbon dioxide and other pollutants in this sector result from activities in Ulaanbaatar;
- Emissions from electricity and heat production are predominantly associated with the combustion of coal. Electricity and combined heat and power plants (CHPPs) contributed over 70 per cent of emissions from the electricity and heat generation sectors, while heat-only boilers contributed approximately 28 per cent of total emissions. CHPP4 was the largest single facility that contributed approximately 35 per cent of the emissions of all pollutants to emissions from the electricity and heat generation sector;
- Freight transport was estimated to produce the majority of emissions from the transport sector (over 90 per cent of the emissions of PM_{2.5} and NO_x), with a larger contribution from road freight transport compared to rail freight transport. Road passenger transport makes more significant contributions to CO₂ emissions, and emissions of carbon monoxide and volatile organic compounds;
- Agriculture, specifically the livestock sector, is the major emitter of methane and short-lived climate pollutants.

Mongolia's National Inventory Report, published in 2023 as an annex to the Second Biennial Update Report to UNFCCC, contains updated figures for emissions of NO_x and CO, for the period 1990–2020, but only for one category of source: biomass burning in forest land and grassland (vegetation fires) (see Figure 9.5).

Both trends show significant fluctuations related to the fugitive emission source, which is hard to control.

9.3 PERFORMANCE AND GAPS IN AIR MONITORING NETWORKS

In 2017, there were 11 automatic stations located in Ulaanbaatar. Air quality in the countryside was monitored by means of passive samplers for a limited number of parameters (SO₂, NO₂), at 35 sampling points. Currently, there are 17 automatic stations, all in Ulaanbaatar, and 32 sampling points throughout the country, out of which 33 measure PM_{2.5} in line with Recommendation 8.1 (b) of the First EPR of Mongolia.³⁶⁵ However, no background monitoring stations were installed in locations that are not affected by industrial activities and extensive coal consumption, to assess natural contributions to air pollution. Recommendation 8.1 (c) of the First EPR of Mongolia was not implemented and remains valid. The Monitoring Strategy for the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe for the period 2020–2029 under the Convention on Long-range Transboundary Air Pollution may serve as inspiration for planning the set up and expansion of the network of background monitoring stations.³⁶⁶

³⁶⁵ Soyol-Erdene (2021). Fig.1.

³⁶⁶ ECE (2019).

Figure 9.5: Emissions of NO_x and CO from biomass burning in forest land and grassland, 1990–2020

Source: 2023 National Inventory Report.

The Ministry of Environment and Climate Change recently installed an automatic monitoring station next to the Ministry building and expects additional stations to be installed in every *aimag*, through bilateral cooperation with the Republic of Korea.

Two Pandora spectrometer system instruments were installed in Ulaanbaatar and Dalanzadgad, monitoring tropospheric ozone. Different methods are applied within the dust observation network: surface-based measurements, ceilometer measurements and LIDAR observations.³⁶⁷

Air quality modelling has also advanced, now providing an air quality forecast for Ulaanbaatar. In 2017, ADAM-HAZE model was installed at NAMEM in Mongolia. It can be concluded that Recommendation 8.1 (a) of the First EPR of Mongolia has been fully implemented, although there is still room for improvement, especially in terms of expanding automatic air quality measurement outside of the Capital.

9.4 PRESSURES ON AIR QUALITY

Agriculture

The Mongolian agriculture sector is represented by extensive livestock, which is the traditional semi-nomadic pastoral system, mechanized large-scale production of cereals and fodder crops, intensive farming, producing potatoes and other vegetables, with both mechanized and simple production methods, and intensive livestock, with housed dairy cattle, pigs and poultry. The livestock sector dominates, contributing 84.9 per cent of total agricultural production. According to the regular year-end counting, 25 million offspring matured, making the number of livestock 71.1 million, the highest number on record.³⁶⁸

Data on the use of pesticides are scarce. A study performed in the period 2017–2019 showed the presence of legacy POPs such as dichlorodiphenyltrichloroethane, polychlorinated biphenyls indicators, hexachlorocyclohexanes but also hexachlorobenzene and pentachlorobenzene in the soil and ambient air samples.³⁶⁹ Within the OBTNM, there is activity on forest preservation focused on the use of biological insecticides and thorough evaluation of insecticide application. Since June 2022, 21 *aimags*, 330 *soums* and large corporations have participated in the OBTNM, which should continue beyond 2027 (see Chapter 1). It is expected that Mongolia will spend 1 per cent of the national GDP on the Movement. The main objectives of the Movement are to fight desertification, deforestation and food insecurity, but it will have significant trade-offs in the improvement of air quality, especially with neutralizing the background natural contribution of PM.

³⁶⁷ Davaanyam (2023). Dust observation network slide.

³⁶⁸ InvestMongolia (Economy).

³⁶⁹ Surenjav (2023).

Energy

Production of coal in Mongolia tripled in the period 2015–2023.³⁷⁰ It represents 97.8 per cent of total domestic energy production in the country, where 90.9 per cent of electricity comes from this source. The country has three power systems: Central, Eastern and Western electricity grid systems. At the same time, the independent power systems of Dalanzadgad and Altai Uliastai play important roles in local energy production. Currently, 10 thermal power plants (TPPs) are operating in Mongolia, four of which are located in Ulaanbaatar (see Table 9.1).

Table 9.1: Power plants in Mongolia, MW

Power Plant	Units/Start of operation	Capacity
Ulaanbaatar TPP-2	3 units, 1961	21.50
Ulaanbaatar TPP-3	9 units, 1968	198.0
Ulaanbaatar TPP-4	7 units, 1981–2015	789.0
Amgalan (Ulaanbaatar)	4 units 2015–2024	464.0
Darkhan	4 units 1965–2012	48.0
Choibalsan	4 units	36.0
Erdenet	4 units 1988–2021	71.0
Ukhua Khudag	2011	18.0
Dalanzadgad	2 units 2000–2018	9.0

The new 50 MW thermal power plant of the Eastern Region Energy System was brought into operation in June 2024, in Dornod *Aimag*, Mongolia.³⁷¹

Several thermal power plants were built more than 60 years ago. During the last decade, some of them were reconstructed but mainly to add additional units and expand capacities, while abatement technologies were not considered as a priority. Thermal Power Plant 4 in Ulaanbaatar is equipped with an electrostatic precipitator for control of PM; other coal-fired steam boilers for power plants are equipped with wet scrubbers, while boilers of thermal stations use cyclones. Despite the black smoke pouring from their chimneys located in the heart of Ulaanbaatar, the air pollution is mainly blamed on the ger districts and heat-only-boilers used for household heating, which do not have any abatement devices. The clean fuel transition policy foresees elimination of pollution from heat-only boilers by changing of fuel from coal to gas.

As of 2023, Mongolia has 3 wind farms, 9 solar farms and small hydropower plants, accounting for 18.3 per cent of the total installed capacity and only 9.6 per cent of total electricity production.³⁷² The Government's target, as outlined in the State Policy on Energy 2015–2030, aims for a renewable energy share of 20 per cent by 2023 and 30 per cent by 2030 of its installed capacity. The country is also committed to reducing GHG emissions by 22.7 per cent by 2030, while the energy sector accounts for 44.78 per cent of the total as of 2020, according to Mongolia's Second Biennial Update report. These objectives will require a more substantial transition to renewable energy sources.

Evidently, Mongolia has an abundant potential for the use of renewables. According to the report of the International Renewable Energy Agency (IRENA) titled *Renewable energy solutions for heating systems in Mongolia – Developing a strategic heating plan*, Mongolia has significant geothermal potential, great potential for ground-mounted solar PV systems that can be connected to the main electricity grid, and moderate potential for development of wind farms in the countryside. The case study for Ulaanbaatar's heating system based on renewables focuses on geothermal, solar, wind and energy from waste incineration.

Industry

The main industrial activity in Mongolia is mining. Although mining activities contribute to the local sources of dust and other pollutants depending on the mining process, transport of goods and other activities, there is no data on mining's impact on air quality. The Second Biennial Update Report of Mongolia considers the sector of cement and lime production and production of steel from recycled steel scraps. The main contributor in this sector is the mineral industry that accounts for more than 50 per cent of GHG emissions and limited emissions of NO_x and CO (see Table 9.2).

³⁷⁰ Statista (Coal production in Mongolia 2014–2023).

³⁷¹ Nyambayar (2024).

³⁷² UNDP (2024a).

Table 9.2: Emissions of key air pollutants, 2017, kilotons

Sectors	PM _{2.5}	NO _x	NM VOC	CO
Agriculture	0.4	1.6	0	4.6
Forestry (Energy Consumption)	0.2	1.9	0.2	0.5
Commercial and Public Services	0.8	1.3	0.7	7.2
Electricity Generation	0.3	24.2	0.1	0.9
Heat-Only Boilers	0.2	11.7	0.1	0.4
Households	36.1	8.6	47.1	156.4
Industrial Processes	0.1		1.6	
Industry	0.8	2.9	0.7	6.5
Transport	1.1	38.8	3.2	15.4
Vegetation Fires	81.4	30.9	36.2	680.2
Total	121.5	121.9	91.8	872.8

Source: GGGI (2021).

Note: NMVOC – non-methane volatile organic compound.

Projections of the total final energy consumption in the industry sector, developed within the Energy Transition Pathways for the 2030 Agenda – SDG 7 Road Map for Mongolia,³⁷³ project that by 2030, 30.1 per cent of energy will be consumed by the food and beverage industry. The mining industry will account for 28.8 per cent of industrial energy demand, followed by cement and non-metallic quarry products at 18.8 per cent. The iron and steel industry will account for 9.4 per cent of energy demand. The remaining 12.9 per cent will be consumed across seven industries, including machinery and transport equipment, pulp and paper, and the textile and leather industry. Energy consumption and industrial processes have and will continue to have a significant impact on air quality, which needs better regulation and control through permitting and enforcement of non-compliance legal provisions.

Transport

A 2023 WHO report indicates that there are 1.2 million vehicles (rate per 100,000 pop/year) registered in Mongolia, representing a 50 per cent increase since 2016.³⁷⁴ Indeed, most of the vehicles in the country are located in Ulaanbaatar (61 per cent), with nearly all (80 per cent) not meeting emission standards and more than half being 11 years or older. Vehicle exhaust and road dust have reportedly been responsible for around 6 per cent of PM_{2.5} levels in Ulaanbaatar.³⁷⁵ Inhabitants of Ulaanbaatar are facing air pollution and heavy traffic congestion. Average traffic speed in the main streets is only 8–12 km/h, leaving the city paralyzed during rush hour.

Public transport works with 19 bus operators on 105 routes, with 953 heavy duty buses for 523,000 passengers a day. The city renewed the bus fleet in 2022, adding a number of electric buses, but it is facing shortage of electrical power supply in Ulaanbaatar to establish charging stations, the high price of electric buses, operational difficulties in harsh winter conditions, as well as battery disposal issues when considering further developments in this direction. Public transportation vehicles older than 12 years are not allowed for use.

Mongolia imports automotive fuel, which is of varying quality. As of 2018, only 7.7 per cent of fuel corresponded to the Euro 5 standard for vehicles. The Sustainable Development Vision 2030 has an objective to increase this percentage to 70 per cent by 2025 and to 100 per cent by 2030. As of September 2024, no proper market analysis of fuel has been carried out.

³⁷³ ESCAP (2024).

³⁷⁴ WHO (2023).

³⁷⁵ UNDP (2024).

Housing

A GHG mitigation assessment conducted for Mongolia also quantified emissions of short-lived climate pollutants and air pollutants, and their emission reduction potential.³⁷⁶ Estimations of emissions of black carbon show that over half of the 9,000 tons emitted in 2019 were emitted from the household sector. The household sector similarly is a major source of other fine PM_{2.5} emissions.

According to the 2020 census,³⁷⁷ heat supply technologies amongst households are distributed as follows: 49.6 per cent of households are connected to district heating systems, 41.3 per cent use fuel boiler heating, 7.1 per cent of households use low-pressure furnaces and 2 per cent use electric heaters. The rate of connection to the district heating is higher in urban areas (57.5 per cent) and for rural areas it is 12.2 per cent. However, the impact on air pollution is higher in urban areas, especially in Ulaanbaatar, since the heating sector is almost entirely based on coal, both in district heating supply and individual households. In 2018 it was estimated that some 108,000 individual houses, 88,000 *gers* or a total of 195,800 households burnt 700,000 tons of coal in Ulaanbaatar.³⁷⁸

In 2019, the Government decided to ban the use of raw coal for household heating to reduce the air pollution in winter months. An alternative product made from semi coke, a coal byproduct, was put on the market, in the form of fuel-efficient briquettes. It has been estimated that 600,000 tons of briquettes can replace the volume of raw coal consumed by the capital city residents.³⁷⁹ Although PM concentrations have a negative trend in recent years, the city is still highly polluted in winter months and the problem of pollution is far from being solved.

Photo 9.2: Air emissions from industrial facilities, Ulaanbaatar



Photo credit: isarescheewin/stock.adobe.com.

³⁷⁶ GGGI (2021).

³⁷⁷ NSO, 2021.

³⁷⁸ IRENA (2023).

³⁷⁹ Ooluun (2018).

The Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Sector Project is a large-scale project expected to be completed by the end of 2026 and will cost a total of US\$570.1 million. The main project objective is to transform *ger* areas into eco-districts.³⁸⁰ The plan is to build 1,500 social housing units along with key infrastructure such as roads, water, sewerage and heating pipes, as well as green houses for urban farming and public and green spaces, social and public services and rooftop solar panels, along with a smart monitoring system for building performance and renewable energy control. The project should also provide US\$75.7 million to the eco-district and affordable housing fund that will make long-term loans to commercial banks, which will be passed on to real estate developers to build an additional 8,500 homes. A key element of the project is the voluntary land swapping approach. Under this approach, households owning or renting a plot of land within the proposed eco-district perimeter can choose to participate in the mechanism to ensure access to a housing unit in the eco-district, through land and asset swaps, rent-to-own schemes, or affordable rental arrangements. If they choose not to participate, the eco-district design will be adjusted to avoid affecting the non-participating households.

Policy objectives in the construction sector are to ensure the population has access to energy-efficient housing, to reduce heat loss in old residential buildings and to produce domestic construction material with better insulation properties. The implementation of measures to achieve these objectives is not supported enough. The Green Development Policy sets the target of reducing building heat losses by 40 per cent by 2030.

9.5 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

The main legal instruments governing air protection in the country are the 2012 Law on Air and the 2010 Law on Air Pollution Fees with numerous subsequent amendments. There is a plan to integrate the Law on Air into an environmental code, but its adoption is still pending (see Chapter 1). In 2016, the Law on Hygiene was passed, prohibiting the burning of all types of waste that have considerably contributed to deteriorating air quality. In 2019, the Government also issued a ban on raw coal under Resolution No. 62 and enabled subsidies for refined coal briquettes to reduce PM_{2.5} levels across Ulaanbaatar. This ban is limited to individual and business use of raw coal in six districts of Ulaanbaatar (Songinokharikhan, Bayanzurkh, Chingeltei, Khan-uul, Sukhbaatar, Bayangol), excluding power plants with special licenses.

The 2008 amendment of the Law on Air removes the provision that was giving the power to environmental inspectors terminate the operations of an installation if it repeatedly violates the law. While there is an evident concern about the air quality in the country, which is somewhat reflected through the legal framework, the number of exceptions from the law's application is also evident when it comes to thermal power plants and other big industrial installations. Recommendation 8.4 (a) of the First EPR of Mongolia on ensuring implementation of the Law on Air regarding air emissions monitoring from major stationary sources was not implemented and remains valid.

Recommendation 8.6 of the First EPR of Mongolia was directed at better implementation of the Law on Air Pollution Fees. The Law was amended in 2018. Although those amendments were not in line with the Recommendation, funds for improvement of air quality have increased through the enforcement of the Law on the Payment for Use of Natural Resources, aimed at channelling the revenues from natural resource use payments into environmental protection and natural resource rehabilitation. With only 1 tugrik per kg of exported coal, some 40 billion tugriks per year can be collected for the improvement of the environment, since 40 million tons of coal are exported annually. The law's implementation in 2023 and the approved budget for 2024 showed substantial improvement. Hence, it can be considered that Recommendation 8.6 was implemented.

Coal-fired plants providing heating to schools and kindergartens are exempted from paying the pollution tax. *Ger* district inhabitants are also exempted in accordance with the social protection policy.

The Clean Air Fund established by the Law on Air was given a mandate to deal with air pollution issues but struggled to fulfil it. Monitoring mechanisms were perceived to be weak, and the fund was finally closed in November 2015. The closure was based on changes made to the Law on Special Government Funds and widespread concerns over the misuse of funds.³⁸¹ The measures funded through the Clean Air Fund include energy-efficient stove distribution to *ger* area households, the supplying of improved fuel, activities relating to the connection of *ger* area households to the central heating system and the expansion of the district heating system.

³⁸⁰ ADB (2018).

³⁸¹ UNDP (2018).

Policy framework

The main policy instrument in this area is the National Programme on the Reduction of Air and Environmental Pollution (NPRAEP) 2017–2025. The NPRAEP explicitly states as its objective improving air quality nationwide and in key areas. It specifies the following five objectives and 58 specific actions to help achieve them:

- Improving air and environment quality in cities and urban centres by implementing effective policies in urban planning and development, infrastructure development and decentralization through local development;
- Reducing pollution sources through introduction of environmentally friendly and advanced technologies, step-by-step banning the use of raw coal and restricting the use of polluting substances;
- Undertaking comprehensive measures towards reducing vehicle emissions;
- Clearly defining the management, coordination and financing of the air and environment pollution activities and setting up an incentive system for air and environment pollution reduction activities; and
- Increasing citizens participation and accountability in reducing environmental pollution, cultivating healthy living habits and attitudes and strengthening the capacity of environmental quality monitoring and analysis.

Twenty-five performance indicators with baselines and targets are developed to evaluate progress in the implementation of the National Programme. Funding for this Programme is planned to come from state and local budgets, air pollution charges, water pollution charges, loans and grants from international organizations and development partners, private companies and organizations and other sources.

The 2019 VNR states that the previous air pollution interventions were aimed at relieving the symptoms, rather than addressing the root causes and that the reasons for population concentration, unequal regional development and industrial development widening disparities over the last 15 years were largely overlooked. The systemic approach developed in the process of the 2019 VNR report preparation has identified the following four categories of bottlenecks in tackling air pollution: (i) weak policy coherence and coordination; (ii) poor policy implementation; (iii) insufficient capacities; and (iv) lack of effective participation and knowledge among stakeholders.

The report also points out insufficient leadership and commitment of sector ministries to manage and implement air quality policy. It highlights the need to integrate attention to global trends such as conversion to renewable energy, adaptation to climate change and innovations in air pollution reduction into air protection policy.

In 2023, the then Ministry of Environment and Tourism approved an action plan for the implementation of air pollution-related priority research for 2022–2025, providing increased opportunities for coordinated cross-sectoral research and collaboration in six thematic directions and bringing sectoral ministries and agencies together. The action plan created conditions to continue building a foundation of data through comprehensive research covering all aspects of air pollution. For instance, at the request of the Ministry, the emission estimation of the coal-fired power plant and emission distribution mapping of the Dalanzadgad *soum* power plant in Umnugovi Province was carried out to generate new data on the source of pollutants and their impacts on health, and to recommend necessary steps and solutions to reduce air pollution from power plants.³⁸² Although the results of this analysis are not available yet, building an evidence-based policy is of utmost importance and a very good step forward.

Integration of air protection policy with climate change-related efforts is a positive example of policy synergy in Mongolia. The NDC aims to improve the efficiency of power plants, improving the heat supply in cities and towns, use of fuel for Euro 5 standard vehicle engines and energy efficiency measures in the housing sector. The Plan of Action on SLCPs states that the climate change planning and reporting process provides a well-established set of procedures into which SLCPs, and air pollution co-benefits can be integrated to enhance the effectiveness of both climate change planning and air quality management.

Apart from the national policy, international donors provided support for the development of numerous policy documents and reports with relevant recommendations (see Box 9.1). For instance, ADB supported implementation of the National Programme for Reducing Air and Environmental Pollution and the development of a community engagement programme, a study on affordable nighttime heating tariffs, development of sustainable long-term measures for a clean heating supply in Ulaanbaatar, as well as formulating an Ulaanbaatar development plan. With support from CCAC, an assessment was undertaken to identify the air pollution benefits that could be achieved as Mongolia revised its climate change commitment in its NDC.

³⁸² UNICEF (2023b).

Institutional framework

The two ministries with the main responsibility for dealing with air pollution are the Ministry of Energy and the Ministry of Environment and Climate Change. The Mayor's Office in Ulaanbaatar also plays a critical role in dealing with air pollution, specifically in the capital. Specialized branches in *aimags* and municipal governments have been established to improve air protection in the country.

The National Committee on the Reduction of Environmental Pollution was first led by the Minister of Environment and then by the Minister of Energy. As of January 2024, this duty was transferred to the Mayor of Ulaanbaatar.

NAMEM is another important actor in this area, in charge of monitoring and analysis of the air quality and provision of information to the public and public authorities. The Agency has 22 local offices, placed in each of the 21 *aimags* and the capital city, and each of them has its own environmental laboratory (see Chapter 4).

Environmental inspection is under the authority of the Ministry of Environment and Climate Change (see Chapter 2).

Box 9.1: Support from IFIs and international donors

ADB is constantly supporting the improvement of air quality in Mongolia. In 2018, it provided a loan of US\$130 million for the first phase of the Ulaanbaatar Air Quality Improvement Programme. The Programme was implemented in two phases from March 2018 to December 2020 to boost public health and living standards by improving the air quality in Mongolia's capital city. The second phase was supported with an additional US\$160 million. Activities included (i) increasing the efficiency of the National Programme for Reducing Air and Environmental Pollution and the regulatory framework on air quality management; (ii) implementing urgent measures to reduce air pollution and protect human health in Ulaanbaatar; and (iii) establishing mechanisms for environmentally sound and integrated urban, energy and transport systems nationwide with a focus on Ulaanbaatar.

The World Bank deployed an additional US\$12 million in 2019, after a first US\$27 million loan in 2012 to support the Ulaanbaatar Clean Air Project.

The EU supported the project "Switch Off Air Pollution", through energy efficient solutions for low carbon housing sector, with €2.8 million. In addition, energy efficiency advisory and financial intermediation for sustainable housing in unplanned areas of Ulaanbaatar are supported with €1.7 million.

Japan International Cooperation Agency supported the Capacity Development Project for Air Pollution Control in Ulaanbaatar City.

The Government of the Republic of Korea provides assistance for the improvement of the air quality network.

Coordination between institutions at national, regional and local levels on matters related to air protection

During the past decade, air pollution related mandates and functions for policy development coordination and oversight have been passed between various institutions. Institutional arrangements became unstable with multiple shifts in leadership. Each new government has changed the institutional arrangement and composition of the National Council for Air Pollution Reduction, which contributed to instability and lack of continuity of initiatives that were already started.³⁸³ The fact that coordination of the National Committee on the Reduction of Environmental Pollution, whose main role is to coordinate nationwide implementation of the NPRAEP, is currently under the responsibility of the Mayor of Ulaanbaatar just confirms the capital-centred implementation of the pollution reduction policy, despite its objective related to decentralization. New specialized branches in *aimags* and municipalities need a lot of support and guidance.

The primary recommendation of the 2024 UNDP publication, *Investment Case for Air Pollution Reduction in Mongolia* is strengthening coordination among key stakeholders. The report notes that Mongolia has already committed to enhancing national coordination structures to better respond to the health impacts of pollution, through developing a national multi-sectoral action plan on pollution and health.

Regulatory, economic, fiscal and information measures

The regulatory framework related to air pollution remains a challenge. While emission standards exist, there are limited measures to penalize those who exceed them. This weak enforcement allows polluters to continue operating unchecked, jeopardizing public health and the environment.³⁸⁴ Recommendation 8.4 (b) of the First EPR of Mongolia aimed at the improvement of emissions control at the source, is not implemented and is still relevant.

³⁸³ Mongolia (2019a).

³⁸⁴ Ibid.

As a step forward, implementation of the newly established measures (i.e., the ban on the use of the raw coal) was closely monitored, and a punitive policy was created to discourage breaches. In 2019, the capital city's police department was overseeing the ban implementation from 36 elevated points in Ulaanbaatar as well as checkpoints at the entrances to the city. In the first month of implementation of the measure, some 188 violations were detected. Household offenders were fined 300,000 tugriks, while the fine for large businesses was 3 million tugriks.

On the other hand, the Government approves incentives based on the Law on Air for environmentally friendly and energy efficient dwellings, as well as for households using geothermal, solar, wind and other renewable energy. During the COVID-19 pandemic, the price of refined coal briquettes was reduced by 50 per cent to support low-income households.

Access to information on air quality was improved in the last decade. Although official air quality reports by NAMEM are published weekly, air quality index data are available to the public online, as well as an air quality forecast on the website. In accordance with Recommendation 8.5 of the First EPR of Mongolia, the methodology for calculating the Air Quality Index was changed in 2018. In 2022, NAMEM launched a mobile application to register sources of pollution across the country, but in September 2024, this application was not functional.

9.6 ASSESSMENT AND RECOMMENDATIONS

Assessment

During the last decade, air pollution became an extremely important issue in Mongolia, leading UNICEF and the WHO to declare a child health crisis in 2018. Awareness was raised among decision-makers but also among the public, mobilizing all relevant actors to engage in numerous activities and projects aimed at improvement of air quality. As a result of the measures taken, concentrations of PM have notably decreased, although they remain well above the levels recommended by WHO's global guidelines. While the comprehensive air protection policy has yielded some positive results in improving air quality, achieving concentrations in line with WHO Air Quality Guidelines is still not being addressed across all relevant sectors.

Despite several studies and analyses of Mongolia's air pollution situation, information on pollution sources remains incomplete, with some key sectors not fully considered. Emissions from the residential sector, particularly those related to household heating, are well elaborated and targeted through various policy documents, projects and measures. However, the contribution of energy production and industry sectors is insufficiently quantified, controlled and addressed. The development of an air emission inventory in combination with the GHG inventory, including short-lived climate pollutants, is a positive step forward and further integration of climate and air quality policies is advisable.

Air quality monitoring has advanced through the automation of monitoring stations but remains concentrated in Ulaanbaatar, where all modern automatic stations are located. Mongolia has also improved its air quality monitoring system by analysing the content of PM, observing desert dust and conducting air quality modelling. However, modern and reliable instruments for air quality monitoring are not yet deployed in other parts of the country, preventing the collection of comparable nationwide data and limiting the evidence base for further policy planning.

Pressures on air quality are increasing and expected to continue to rise unless appropriate measures are implemented in parallel with planned development actions.

Development of the legal framework is marked by the drafting of an environmental code. In addition, since 2017, apart from the National Programme on the Reduction of Air and Environmental Pollution 2017–2025, several policy documents have been developed under various donor-supported initiatives. Although many activities under the Programme are ongoing and delivering some results, there is a lack of reporting on implementation as well as some evident difficulties in the functioning of the National Committee on the Reduction of Environmental Pollution. Furthermore, during the 2019 VNR, a lack of coherence among policy documents was identified.

Contrary to decarbonization efforts in the energy sector, coal production and the capacities of coal-fired plants are growing and are projected to expand further. At the same time, the number of vehicles is growing faster than improvements in green infrastructure and fuel standards. Prescribed emission standards are not efficiently applied to control large emitters.

The National Committee on the Reduction of Environmental Pollution plays a key role in coordinating the implementation of the National Programme on the Reduction of Air and Environmental Pollution. However, the Committee is not responsible for reporting on the Programme's implementation. The Committee is currently chaired by the Mayor of Ulaanbaatar, which might contribute to the already centralized policy with a strong focus on the Capital City.

Recommendations

Inventory of air emissions

Recommendation 9.1:

The Government should ensure the development of an air emission inventory addressing all relevant pollutants and emission sectors and continue efforts to build capacities for its regular updating.

Improving the air quality monitoring network

Recommendation 9.2:

The Government should ensure reliable air quality monitoring with automatic monitoring stations country-wide.

Air protection policy

Recommendation 9.3:

The Government should ensure decentralization of the air protection policy.

National Committee on the Reduction of Environmental Pollution

Recommendation 9.4:

The Government should ensure the efficient functioning of the National Committee on the Reduction of Environmental Pollution.

CHAPTER 10

WATER MANAGEMENT

10.1 WATER RESOURCES

As per Mongolian legislation, water resources are categorized as public assets, and the term water encompasses both surface water and groundwater, including rivers, streams, springs, permafrost, ice, glaciers, natural and artificial lakes, and ponds within the country's jurisdiction.

Mongolia has a long-term average annual precipitation of 241 mm, unevenly distributed from the high mountain belt to the Gobi Desert.³⁸⁵ This distribution and infrequent rainfall, combined with significant evaporation rates exceeding 90 per cent³⁸⁶ and high outward flow in major rivers, results in limited water resources for the country. Water is abundant in the rural north but scarce or non-existent in the south. Mongolia is located at the confluence of three continental basins: the Northern Arctic Ocean Basin, responsible for approximately 50 per cent of Mongolia's total river runoff; the Pacific Ocean Basin, which accounts for around 10 per cent; and the Central Asian Internal Basin, which drains about 40 per cent of the total country river runoff.³⁸⁷ The Central Asian Internal Drainage basin is the largest one, with rivers supplying water to *aimags* located in the semi-desert and water-scarce area. The rivers in the western *aimags* flow internally to the Great Lakes Depression (Lake Uvs, Lake Khar, Lake Khar-Us and Lake Khyargas). The main river in the Northern Arctic Ocean Basin is the Selenge River. The Orkhon and Tuul rivers are the main tributaries that flow to Lake Baikal in the Russian Federation, while other rivers drain to the Arctic Ocean. In the Pacific Ocean Basin, the water flows to the east, forming the headwaters of the Amur River, which runs along the border between the Russian Federation and China, before ending in the Pacific Ocean. In northeastern Mongolia, the Khentii Mountain Range gives rise to the main river of this basin, the Onon River. The Northern Arctic Ocean Basin drains around 62.3 per cent of the water, while the Pacific Ocean Basin, drains only 15.2 per cent.³⁸⁸ Mongolia shares 243 transboundary water bodies and 29 river basins were identified within the country.³⁸⁹

Annual water resources were estimated at around 564.8 billion m³, distributed as 88.53 per cent in lakes, 6.13 per cent in rivers and streams, 3.44 per cent in ice and glaciers and 1.90 per cent in groundwater.³⁹⁰ For the period 2017–2021, only 34.8 billion m³ were considered renewable water resources, from which 26.4 billion m³ flowed out to neighbouring countries (i.e., 76 per cent of the annual renewable water resources). The country's average yearly internal renewable water resources per capita is 10,700 m³, with an annual average 2.0 per cent reduction from 2017 to 2021 (see Figure 10.1). This value is much higher than the usually used Falkenmark water stress indicator of 1,700 m³ per capita per year, mainly due to the low population density across the territory. Subsequently, the lowest availability per capita is found in the Northern Arctic Ocean Basin (8,800 m³ per capita per year), where the population is more concentrated. In the Pacific Ocean Basin and the Central Asian Internal Basin, the values are 19,000 m³ and 16,500 m³ per capita per year, respectively.³⁹¹

According to the surface water inventory, in 2020, out of 6,365 rivers and streams, 381 were dried up and 268 recovered. In that year, out of 13,222 springs, 116 were dried up and 84 recovered; of 584 mineral water sources, 5 were dried up and 15 recovered; and of 4,057 lakes and ponds, 180 were dried up and 107 recovered. In 2019, a total of 1,266 surface water sources dried up and 457 recovered.³⁹² The country's water resources distribution is displayed according to reporting basins (see Table 10.1).

³⁸⁵ FAO (AQUATSAT).

³⁸⁶ Batsukh (2022).

³⁸⁷ ADB (2020).

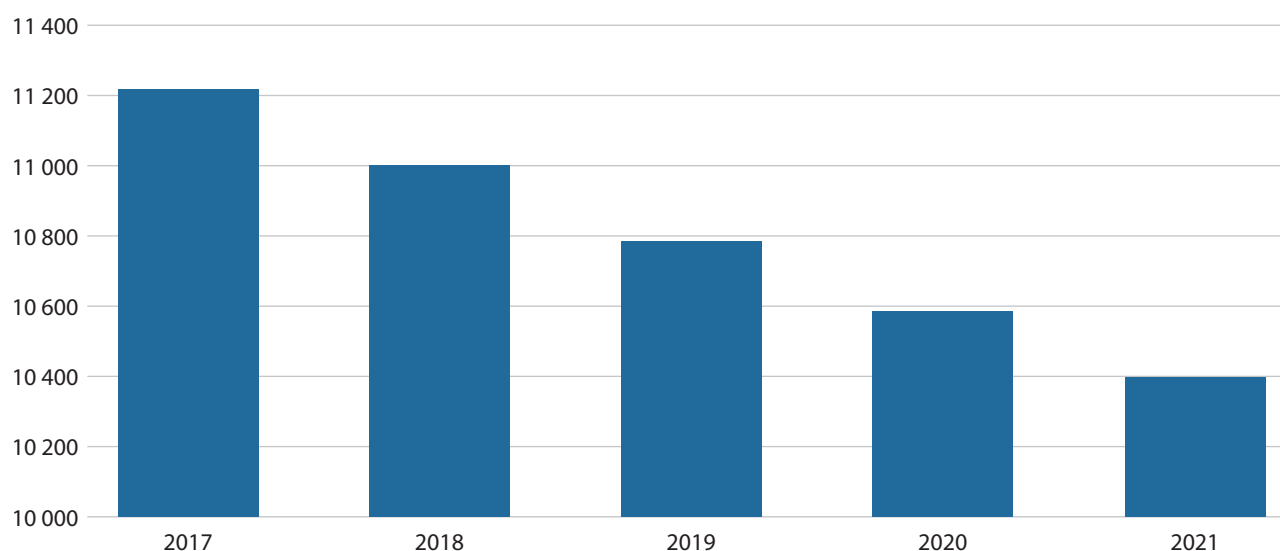
³⁸⁸ Ibid.

³⁸⁹ Mongolia (GeoDatabase).

³⁹⁰ Mongolia (2020), Tugjamba (2021).

³⁹¹ ADB (2020), FAO (AQUASTAT).

³⁹² Mongolia (2024).

Figure 10.1: Annual internal renewable water resources, 2017–2021, m³ per capita

Source: FAO (AQUATSAT). Accessed on 1 Oct. 2024.

Table 10.1: Water resources in the country, 2018–2023, number

Type	2018	2019	2020	2021	2022	2023
Inventoried basins	3	18	28	20	10	11
Rivers and streams	36	4 008	5 960	4 497	1 879	1 879
Springs	158	7 507	11 692	7 430	5 087	5 087
Lakes & surroundings	60	2 013	3 628	1 831	945	945
Thermal water springs (SPA)	5	271	453	289	149	147
Groundwater					12	16

Source: Ministry of Environment and Climate Change (Basin).

Groundwater

Groundwater supplies around 90 per cent of total water use in Mongolia, playing a pivotal role as it is the primary source of water use, particularly in the Southern Gobi Region.³⁹³ In the northern part of the country, shallow aquifers occur in highly permeable fluvial deposits rich in groundwater resources. In the Southern Gobi Region, groundwater presents little to zero recharge. In this region, precipitation water circulates in the upstream aquifers (0–20 m), and a limited portion (about 0.5 to 1.0 mm per year) may percolate to shallower aquifers (20–50 m) or even reach deeper aquifers (below 50 m). Less permeable deposits overlie the local deeper aquifers, which are (semi) confined and contain fossil water under pressure, i.e., groundwater aged between 1,000 and 35,000 years. The potential of groundwater is directly related to a selected number of years and an acceptable reduction in the groundwater level. In the Southern Gobi Region, a groundwater potential of 200 to 500 million m³ per year was identified for a 25–40-year period, with a projected 50–100 m reduction in the groundwater table.³⁹⁴ This figure may be overestimated, given the variations in rainfall and the low potential for aquifer recharge. The reachable groundwater resource is estimated to be 10.8 billion m³.³⁹⁵ Annually, considering the aquifer structure, the groundwater represents 6.1 billion m³ of renewable water resources in the country,³⁹⁶ from which 4 billion m³ overlap with surface waters.³⁹⁷ During winter, groundwater becomes the only available water source as Mongolian rivers and streams freeze during this period.³⁹⁸ From 2018 to 2023, the number of wells and boreholes inventoried in the country increased from 23,346 to 26,580.³⁹⁹

³⁹³ Fan (2023).

³⁹⁴ Tugjamba (2021).

³⁹⁵ Mongolia (2024).

³⁹⁶ Mongolian Water Governance.

³⁹⁷ FAO (AQUATSAT).

³⁹⁸ Tugjamba (2021).

³⁹⁹ Mongolia (Raw Data).

Photo 10.1: Ulaagchinii Khar Nuur Lake and National Park

Photo credit: yo camon/stock.adobe.com.

Surface water

Surface waters, including rivers, streams and lakes, cover approximately 0.67 per cent of the country. These water bodies are distributed asymmetrically, with perennial rivers (with a network density of 0.18 to 0.35 km/km²) being more prevalent in the northern part, while the dry southern part, particularly in the Southern Gobi region, has few perennial rivers with a network density below 0.05 km/km².⁴⁰⁰ Approximately 70 per cent of the surface waters are formed in the high regions of the Altai, Hangai and Hentii mountain ranges, the Hovsgol mountains and the Ih Hyangan mountain range, which only encompass around 30 per cent of the country's territory.⁴⁰¹

Surface water volume is mainly stored in lakes, where around 384 billion m³ is contained in Lake Khuvsgul,⁴⁰² which covers 68 per cent of the total water resources in the country. Freshwater and saline water lakes can be found in Mongolia, where the water contained in salt lakes is around 90 billion m³. The freshwater lakes have an outlet, and the water is renewed by inflow, while the salt lakes have no outlet. In the Altai, Khangai and Khentii mountainous regions 34 per cent of all Mongolian lakes can be found, while 66 per cent occur in plain steppe desert regions and 36.5 per cent in the Gobi region.⁴⁰³ There are around 262 glaciers in the country, with an estimated volume of 19.4 billion m³ of water resources.⁴⁰⁴ The largest rivers are the Kherlen (1,213 km), Orkhon (1,124 km), Selenge (1,095 km), Tuul (898 km) and Zavkhan (808 km) rivers.⁴⁰⁵ The Selenge, Orkhon and Kherlen present the largest basins, with catchment areas of 282,154 km², 131,106 km² and 107,040 km², respectively.⁴⁰⁶

An estimated 32.7 billion m³ of surface water is formed annually, accounting for 88.2 per cent of total renewable water resources.⁴⁰⁷ The river runoff exhibits significant annual variability and fluctuates seasonally, depending on the summer precipitation and melting water from the ice and snow in the mountains during winter. The inter-annual variability in river

⁴⁰⁰ Garmaev (2019), Mongolian Water Governance.

⁴⁰¹ Tugjamba (2021).

⁴⁰² Orkhonselenge (2022).

⁴⁰³ ADB (2020), Tugjamba (2021).

⁴⁰⁴ Mongolia (2024).

⁴⁰⁵ Ibid.

⁴⁰⁶ Mongolia (2013).

⁴⁰⁷ FAO (AQUATSAT).

flows, is high, with some rivers experiencing extended periods (from 5 to more than 10 years) above or below the long-term average flows (i.e., more than 20 years). The annual average runoff of rivers is estimated to be 34.6 billion m³. Of this amount, 30.6 billion m³ is formed within Mongolian territory and the remaining 4 billion m³ is formed in the neighbouring countries and flows through Mongolia. In the main rivers such as the Selenge, Orkhon, Kherlen, Onon, Bulgan, Hovd, Baidrag and Khalkh rivers, the annual runoff constitutes the main part of the river runoff.⁴⁰⁸ Due to its ecological importance, the environmental flow requirements in Mongolia are set high at 90 per cent to 95 per cent of the long-term average flows.⁴⁰⁹ Constructed dams store 0.25 billion m³, with an interannual variability of 2.6 and a seasonal variability of 2.9. In 2017, this stored water represented 80.7 m³ per capita. In 2023, this value was reduced to 74.7 m³ per capita.⁴¹⁰ Between 2018 and 2023, the number of fenced and protected surface water sources varied from 255 to 410, and 605 were recovered in 2023, with an average recovery of 502 sources per year between 2018 and 2023.⁴¹¹

The SDG indicator 6.6.1 for SDG target 6.6 (by 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes) tracks the extent to which different types of water-related ecosystems are changing in extent over time (in Mongolia, rivers, lakes and reservoirs). Since the indicator is multifaceted, multiple data layers are available, capturing data on different types of freshwater ecosystems and measuring spatial area changes, water quality and water quantity changes (see Table 10.2). Data are estimated based on the use of satellite-based Earth observations.⁴¹²

10.2 WATER QUALITY

The geological characteristics and anthropogenic uses of water and respective catchment areas, such as urbanization, industrialization, mining activities, livestock pasture and agriculture, affect the quality of water resources. In Mongolia, the assessment of water quality is conducted in accordance with national standards, which are presented in the form of technical requirements. These quality standards, which are legally binding as a result of government decisions, are applied to water resources (MNS 4586:1998), wastewater discharges (MNS 4943:2015), drinking water (MNS 0900:2018) and water reuse (MNS 6734:2018 and parts 1 to 4 of MNS ISO 16075). Furthermore, surface water is appraised in terms of a Water Quality Index (WQI), which is comprised of six categories: Very Dirty, Dirty, Polluted, Slightly Polluted, Clean and Very Clean. One of the main sources of pollution to water resources is the discharge of untreated or inadequately treated urban and industrial wastewater, particularly in the vicinity of Ulaanbaatar.

Table 10.2: Sub-indicator data of SDG indicator 6.6.1

<i>Time period</i>	<i>Sub-indicator</i>	<i>Percentage</i>	<i>Results</i>
2017–2021	River Flow Dynamics	39.00	1075.3 m ³ /s
2017–2021	Permanent Surface Water Extent Dynamics	-0.57	-78.8 km ²
2017–2021	Seasonal Surface Water Extent Dynamics	58.90	1150.9 km ²
2017–2021	Reservoir Extent Dynamics	73.00	20.8 km ²
2021	Water Quality of Large Lakes: Trophic State	7.14	2 out of 28 lakes affected
2021	Water Quality of Large Lakes: Turbidity	17.90	5 out of 28 lakes affected

Source: Fresh Ecosystems Explorer.

Groundwater

The groundwater in the Khangai–Khentii mountainous region exhibits a total dissolved solids (TDS) level between 100 and 800 mg/L, with infrequent exceptions above 1000 mg/L, and a water hardness of 4.5 mg/L, according to the prevailing geological conditions. In the Altai mountainous region, TDS values range from 510 to 810 mg/L and hardness is 4.5 to 5.2 mg/L, with the highest values found in the Gobi–Altai. The average values in the Mongolian Dornod steppe region are 950 mg/L for TDS, 5.6 mg/L for hardness and a high concentration of iron. In the Gobi region, the TDS ranges from 500

⁴⁰⁸ Mongolia (2024).

⁴⁰⁹ ADB (2020), Tugjamba (2021).

⁴¹⁰ FAO (AQUATSAT).

⁴¹¹ Mongolia (Raw Data).

⁴¹² Fresh Ecosystems Explorer.

to 1350 mg/L and the hardness varies from 3.4 to 7.0 mg/L. The shallow aquifers of this region also present high salinity due to low precipitation, high evaporation rates and flat surface morphology. In Dornod and Gobi, high values of fluoride are found in some wells (25 to 35 per cent of local governments).⁴¹³ The natural groundwater characteristics preclude the water from meeting the quality requirements for drinking purposes as set forth in the MNS 0900:2018 standard, as the hardness exceeds 7.0 mg/L and the fluoride concentration is above 0.7–1.0 mg/L. A study conducted in June 2023 in the Kherlen river basin revealed that 73 per cent of samples (in a total of 37) presented fluoride content within the range of 1.57 to 7.9 mg/L.⁴¹⁴

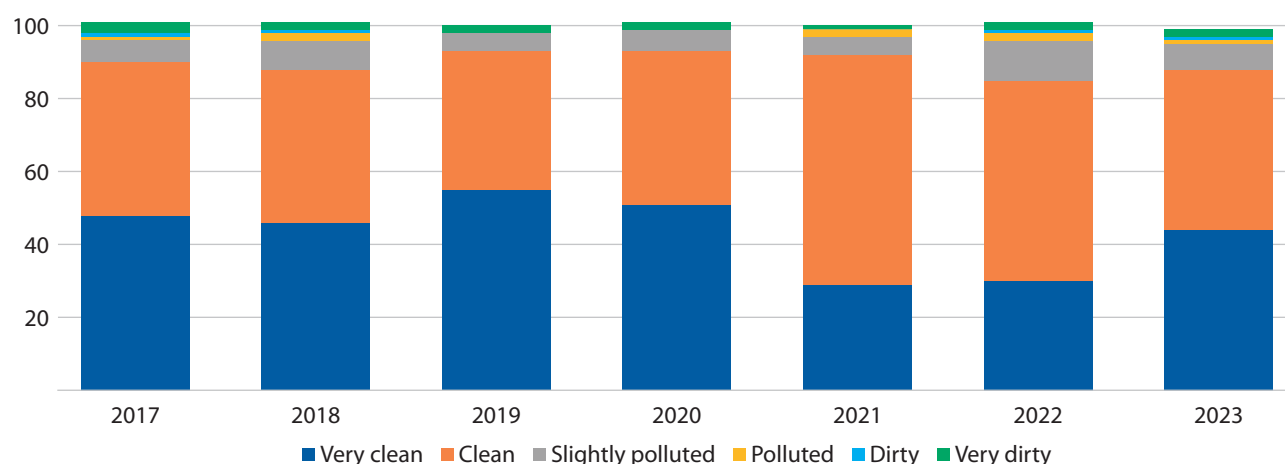
Nitrate

The data on nitrate concentrations in groundwater are limited. The study in the Kherlen river basin displayed an average of 62 mg/L NO_3^- , with 24.3 per cent of 37 samples exceeding the quality standard of 50 mg/L NO_3^- (from the MNS 0900:2018), while 2.7 per cent exceeded the quality requirements of the WHO (45 mg/L NO_3^-). The lowest concentration of nitrate found in the study was 1 mg/L, while the highest was 582.3 mg/L in the lower and middle parts of the basin, particularly in shallow wells. Another study published in 2018, with data from the preceding decade, projected future trends in groundwater quality in Ulaanbaatar, incorporating the hydrochemical characteristics of local groundwater. The water samples obtained from the *Ger* district exhibited nitrate values above 60 mg/L. Given that groundwater from the upslope area (*Ger* district) flows to the downslope city centre and towards the Tuul River through an alluvial aquifer, and in light of the deficiencies in the sewage collection and wastewater treatment observed in this area, there is a possibility that nitrates from anthropogenic sources may be transported downstream.⁴¹⁵

Surface water: rivers, lakes, reservoirs

The results from the monitoring programme conducted by NAMEM in 194 locations are expressed according to the WQI (see Figure 10.2). From 2017 to 2023, 22.3 per cent and 24.0 per cent of surface waters were classified as Very Clean and Clean, while 1.0 per cent were classified as Very Dirty.

Figure 10.2: Water Quality Index (nationwide), 2017–2023, percentage



Source: NAMEM, 2024.

According to the data for the 2017–2023 period for 10 monitoring sites (Tuul-Zaisan, Tuul-Songino, Selenge-Sukhbaatar, Orkhon Sukhbaatar, Khangal-Erdenet, Kharaa-Darkhan, Delgermurun-Murun, Tamir-Tsetserleg and Kherlen-Choibalsan), no discernible trend in nitrate pollution was observed. The average values for nitrates at all sites fell below 3.0 mg/L (i.e., below the standard value of 9 mg/L, from MNS 4586:1998). Pollution trends were observed in downstream urban areas. The Tuul-Songino site (downstream of Ulaanbaatar) exhibited the highest number of exceedances, specifically for biochemical oxygen demand (BOD_5), ammonia (NH_4^+) and phosphates (PO_4^{2-}). For these parameters, all the results from 2017 to 2023 surpassed the requirements of the MNS 4586:1998.⁴¹⁶ The mean values for the seven-year period were 76.2 mg/L O_2 for BOD_5 , 12.7 mg/L for NH_4^+ and 0.79 mg/L for PO_4^{2-} . The Khangal-Erdenet location also demonstrated a consistent pattern of

⁴¹³ Tugjamba (2021).

⁴¹⁴ Enkhjargal (2023).

⁴¹⁵ Batsaikhan (2018).

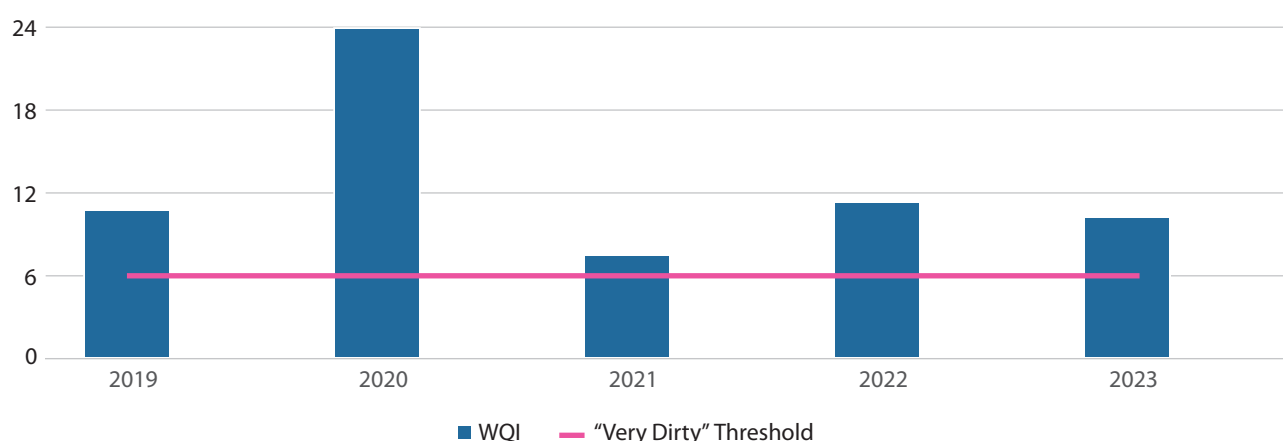
⁴¹⁶ Standard values: $\text{BOD}_5 \leq 3.0$ mg/L O_2 , $\text{NH}_4^+ \leq 0.5$ mg/L and $\text{PO}_4^{2-} \leq 0.1$ mg/L.

non-compliance in the ammonia levels. However, there was a noticeable decline in these levels, from 4.16 mg/L in 2017 to 0.58 mg/L in 2023. This monitoring site also observed other phosphate and BOD₅ exceedances, while other sites presented smaller exceedances, such as at Tamir-Tsetserleg. The water quality in the vicinity of Ulaanbaatar exhibits considerable variation, ranging from Clean in the upstream region to Very Dirty in the downstream area following the discharge of the Ulaanbaatar Central Wastewater Treatment Plant (WWTP). Pollution levels exhibit seasonal variation, with higher values observed during the warmer months. In 2021 and 2022, high levels of BOD₅ were measured in the river (150.1 and 181.7 mg/L O₂, respectively) following the discharge of Ulaanbaatar Central WWTP.⁴¹⁷

Biological status

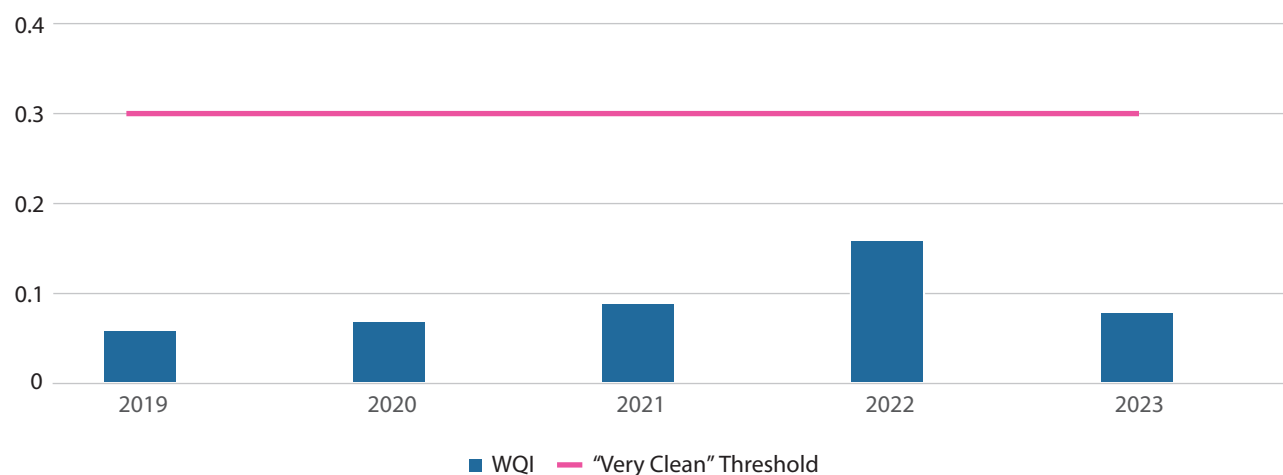
The assessment of the water quality is supported by the MNS 4586:1998, which delineates indicators and corresponding requirements for environmental water quality, thereby ensuring ecosystem balance. The standard considers a range of physical-chemical support parameters (such as dissolved oxygen, biochemical oxygen demand, oxidation to permanganate, ammonia, or phosphates) and natural mineralization. However, biological elements are not evaluated. The water classification index defines the potential uses of the water and its biological quality. The water can be classified as Very Clean or Very Dirty, with the former indicating a high biological status and the latter a low biological capacity.⁴¹⁸ The monitoring site Tuul-Songino (in Ulaanbaatar, after the discharge point of Ulaanbaatar Central WWTP) from 2019 to 2023 was consistently classified as Very Dirty (see Figure 10.3). In contrast, the water in the Khatgal-Khuvsgul monitoring site (near the Lake Khuvsgul area) was always classified as Very Clean during the same period (see Figure 10.4).

Figure 10.3: Water Quality Index for Tuul-Songino monitoring site, 2019–2023



Source: NAMEM, 2024.

Figure 10.4: Water Quality Index for Khatgal-Khuvsgul monitoring site, 2019–2023



Source: NAMEM, 2024.

⁴¹⁷ Mongolia (Water Monitoring).

⁴¹⁸ Daariimaa (2021).

A health basin report card was devised and implemented to assess the ecosystem status in the Tuul River basin. This procedure evaluated the ecological conditions and identified critical threats to ecosystems regarding water quality and quantity. For this basin, the river was classified with a B- (64 per cent), i.e., good, with the upper part of the basin presenting a grade A (100 per cent, excellent). In the specific case of Lake Khuvsgul, due to its importance and increasing volume of tourism along its shore, a dedicated monitoring programme was conducted from 2017 to 2019, including ecological assessment (monitoring of water quality with biotic indices). The results revealed some pollution areas along the lake shore. Another parameter evaluated was ammonia (NH_4^+) due to its importance for supporting the biological status. The results also illustrate its detection along the Lake shore, nearby anthropogenic sources (e.g., tourist camps, holiday homes and herder households).⁴¹⁹

Drinking water quality

Drinking water quality is assessed in accordance with the standard MNS 0900:2018. The routine quality requirements include microbiological indicators (total viable count, *Escherichia coli*), chemical parameters (ammonia, nitrates, nitrites, free residual chlorine) and physical parameters (turbidity, pH, colour and conductivity). The control of the supply system includes other indicators to be analysed with lower frequency, such as bacteria, virus and protozoa indicators and other chemical parameters, like heavy metals. The sampling procedures, frequency and analytical methodologies are outlined in the standard.

Physico-chemical and microbiological parameters

Groundwater is the main source for drinking water and household supply and, subsequently, is highly influenced by the hydrogeological conditions of the water abstraction sites. The hardness and the TDS levels are the main constraints in terms of compliance with the quality standards requirements.⁴²⁰ The location of latrines or the disposal of untreated sewage can contribute to some microbiological contamination in some wells. In 2020, it was estimated that over 100 of the 330 local governments exhibited groundwater quality below the standards required for drinking water.⁴²¹ In some wells supplying decentralized systems in Ulaanbaatar province, uranium and iron were identified in 2020. However, the microbiological analysis for total coliforms, faecal coliforms, *Escherichia coli* and *Clostridium perfringens* typically did not yield positive results. In 2023, the quality of the drinking water distributed through the centralized system of Ulaanbaatar was found to comply with the requirements set out in the MNS 0900:2018 standard.⁴²²

Impact on environment and human health

The quality of water, both in surface and groundwater, is predominantly influenced by natural hydrogeological conditions. The impact of anthropogenic activities on the quality of water resources is, at most, limited. However, some water pollution has been detected at the local level, downstream of urban and mining areas, such as in Ulaanbaatar, or in Zaamar soum of Tuv *aimag* and Buregkhangai soum of Bulgan *aimag* due to the lack of a central wastewater treatment facility and the presence of mining activities.⁴²³ In general, the major sources of pollution are related to domestic, livestock-related, industrial sewage and mining activities.⁴²⁴ Eutrophication is limited due to typical low temperatures and low nutrient content, which decrease the biological productivity in surface water. Natural flow decreasing or interruption due to winter conditions does not influence natural ecosystem development. The geological characteristics in certain areas promote the existence of high levels of dissolved salts in groundwaters (such as sulphates, magnesium, sodium and others) or the occurrence of trace elements (e.g., uranium, arsenic, iron) limiting its quality for drinking purposes. According to the Law on Water, a special protected zone must be established at least 50 m from the bank of water storage and at the river floodplain to protect water supply sources. In 2023, 410 surface water sources were inventoried as fenced and protected, and a total area of 352,805 ha of integrated inland watershed was under special protection.⁴²⁵

⁴¹⁹ ADB (2020a).

⁴²⁰ Mongolia (Mongolia Drinking Water Quality Database).

⁴²¹ Fan (2020).

⁴²² Water Supply and Sewerage Authority of Ulaanbaatar (Water Quality Information).

⁴²³ Tuul River Basin Authority (2019).

⁴²⁴ ADB (2020).

⁴²⁵ Mongolia (Basin).

10.3 WATER SUPPLY AND DEMAND

The Integrated Water Management Plan (IWMP) envisioned three scenarios for water demand in 2021, considering low, medium and high development. These values were 478.9 million m³, 662.4 million m³ and 910.6 million m³, respectively. Since 2018, the annual water volumes used per activity have been publicly available, and, in 2021, the annual volume of water used was 578.3 million m³.⁴²⁶

Current situation and trends

The water demand in 2030 for Ulaanbaatar is predicted to be between 123.8 million m³ and 212 million m³ per year, according to low and high development scenarios.⁴²⁷ In 2023, the average water distribution in the city was 180,000 m³ per day. From 2026, the city's water supply is expected to be increased by 50 million m³ per year.⁴²⁸ In Ulaanbaatar, the daily water consumption per capita in urban areas connected to the centralized water supply system is around 150 L/d. According to USUG, the improvements in the supply system (through the use of 331 smart water kiosks available 24h/7d) aim to increase the consumption at the Ger district, estimated at around 8–9 L/d per capita for 2017–2024.

The increase in mining and heavy industrial activities in the South Gobi, particularly in the Tavan Tolgoi and Oyu Tolgoi regions, is expected to increase the water demand. The water resources in this area totalled 38.8 million m³ in 2019, with a consumption of 24.5 million m³. According to the projections for a medium growth scenario for 2040–2050, the demand for the Tavan Tolgoi and Oyu Tolgoi regions will increase to 46.1 million m³, while the availability should remain at 38.8 million m³. Multiple water sources were envisioned to meet the increasing demand, since groundwater is still the primary resource in the South Gobi area. The supply through surface waters is expected to be achieved by the construction of dams and reservoirs on large rivers with water transfers to increase water regulation and availability in the Gobi region. Other water sources include possible water recovery in mining and industrial activities (such as the volumes from the dewatering processes) and reuse and recycling of water from wastewater.⁴²⁹ Along the country, 330 ponds are being proposed to increase water resilience, aiming to ensure one reservoir per soum.⁴³⁰

Recommendation 9.2 (a) from the First EPR of Mongolia on developing an action plan to shift from groundwater to the use of surface water resources for various purposes and ensuring the development and financing of water infrastructure to accumulate water resources and provide all sectors with water is partially implemented and in progress. Several actions are scheduled for future years under the Vision 2050 Long-term Development Policy.⁴³¹ However, constraints were identified, since some of the envisioned actions may put at risk the ecological flows and subsequently the ecosystem maintenance of important water bodies, within and outside the country. To promote this shift and provide guaranteed drinking water to the population, irrigate pastures and increase water supply in the Gobi region, a project known as Blue Horse proposes the construction of multipurpose dams, including hydropower, in 33 potential locations for reservoirs on 12 rivers to increase the availability of surface waters across the country.⁴³² However, the full implementation of the project was revealed to be costly and not affordable in its entirety. Additionally, the interruption or deviation of flows, particularly in major rivers, could increase the pressure on ecosystems by the changes in ecological flows.

Recommendation 9.2 (c) of the First EPR of Mongolia proposed the development and implementation of aquifer recharge schemes in urban areas and relevant regions of the Gobi Desert. This recommendation was partially implemented since only pilot projects were developed. Up to the end of 2023, three pilot studies were conducted in different sites (Baganuur in the Kherlen River Basin, Mogod in the Orkhon-Chuluut River Basin and Gurvantes in the Altain Uvur Gobi River Basin), where Baganuur was the only pilot showing potential for managed aquifer recharge to augment groundwater resources.⁴³³

As for SDG indicator 6.4.1 of target 6.4 (by 2030, substantially increase water use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity), according to the SDG Indicators database, the water use efficiency, during the period 2018 to 2021, slightly increased from 22.7 US\$/m³ to 23.0 US\$/m³. However, the highest value (24.1 US\$/m³) was noticed in 2019,

⁴²⁶ Mongolia (Raw Data).

⁴²⁷ Fan (2020).

⁴²⁸ Millennium Challenge Account – Mongolia.

⁴²⁹ Dolgorsuren (2020).

⁴³⁰ Batbayar (2024).

⁴³¹ Mongolia (2020).

⁴³² Dolgorsuren (2020).

⁴³³ Fan (2023).

starting to decrease thereafter.⁴³⁴ Concerning the SDG indicator 6.4.2 (volume of freshwater withdrawal as a proportion of available freshwater resources, measuring the water stress levels), the water stress level is still low and stable, presenting a value of 3.4 per cent from 2017 to 2021, which is explained by the high value for the annual country's internal renewable water resources per capita (above 10,000 m³ per capita).⁴³⁵

10.4 PERFORMANCE AND GAPS IN WATER MONITORING NETWORKS

NAMEM monitors surface water and wastewater quality. From 2017 to 2023, the network included 194 sites, encompassing rivers and 19 lakes for quality evaluation. The hydrometric stations provide data on river flows, which are used for agricultural purposes and flood prediction. Short- and long-term assessments are conducted based on information from 20 and 30 sites, respectively. The ongoing groundwater monitoring includes 273 wells for observational and abstraction purposes and is promoted by the Ministry of Environment and Climate Change, water suppliers and mining companies. Universities or research bodies collect other data (quantity and/or quality in a discontinuous mode for research activities).

Groundwater

At the national level, 273 monitoring points cover 19 aquifers in 22 *aimags*, covering 19 river basins, with some monitoring being intensified in some areas due to the increase of mining activities and water abstraction.⁴³⁶ Recommendation 9.3 of the First EPR of Mongolia to increase the number of groundwater monitoring system logger points (boreholes) to improve water quality and usage and prevent the lowering of the groundwater levels can be considered as implemented. The number of monitoring points has increased (from 193 to 273), despite data on groundwater quality assessment, data is not usually accessible due to location confidentiality reasons. To decrease the uncertainty associated with these data, a groundwater dashboard with restricted access was developed through international cooperation to support authorities responsible for water supply and water resources management in the decision-making process. The dashboard intends to allow users to track the historical water level trend alongside predicted changes.⁴³⁷ The continuous increase in water demand requires strengthening the monitoring network for groundwater and ensuring robust and reliable data validation processes, foreseeing its holistic assessment to support authorities.

Surface water

At the nationwide level, 194 locations, including rivers and 19 lakes, are monitored according to the requirements of the standard MNS 4586:1998 for quality. Additional hydrometric data, such as river flows, are collected to determine physical conditions. NAMEM uses the monitoring data to evaluate compliance with the six-level quality index. Additionally, these data are sent to the Water Agency and river basin authorities for management and planning. Despite the increase in the capacity of laboratories at the national and provincial levels, not all sub-catchments are monitored, and some relevant parameters (e.g., heavy metals or organic substances, like oil hydrocarbons are not routinely/often controlled, leading to lack of data. On the other hand, quality and quantity results on surface waters are dispersed and not easily accessible, which may cause discrepancies between the several available sources of information.

Drinking water

The drinking water quality database identifies 707 wells in Mongolia for drinking water purposes, and monitoring is performed on some of them by the Institute of Geography and GeoEcology.⁴³⁸ Water suppliers like the USUG must adhere to monitoring programmes for wells and distribution systems as per MNS 0900:2018. This standard sets out the minimum sampling frequency and parameters. Additionally, water safety plans, in line with WHO guidelines, are required to guarantee water safety. For Ulaanbaatar, the quality monitoring data are publicly available on the USUG website in report format. Despite all parties involved being responsible for complying with the procedures of the water safety plans, the quality data reported may not always reflect the water quality supplied to the final consumer, due to in-house storage (particularly in areas without connection to the water supply system) or since different contracted companies operate to transport and distribute water for enterprises and households.

⁴³⁴ UN-Water SDG 6 Data Portal (Mongolia).

⁴³⁵ FAO (AQUATSAT).

⁴³⁶ World Bank (2021)

⁴³⁷ Ibid.

⁴³⁸ Mongolia (Mongolia Drinking Water Quality Database).

According to the 2023 UNICEF survey, 21.5 per cent of people in the country were being supplied by a water source that presented faecal contamination (due to the presence of *Escherichia coli*), where 17.7 per cent were in urban areas and 32.6 per cent were in rural areas. The higher percentage of people being supplied by a contaminated source was found in the Western region (40.4 per cent) and the lowest percentage (13.8 per cent) was in the Khangai and Eastern regions.⁴³⁹ As for the SDG indicator 3.9.2 of SDG target 3.9, the mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (WASH) in Mongolia, expressed in number of deaths per 100,000 population, was estimated at 3.2 for 2019.⁴⁴⁰

10.5 MANAGEMENT OF WATER USE, DEVELOPMENTS IN INFRASTRUCTURE, PRESSURES ON WATER RESOURCES, AND PREVENTION OF POLLUTION

Between 2019 and 2024, an average of 621.0 million m³ of water was used, with the highest consumption recorded in 2023 at 679 million m³. To increase water availability for public supply, a new groundwater wellfield is being developed near Ulaanbaatar, involving the construction of 30 wells, pumping stations and 55 km of transmission pipelines. Additionally, an advanced water purification plant is being constructed to treat the groundwater from the new wells.⁴⁴¹ Water reuse is described in Box 10.1.

Box 10.1: Water reuse

The increasing water demand in urban and industrial areas is straining water resources, particularly groundwater, which accounts for about 90 per cent¹⁾ of all water used for various purposes such as domestic, commercial, agricultural and industrial uses. To ensure long-term sustainability in the water sector, several water recycling and reuse projects were implemented during the 2017–2024 period or are being planned for the coming years. The Action Programme for 2016–2020 sets a goal to enable the use of reclaimed water. Currently, the use of recycled water for industrial purposes is in progress. Standards such as the technical requirements MNS 6734: 2018 or the parts 1 to 4 of MNS ISO 16075²⁾ have been approved and are being enforced.

In the urban cycle, an agreement Millennium Challenge Compact (MCC) was reached between the Millennium Challenge Corporation (representing the United States of America) and the Government of Mongolia. Under the MCC, a Water Recycling Plant is currently under construction and is expected to become operational in 2026. This plant will refine the treated wastewater from the new Ulaanbaatar Central WWTP and deliver it to two combined heat and power plants (CHPP 3 & 4). The project also includes the construction of a conveyance system from the WWTP to the CHPP. This project is expected to reduce groundwater abstraction by 18 million m³ per year, compared with the previous volumes of 2017–2024.²⁾ The reduction in current groundwater volumes will help replenish this resource, preserving it for essential uses such as drinking water in the future. At the industrial level, a well-known beverage company in Ulaanbaatar has a wastewater treatment facility that produces reclaimed water for a variety of on-site and off-site purposes. The wastewater from production, including domestic wastewater from factory toilets, undergoes a treatment process that involves a biological system, followed by a membrane bioreactor and ultraviolet disinfection. In 2023, around 180,000 m³ of wastewater was treated, with five per cent used for irrigation of urban green areas, road dust control and cleaning, internal small-truck company washing, external car-washing and a concrete factory. The remaining 95 per cent is still being discharged into the sewers and then re-treated unnecessarily at the existing Ulaanbaatar Central Wastewater Treatment Plant. The company is currently exploring the possibility of redirecting the wastewater to a nearby CHPP, with the potential to save an additional 166,000 m³ of groundwater abstraction.³⁾

In both water reclamation examples and potential future projects, it is essential to minimize groundwater extraction by ensuring that the industry (e.g. CHPP) predominantly utilizes recycled water instead of freshwater resources. This objective could be advanced through the implementation of a legally binding procedure that mandates the use of reclaimed water when it is available. Some water reuse schemes are already in place in the mining sector to meet the growing water demand, particularly in the South Gobi (Tavan Tolgoi and Oyu Tolgoi). One established practice involves reusing water from mine dewatering, extracted during coal and copper mining to facilitate efficient extraction. The water resulting from this process can be stored and is typically used for dust suppression and/or irrigation. In 2019, 700,000 m³ of water from dewatering was reused. Some domestic wastewater treatment facilities located in the same vicinity have undergone enhancements and are presently facilitating the supply of water for reuse initiatives within the mining sector, primarily for dust control. In 2019, five domestic wastewater treatment plants in Oyu Tolgoi contributed 470,000 m³ of reclaimed water for such purposes. Other WWTPs can be upgraded to increase their capacity. The growing mine production is projected to increase the water supply through dewatering. This, combined with water efficiency measures such as using technology that requires less water, implementing best practices for water use in dust control, and improving the quality of treated wastewater to enable its reuse, could play a significant role in bridging the gap in water demand in this region.⁴⁾

In Mongolia, water reuse can be pivotal in the urban and industrial water cycle. Nevertheless, no risk management practices are currently in place to guarantee the safety of human health and the environment. Subsequently, further efforts are required to ensure that the industry uses this water source (when available) for non-potable applications and promotes its management through a risk-based approach, thereby ensuring the safe use of reclaimed water. Another option that can be explored is the harvesting of rainwater (from roofs) in urban areas for non-potable uses.

Sources: ¹⁾ Fan (2023). ²⁾ Millennium Challenge Account – Mongolia. ³⁾ MCS (2023). ⁴⁾ Dolgorsuren (2020).

Notes: ⁴⁾ Guidelines for treated wastewater use for irrigation projects (Part 1: The basis of a reuse project for irrigation; Part 2: Development of the project, Part 3: Components of a reuse project for irrigation, Part 4: Monitoring).

⁴³⁹ NSO (2023).

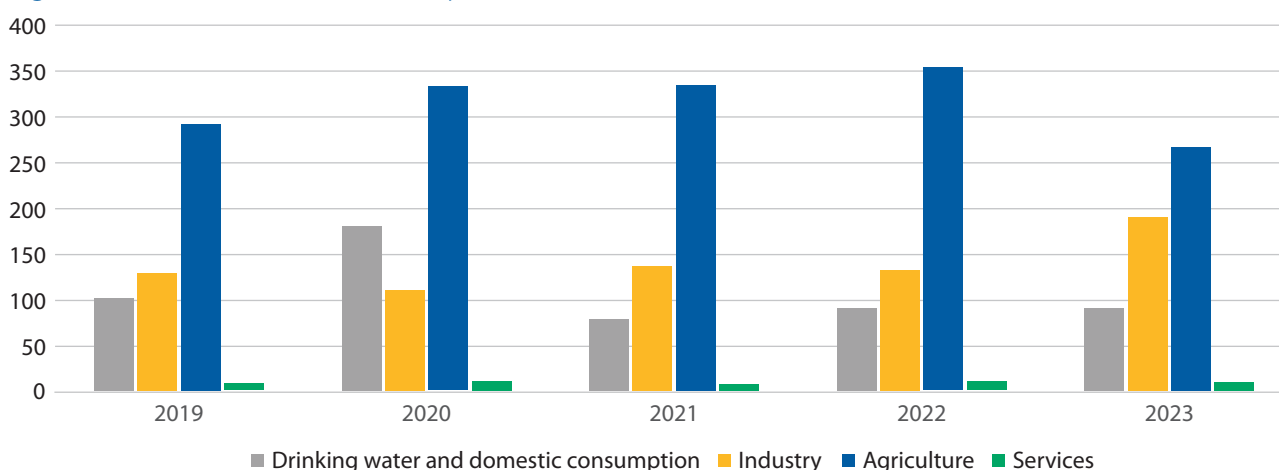
⁴⁴⁰ UN DESA Statistics (SDG Indicators Database).

⁴⁴¹ Millennium Challenge Account – Mongolia.

Water abstraction and use by sector

Drinking water and domestic supply represent an average of 19.0 per cent of the water consumption for 2019–2023, while the primary consumptive sector was agriculture, accounting for an average of 54.4 per cent of total water usage, followed by the industry with 24.4 per cent of the total water used (mining, processing industry, energy production and construction industry). The services accounted for 2.1 per cent (see Figure 10.5).⁴⁴²

Figure 10.5: Volumes of water used by sectors, 2019–2023, thousand m³



Source: Water Agency, 2024.

Industry and mining

From 2019 to 2024, the average water use in the industry was 33.3 million m³ per year. During this period, water usage decreased from 58 million m³ to 31 million m³ (see Table 10.3). In the mining sector, the water use decreased from million 159 m³ in 2019 to 98 million m³ in 2024. Main industrial wastewaters arise from tanneries, the textile industry, the mining sector and the beverage industry. In the urban areas, industrial wastewater must be pre-treated and discharged into the sewers and finally treated in the central urban WWTPs, in accordance with the standard MNS 6561:2015.

Table 10.3: Water used, 2019–2024, million m³

	2019	2020	2021	2022	2023	2024
Agriculture	324	337	338	339	353	351
Energy	45	46	46	41	40	13
Household	89	88	86	84	83	83
Industry, service	58	35	42	16	18	31
Mining	159	171	92	113	95	98
Total	578	591	595	606	679	677

Source: Water Agency, 2024.

In the Southern Gobi region, the water demand for mining and related activities is expected to increase due to mining expansion. In 2019, this sector consumed 19.2 million m³ of water. The water demand was estimated considering several growth scenarios for mining and copper smelter, where at the upper limit it may reach 59.0 million m³ in 2050, if no measures to reduce freshwater consumption are considered, with mining representing 85.0 per cent of total water consumption.⁴⁴³

Agriculture, including irrigation

In the period 2019–2024, the average water used in was 340.3 million m³ (see Table 10.3). The amount of water increased by 8.33 per cent in the same period. The highest number of irrigation systems registered was in 2020, when data for 28 basins

⁴⁴² Water Agency (Water).

⁴⁴³ Dolgorsuren (2020).

were reported (see Table 10.4).⁴⁴⁴ Irrigation accounted for an average of 30 per cent and livestock for 24 per cent of the total water demand.⁴⁴⁵ In the Southern Gobi region (Umnugobi *aimag*), considering the characteristics of the area, in 2019, the highest pressure on the water consumption was from livestock (3.61 million m³ per year), while irrigation only consumed 0.89 million m³ per year.⁴⁴⁶ According to the FAO, the water available in reservoirs (dams) has decreased from 80.7 m³ per capita in 2017 to 74.7 m³ per capita in 2021.⁴⁴⁷

Table 10.4: Irrigation systems, 2018–2023, number

	2018	2019	2020	2021	2022	2023
Inventoried basins	3	18	28	20	10	11
Irrigation systems	0	115	167	76	44	20

Source: Water Agency, 2024.

Energy, including hydropower plants and reservoirs

The water demand for energy production decreased in the period 2019–2024 from 45 million m³ to 13 million m³. The water demand depends on the need for producing steam and cooling water in power plants. The annual volume of water estimated to be used in industrial power plants in the Nyalga Shivee Ovoo is 55.3 million m³ in 2030 and 57.6 million m³ in 2040.⁴⁴⁸

Transport

Mongolia has around 580 km of waterways, of which Lake Khuvsgul is the most used. In 2023, there were 172 registered watercraft (107 of which were in Khuvsgul), including 3 medium, 126 small and 43 tiny watercrafts.⁴⁴⁹ From 2019 to 2023, the passenger turnover, expressed in millions of passengers per kilometre, increased from 0.2 to 1.5.⁴⁵⁰

Households

The potable water supply is mainly sourced from groundwater, accounting for approximately 99 per cent.⁴⁵¹ From 2019 to 2024, domestic water consumption decreased from 89 million m³ in 2019 to 83 million m³ in 2024. For the same period, the average consumption was about 32.8 L/d per capita,⁴⁵² which is highly influenced by the water supplied by kiosks, where the consumption is less than 10 L/d.⁴⁵³ According to official statistics,⁴⁵⁴ in 2023, 645,568 households used a manual water supply: households where water is manually carried or who fetch drinking water from water supply stations, water-tank trucks and carts, springs, rivers, or streams. In 2020, 29.3 per cent of households had access to a central or individual water supply system, while 42.2 per cent were served by protected wells.⁴⁵⁵ The 2023 UNICEF survey revealed that 93.0 per cent of household members have access to improved drinking water sources, with 99.0 per cent in urban areas and 75.0 per cent in rural areas. When considering access through either premises (in the dwelling/yard/plot) or within 30 minutes of round-trip collection time, 97.6 per cent of the household members in urban areas and 70.4 per cent in rural areas (90.6 per cent in total) use improved drinking water sources.⁴⁵⁶ According to USUG and the Water Services Regulatory Commission, chlorination is the usual treatment for drinking water and domestic use. The 2023 UNICEF survey revealed that 37.5 per cent of people were using drinking water with faecal contamination (*Escherichia coli*), 32.2 per cent in urban areas and 53.6 per cent in rural areas. The higher percentage of people with contaminated water at the point of use was found in the Western region (see Table 10.5).

⁴⁴⁴ Water Agency (Water).

⁴⁴⁵ Fan (2020).

⁴⁴⁶ Dolgorsuren (2020).

⁴⁴⁷ FAO (AQUATSAT).

⁴⁴⁸ Fan (2020).

⁴⁴⁹ Mongolia Maritime Administration (Inland Waterway Transportation).

⁴⁵⁰ NSO (2024).

⁴⁵¹ Fan (2020).

⁴⁵² NSO (2024), Water Agency (Water).

⁴⁵³ ADB (2020).

⁴⁵⁴ NSO (2024).

⁴⁵⁵ Mongolia (Raw Data).

⁴⁵⁶ NSO (2023).

In general, women are considered responsible for household related water use and men for herding or small business water uses, whereas in reality women are also involved in these productive uses of water. Despite women's roles in household water management, they are under-represented at higher levels of water management. In general, women are not well represented in higher levels of government. Women are more likely to have roles in science and technological fields, related to water management, than in decision-making.⁴⁵⁷

Table 10.5: Drinking water at the point of use

<i>Regions</i>	<i>Percentage</i>
Urban	32.0
Rural	53.6
Western	61.5
Khangai	32.2
Central	48.6
Eastern	29.1
Ulaanbaatar	29.6

Source: Water Agency, 2024.

Concerning SDG target 1.4, access to basic services measured by SDG indicator 1.4.1, the proportion of the population using basic drinking water services, according to estimated data, increased from 80.1 per cent in 2017 (92.8 per cent in urban and 52.5 per cent in rural areas) to 83.5 per cent in 2022 (94.2 per cent in urban and 59.7 per cent in rural areas). The country will not be able to achieve the target by maintaining this increasing rate, as the expected value will be around 89 per cent in 2030. For SDG indicator 6.1.1, the proportion of population using safely managed drinking water services is estimated to have increased from 34.7 per cent (9.17 per cent in rural areas and 46.5 per cent in urban areas) in 2017 to 39.3 per cent in 2022 (12.7 per cent in rural areas and 51.3 per cent in urban areas).⁴⁵⁸ In the same period, the proportion of the population using an improved drinking water source increased from 87 per cent to 91 per cent. Despite these estimated data, they are aligned with the 2023 UNICEF survey results for access to improved water sources. In 2022, around 1 per cent of the population in urban and 12 per cent in rural areas had access to unimproved drinking water.⁴⁵⁹ In the Sustainable Development Vision 2030, Mongolia sets the target for the 2030 horizon to supply 90 per cent of the population with safe drinking water. The programme has been updated for the Vision 2050 Long-term Development Policy, projecting a target of 85 per cent in 2025, 87 per cent in 2030 and 90 per cent in 2050. At the described rate of improvement, in 2030, SDG indicator 6.1.1 of SDG target 6.1 (by 2030, achieve universal and equitable access to safe and affordable drinking water for all) will score less than 50 per cent and in 2050, less than 70 per cent. Subsequently, SDG target 6.1 is not localized to address urban-rural and regional disparities.⁴⁶⁰

The total number of WWTPs running in Mongolia is unclear. According to statistical data, the highest number of treatment facilities registered was 85 in 2020 (data from 28 reported basins).⁴⁶¹ According to InvestMongolia data, there are 86 domestic and 29 industrial WWTPs.⁴⁶² The largest plant in the country is the Ulaanbaatar Central WWTP, which is treating around 170,000 m³/d and during storm events, the hydraulic load may reach 230,000 m³.⁴⁶³ Performance data in terms of removal of biodegradable organic matter, from 2021 to 2023, varied from 20.5 per cent to 87 per cent, with an average of 59.9 per cent.⁴⁶⁴ According to USUG, the major constraints to the treatment capacity result from industrial wastewater discharge: namely, one central industrial WWTP that collects sewage from 20 industries, mainly tanneries. To face these limitations, a new WWTP is under construction that will replace the existing one and is expected to start running in 2025. The new Ulaanbaatar Central WWTP will treat 250,000 m³ daily, using the latest technology and is expected to perform well enough to comply with national discharge standards.

⁴⁵⁷ Dolgorsuren (2020).

⁴⁵⁸ Ibid.

⁴⁵⁹ UN-Water SDG 6 Data Portal (Mongolia). UN DESA Statistics (SDG Indicators Database).

⁴⁶⁰ Mongolia (2020). UN-Water SDG 6 Data Portal (Mongolia). UN DESA Statistics (SDG Indicators Database).

⁴⁶¹ Water Agency (Water).

⁴⁶² InvestMongolia (Infrastructure and Utilities).

⁴⁶³ Nyamjav (2023).

⁴⁶⁴ Mongolia (Water Monitoring).

The 2023 UNICEF survey demonstrated that 93.2 per cent of household members use improved sanitation facilities (91.1 per cent in urban areas and 75.6 per cent in rural areas). The distribution per region is as follows: 79.7 per cent in the Western region, 87.1 per cent in the Khangai region, 96.5 per cent in the Central region, 90.9 per cent in the Eastern region and 98.8 per cent in Ulaanbaatar. In the period 2017–2022, the estimated rate of domestic treated wastewater remains low, with an average of 19.4 per cent at the national level: 27.0 per cent in urban areas and 2.8 per cent in rural areas. In the same period, open defecation decreased from 22.1 to 15.4 per cent in rural areas and from 0.6 to 0.3 per cent in urban areas, corresponding to a variation of 7.4 to 5.0 per cent at the national level. The sewer connection increased by 0.8 per cent in the country achieving a maximum of 27.5 per cent in 2022.⁴⁶⁵ In rural areas and the Ger district there is still a lack of collection sewer systems, and the use of individual treatment systems (such as septic tanks), unimproved systems or even open defecation are still in place. In 2020, the WHO estimated that 33.5 million m³ of domestic wastewater was produced, from which 8.33 million m³ resulted from piped sewers, 0.11 million m³ from septic tanks, 21.3 million m³ from other improved facilities, 0.93 million m³ from unimproved facilities and 2.82 million m³ from open defecation.⁴⁶⁶ Mongolia continues without setting a specific target to end this practice, and the strategic documents also do not consider the needs of women, girls and those in vulnerable situations.

According to the estimated data for the SDG indicator 6.2.1, in 2022, the country achieved 66.0 per cent of the population with a safely managed sanitation system representing 70.3 per cent in urban areas and 56.3 per cent in rural areas. The target proposed in the Vision 2050 Long-term Development Policy envisioned that 70 per cent of the population should be provided with adequate sanitation facilities in 2025, 75 per cent in 2030 and 90 per cent in 2050. At this rate of implementation, in 2050, the goal will be achieved, but in 2030, it will be slightly below the target (73 per cent).⁴⁶⁷ Therefore, efforts are still required to reach SDG target 6.2 (by 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations).

Concerning the SDG indicator 6.3.1 of SDG target 6.3 (by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally), the data reported shows that from 2020 to 2022, the volume of domestic wastewater that was safely treated increased from 10.4 per cent to 26.1 per cent,⁴⁶⁸ which is aligned with one of the IWMP goals (i.e., reducing the quantity of untreated wastewater).⁴⁶⁹ Still, the document does not specify the quantitative target for untreated wastewater. From 2020 to 2022, there was a treatment improvement of around 60 per cent, which seems aligned with efforts on the largest WWTPs, such as the new Ulaanbaatar Central WWTP or the new WWTP for Darkhan. However, information remains scarce on developments and investments in municipal infrastructure, such as the expansion of sewerage networks, renovation of existing small-medium size WWTPs or the respective expansion of coverage.

Recommendation 9.1 of the First EPR of Mongolia proposed an increase in investments in two main areas. The first part (a), focused on water supply, sanitation and sewerage infrastructure, with a focus on rural areas, is not achieved since the level of access in terms of water supply and sanitation remains low and below the proposed goals in rural areas. The second part (b) of the recommendation involved the renovation of the central wastewater treatment plant in Ulaanbaatar, which can be considered implemented, as a new WWTP is currently under construction and is anticipated to be fully operational by 2025, while the old plant will be decommissioned.

Landfills

Changes in urban lifestyles and consumption patterns have led to a significant increase in solid waste in Mongolia over the past decade. Poor technologies, deficient infrastructure and lack of strategic planning for sustainable waste management have led to disposal into dumpsites without proper soil protection. The hydrogeological characteristics of the country may allow some infiltration and/or percolation of pollution to groundwaters, particularly in surface or shallow aquifers. In less permeable areas, the runoff to surface waters is the most probable contamination pathway. The major risk arises from chemical pollution from hazardous wastes, since it may contain persistent, toxic and bio-accumulative substances that can cause damage to water resources due to long exposure scenarios and may accumulate through the food chain. The construction of controlled landfills with adequate water and wastewater management practices, such as the one that started to operate in Sukhbaatar province should contribute to the prevention of water pollution problems.⁴⁷⁰

⁴⁶⁵ WHO/UNICEF JMP (Mongolia).

⁴⁶⁶ Ibid.

⁴⁶⁷ Mongolia (2020), WHO/UNICEF JMP (Mongolia).

⁴⁶⁸ UN-Water SDG 6 Data Portal (Mongolia).

⁴⁶⁹ Mongolia (2013).

⁴⁷⁰ ADB (2023a).

Tourism and leisure

Tourism is an essential and increasing activity, particularly in areas surrounding natural parks. Tourist camps outside urban settlements should have an approved use management plan before utilizing water resources. Furthermore, the usage of these resources is subject to a fee. In some camps, drinking water is transported by truck or purchased directly from water kiosks. The impact of wastewater discharge from ger camps may remain low if camps have some wastewater treatment systems, such as a septic tank or small WWTP with adequate management.⁴⁷¹

10.6 RIVER BASIN MANAGEMENT

Since 2014, 21 RBAs have been effectively functioning and working on managing 29 river basins. RBAs coordinate water-related activities in their respective river basin at national, regional and intersectoral levels. These authorities are also responsible for developing, implementing and revising the respective river basin management plan (RBMP). Other duties involve issuing permits for water usage (for central water supply services, water users, or other entities requiring more than 50 m³ but less than 100 m³ of water per day) and permits for wastewater discharge (discharges exceeding 50 m³ per day with a conclusion from the Water Agency).

Between 2018–2019, under a multi-stakeholder process, 24 River Basin Councils (RBCs) were fully established.⁴⁷² RBCs integrate representatives from the Government, stakeholders (including NGOs) and water users. They promote local water governance through a transparent and participatory approach, facilitating public involvement in water resources planning.

Future challenges include revising the RBMP currently in force (such as the Tuul River RBMP) and developing new plans for the remaining basins, aligned with the targets envisioned in the Vision 2050 Long-term Development Policy objectives, which mentioned strengthening integrated water resource management.⁴⁷³ The most complex basin is the Tuul River since it covers the Ulaanbaatar area, which requires managing high urban and industrial pressures on water resources. The first plan for this basin was published in 2012 and, according to the respective RBA, its revision is expected to start in 2025, with two implementation phases (2030 and 2050). According to the Tuul River RBA, the new plan is expected to have an improved quantitative assessment supported by the collected water use fees and pollution fees benchmarked with the availability of water resources. A Basin Health Report Card for the Tuul River was developed in 2011 to establish a baseline for evaluating future changes in response to management interventions.⁴⁷⁴

According to the first part of Recommendation 9.4 (a) and (b) of the First EPR of Mongolia, training and professional development were proposed to improve the water resources management capacity of the river basin authorities' staff. Assistance from international organizations and other governments with adequate experience and knowledge in integrated water resources management was also sought. This recommendation has been effectively implemented despite capacity building still requiring attention, particularly due to the ongoing challenges in water resources (e.g., climate change, pollution trends, water needs). In response to the constraints outlined in the initial EPR, a multi-stakeholder partnership (MSP) has been established to enhance water governance, with international backing.⁴⁷⁵ The MSP encompassed several ministries, industry, civil society and academia. They collaborated on establishing and operating the multi-stakeholder RBCs as outlined in the law to oversee the RBAs. RBC gained approval from the Government in 2018. The MSP also developed new RBC guidelines focused on strengthening water governance and management. Between 2018 and 2019, more than 1000 stakeholders in the water sector took part in capacity-building initiatives to familiarize themselves with the MSP approach. Furthermore, all personnel associated with 21 RBAs underwent training on the new RBC guidelines.⁴⁷⁶

Concerning the SDG indicator 6.5.1 of SDG target 6.5 (by 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate), the UN Water SDG 6 Data Portal indicates that Mongolia has increased its score from 45 points (medium-low) in 2020 to 57 points in 2023 (medium-high). This progress is reflected in the data set, which is divided into four sections: enabling environment (increasing from 54 to 79 points), institutions and participation (rising from 45 to 63 points), management instruments (ranging from 43 to 48 points) and financing (37 points in both years).⁴⁷⁷ As for the SDG indicator 6.5.2 (proportion of transboundary basin area with

⁴⁷¹ JICA (2021), ADB (2020a).

⁴⁷² 2030 WRG (2020).

⁴⁷³ Mongolia (2020).

⁴⁷⁴ Tuul River Basin Authority (2019).

⁴⁷⁵ 2030 WRG (2020).

⁴⁷⁶ Ibid.

⁴⁷⁷ UN-Water SDG 6 Data Portal (Mongolia). UN DESA Statistics (SDG Indicators Database).

an operational arrangement for water cooperation), Mongolia has reported 100 per cent for overall water resources (transboundary river and lake basins and aquifers).

10.7 WASTEWATER MANAGEMENT

Wastewater sources are domestic, industrial and other non-domestic, such as the service sector. The available data do not allow for an understanding of the total amount of sewage generated in Mongolia, since it might be scattered across various national and regional authorities, and managers of treatment plants. Therefore, considering the usual figure that 80 per cent of the water used (drinking and household purposes, industry and services) becomes wastewater, the average volume of wastewater for the period 2019 to 2023 can be estimated at 213.3 million m³ per year.⁴⁷⁸ All treated wastewaters are supposed to comply with the requirements of the standard MNS 4943:2015. The majority of WWTPs are in the central part of the country, and the increasing population in urban areas is putting additional pressure on several of these systems constructed between the 1960s and the 1980s, leading to a poor state and performance of existing infrastructure, such as the existing Ulaanbaatar Central WWTP, whose discharge is not complying with the standard. According to USUG, the non-compliance result from the discharge into upstream collectors of high polluting loads of industrial origin. The new Ulaanbaatar Central WWTP is expected to improve the treated water quality. In 2023, another new WWTP in Darkhan soum started to operate, where, in September 2023, the treated wastewater revealed a high ammonia level (four times higher than the standard) also due to industrial discharges. But the upstream and downstream monitoring of the receiving water body (Kharaa River, 50 m before the discharge point and 200 m after it) showed no non-compliance with the standard, including heavy metals and microbiological parameters.⁴⁷⁹

Photo 10.2: Horses grazing, Erciyes mountain, Kayseri city



10.8 FLOODS MANAGEMENT

In Mongolia, there are three types of floods: (i) spring floods, usually occurring from April until the end of May. In the Central Asian Internal Basin, the spring flows may continue until June specifically in the Mongol Altai mountains, because of the snow cover that remains until the end of June; (ii) rainfall floods or summer floods occur from June to September and may occur when daily rainfall exceeds 40 mm to 110 mm; and (iii) summer floods, typically higher than spring floods. In some years, spring floods may dominate depending on climate conditions. The flash floods occur when highly intensive turbulent flow with rocks and sediment and other surface materials are formed due to heavy rain along the steep dry beds and small rivers.⁴⁸⁰ Across the country there are flood protection dams. From 2018 to 2023, the maximum number of structures registered was 85 in 2020 (see Table 10.6). The unplanned settlement areas, especially ger districts, have expanded without due consideration to anti-flooding protection measures, and in the event of a flood, this can lead to flooded pit latrines (and washing of open defecation sites), which can increase the risk of waterborne diseases, such as diarrheal disease.⁴⁸¹

⁴⁷⁸ Tchobanoglous (1991), Mongolia (Raw Data).

⁴⁷⁹ ADB (2023a).

⁴⁸⁰ Tugjamba (2021).

⁴⁸¹ UNICEF (2023).

Table 10.6: Flood protection dam, 2018–2023, number⁴⁸²

	2018	2019	2020	2021	2022	2023
Inventoried basins	3	18	28	20	10	11
Flood protection dams	2	123	158	66	28	31

Source: NAMEM, 2024.

Responsibility for protecting their respective areas from flooding lies with the provinces and local governments.

10.9 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

The Law on Water includes the rules for the classification of water resources and establishes responsibilities for rational water management and the procedures for issuing permits for water use. It regulates the relations between water use and exploration. The 2020 amended Law on Water organized the water authority, empowering it to manage all the monitoring data on water resources and its use for management and planning exercises and coordination with RBAs. The 2020 amended Law on Water and the 2011 Law on Use of Urban and Rural Settlement Water Supply and Sewerage Systems in Areas establish the general legal framework for water supply and sewerage tariffs (applied to water services), defined by the regulatory authority (Water Services Regulatory Commission). Water pollution charges are based on the 2020 Law on Water and on the 2012 Law on Water Pollution Fees, supported with supplementary legislation for implementing water pollution fees, published in 2019.

In 2017, the Law on Waterway Transportation was revised to establish conditions for transporting passengers and goods by waterways and defining safety regulations and tariffs for water transport.

Concerning SDG target 6.b (support and strengthen the participation of local communities in improving water and sanitation management), SDG indicator 6.b.1 monitors progress by assessing the extent of local community involvement in water and sanitation management considering both the existence of legal or policy frameworks that facilitate such participation and the actual level of involvement. Since 2019, there have been clearly defined procedures (classification of 10 points) in law or policy for participation by users/communities for the subsectors of drinking water and sanitation, both in urban and rural areas, and water resources planning and management. However, regarding the level of participation by users and/or communities, the level is moderate (2 points) for all the mentioned subsectors.⁴⁸³ Therefore, despite the approach of a multi-stakeholder partnership, the involvement of local communities in public participation still needs to be further deepened.

Policy framework

Several strategies and programmes outline important objectives and targets for water resources management, water supply, sanitation and wastewater disposal. Following the initial EPR, there remains a lack of specific details regarding the methods through which these targets will be attained, encompassing the delineation of responsibilities and financial strategies.

The 2010 Water National Programme concluded its second phase in 2021. The results of the programme monitoring show that the implementation level has increased from 40 per cent up to 2017 to 70.1 per cent by the end of 2023.⁴⁸⁴ Ensuring balanced management between surface and ground water, to ensure a sufficient and sustainable supply of water for all the range of purposes (including domestic, industrial, agricultural and forestry) throughout the country, while promoting an increase in sewer and wastewater treatment connections, particularly in rural areas remains a challenge. The 2013 IWMP remains the main water resources management instrument. The Programme defined 86 measures to achieve five main goals concerning safe water, water supply, environmental balance, water management and intersectoral coordination. IWMP has been proposed to be implemented in two phases, with the second one planned from 2017 to 2021, and the level of implementation, up to 2023, was 61 per cent.⁴⁸⁵ Investments in the water sector are also being made, such as the

⁴⁸² Mongolia (Raw Data).

⁴⁸³ UN-Water SDG 6 Data Portal (Mongolia). UN DESA Statistics (SDG Indicators Database).

⁴⁸⁴ Batbayar (2024).

⁴⁸⁵ Ibid.

US\$461.76 million (split between US\$111.76 million from the Government and a US\$350 million grant) for Ulaanbaatar, which allowed the construction of a new WWTP, a recycling facility to produce reclaimed water for industrial purposes, and improvements in access to drinking water.

The Vision 2050 Long-term Development Policy includes objective 6.3 “Prevent water scarcity, accumulate surface water and create conditions to fully meet needs” under the theme “Water as a priceless wealth” under Goal 6 “Green Development”. The objective proposes three time-stages to meet the specific targets: Stage I (2021–2030), a period to establish a tiered block tariff system for water resources, increase and protect the value of fresh water, and accumulate water resources; Stage II (2031–2040), a period to strengthen integrated water resource management, increase water storage and improve its access and supply; and Stage III (2041–2050), a period to adapt to the controlled and rational use of natural and intentionally enriched resources.⁴⁸⁶ For the first stage, an action plan with 14 activities was proposed to strengthen the need to improve integrated water resources management, considering efficiency (water supply, wastewater treatment and water reuse), protection of water sources, mapping water sources based on hydrogeological characteristics, and water storage, including natural and managed aquifer recharge. Other activities involve the need to improve water metering to understand real consumption, the implementation of legal regulations for setting payments for water use based on the principle of increment depending on the volume of consumption and the implementation of measures to improve the supply of safe drinking water. One of the activities proposed was to carry out a feasibility study and develop a design for the creation of multipurpose serial reservoirs with flow regulation on large rivers, such as the Selenge, Orkhon, Eg and Khovd Rivers in high mountainous areas within the framework of the Blue Horse project.⁴⁸⁷ However, since the interruption or deviation of flows, particularly in the Selenge River, may impact important national and international ecosystems, a thorough assessment is expected on the proper use of water resources, flow regulation and renewable energy production. Recommendation 15.4 (c) of the First EPR of Mongolia to develop actions and policies to reduce water pollution is partially implemented, but implementation remains limited. The recommendation remains valid.

Institutional framework

The Ministry of Environment and Climate Change is the main central government organization responsible for the management of water resources. Its primary duties and functions include protecting water resources and their basins, establishing a unified policy and coordinating interdisciplinary efforts to ensure the economical and efficient use of water resources within the available limits. In April 2020, the Water Agency, an implementing government agency under the Ministry, was established (see Chapter 1). The primary responsibilities of the Water Agency encompass the safeguarding of water resources through comprehensive management and strategic planning. This entails the assessment of water resources availability and demand, prevention of pollution, the enforcement and monitoring of water usage policies, inter-sectoral coordination, the advocacy for efficient water use and water reuse practices, the implementation of sector-specific policies and the digitization of public services associated with water resources. The Agency is responsible for implementing and revising IWMP and coordinating the 21 RBAs overseeing 29 water basins. Additional responsibilities include conducting surveys of groundwater resources, promoting the expansion of surface water resources through the construction of water reservoirs, expanding the national water monitoring network and issuing permits for water usage (for central water supply services, water users, or other entities requiring more than 100 m³ of water per day) as well as conclusions for wastewater discharge (for discharges exceeding 50 m³ per day).

The Water Services Regulatory Commission under the Ministry of Urban Development, Construction and Housing, regulates water supply and sewerage in cities and towns and is responsible for regulating the service to ensure clean water according to hygienic standards to the population, industries, enterprises and organizations, as well as wastewater removal services. The Commission sets service fees, i.e., water supply and sewerage usage, and service tariffs and issues special licenses to legal entities, such as water suppliers and centralized sewerage and wastewater services, like USUG, which is responsible for the water supply and centralized sanitation services in Ulaanbaatar region.

The Agency for Standard and Metrology is responsible for establishing and maintaining updated standards related to water resources, water (freshwater and drinking water), wastewater and water reuse (see Chapter 2).

Coordination between institutions at national, regional and local levels on matters related to water management

The environmental governmental branches at the *aimag* level (i.e., *aimag* environmental departments) are responsible for implementing laws on water and managing water data within their local jurisdictions in coordination with the RBA.

⁴⁸⁶ Mongolia (2020).

⁴⁸⁷ Ibid.

Additionally, local governments are tasked with issuing permits for water usage of up to 50 m³ per day and permits for wastewater discharge for releases of up to 50 m³ per day.

Regulatory, economic, fiscal and information measures

Water (freshwater) usage and wastewater discharge are subject to a permit issued by the competent authorities. The permits are issued for 10 years and can be extended for 5 years (see Chapter 2). When the water usage exceeds 100 m³ per day, it is mandatory to submit an EIA report separately. Water usage (freshwater abstraction) and pollution are subject to a water fee under the Law on Water and the Law on Water Pollution Fees. The water usage fee considers the volume of water abstracted and a specific ecological and economic baseline assessment for each of the 29 river basins, differentiated by surface and groundwater (2011 Government Resolution No. 302 on Water Ecology, Economic Base Assessment). A coefficient (a percentage) is applied to these baseline values according to the specific use proposed for the freshwaters, with higher values applied to groundwaters. A reduction is applied to the final value when specific uses are present, such as drinking water. Therefore, the freshwater abstracted and treated for drinking or household purposes is not subject to a water fee. A surcharge is applied in case of exceedance of the permitted volume of water abstracted. The water pollution fee is defined by a base value per mass of released pollutants (measured in terms of mineral components, heavy metals, organic substances and hazardous pollutants (2019 Government Resolution No. 316). Similarly to freshwater abstraction, a reduction coefficient is applied to the organizations that treat domestic wastewater in cities and towns, including health facilities.⁴⁸⁸ The revenues from the water fees integrate the Government's annual budget. From 2019 to 2023, the collected water fees increased (see Table 10.7). Water and sewerage services are subject to tariffs defined by the Water Services Regulatory Commission, which considers the specifics of the locality and the scope of the licensee's activities and services. According to this Authority, the internalization of costs is not applied in water services, lacking the incorporation of the full economic, social and environmental costs associated with water supply and wastewater management into the pricing structure. The tariff does not include the cost recovery to ensure the infrastructure maintenance or future investments.

Table 10.7: Government revenues from water resources usage and water pollution, 2019–2023, million tugriks

	2019	2020	2021	2022	2023
Water pollution payment	0.7	46.3	478.7	2 345.6	2 097.0
Use of water resources	45 129.6	4 780.4	48 130.2	51 497.0	85 139.2
Total	47 149.3	6 846.7	50 629.9	55 864.6	89 259.2

Source: NSO (2024).

Water and water resources data are compiled in the Environmental database, which contains several datasets and sub-databases, such as the water statistical database with sets of water resources information (in terms of availability, water use and surface water quality), the water information system integrating information about water sources such as rivers, springs and lakes. NAMEM makes all data available between institutions for the Water Agency and RBAs to enable its use in managing and planning activities. For public access, only synthesized data and data sets are available. Information regarding wastewater quality and receiving water bodies is available from NAMEM (synthesized information). The information on groundwater is unavailable to the public due to its sensitivity. Nonetheless, a dashboard with restricted access has been developed to ensure that only authorized parties can use the data to comply with location confidentiality.⁴⁸⁹ Despite various geodatabases, not all water-related data are available or supported by GIS, limiting their operational use.

In the second part of Recommendation 9.4 (c and d) of the First EPR of Mongolia, the suggestion has been to ensure the operational consistency of the water databases for data collection, data quality and data exchange between data holders and organizations, as well as the creation and maintenance of a national water database and sub-database of water basin information. A national platform comprising several databases (publicly available) has been established. Subsequently, part of this recommendation is considered to have been implemented. Nevertheless, the operational consistency of databases necessitates further efforts to enhance data quality and its associated management. The assessment of the available data revealed some gaps in specific details, such as total values and sums. Furthermore, data are not readily extractable for processing, which appears to diminish the functionality of the databases. Reliable data on water and sanitation are still lacking, so much of the data needed to assess progress towards achieving the SDGs are estimated.

⁴⁸⁸ Mongolia (2020).

⁴⁸⁹ World Bank (2021).

10.10 ASSESSMENT AND RECOMMENDATIONS

Assessment

The Law on Water has enabled Mongolia to adopt a more holistic approach to water resource management. This entails improved integration of water demand, water consumption and pollution control with a higher allocation of investments. Since its inception, advancements in water management and enhanced access to potable water have been observed. Nevertheless, sustained efforts have been insufficient to address existing and emerging challenges and to fully realise the SDGs.

The Government has made some progress in improving water supply and sanitation access, particularly in urban areas. However, significant disparities persist in water supply and sanitation access between urban and rural areas. The estimated rate of connection to a sewerage system and the treatment of domestic wastewater remains low. According to the WHO, despite a decline in open defecation, approximately 8.6 per cent of the total domestic wastewater produced annually arises from this practice. One of the principal shortcomings of the centralized wastewater treatment system is its inability to accommodate the elevated pollutant loads discharged by industrial facilities. This may jeopardize the treatment capacity of new infrastructures. In the absence of cost internalization, due to the existing tariff structure, the financial sustainability of systems is compromised, as they lack sufficient funds for infrastructure maintenance, operation and future investment.

Integrated water resource management planning has been a key driver of improving water resources management in Mongolia, with the Water Agency playing a pivotal role in conjunction with the RBAs. An integrated water management plan and river basin management plans have been developed and implemented. The establishment of the RBC has enabled multiple stakeholders to participate more effectively in managing and planning activities. Support from international stakeholders has been instrumental in implementing integrated management approaches, particularly through capacity-building initiatives. These stakeholders have also conducted studies to identify trends in water demand and potential solutions to address gaps in specific areas, including the industrial and mining sectors and managed aquifer recharge.

Another area of progress concerns data management. However, as of end of the 2023, only 61 per cent of the integrated water resource management plan had been implemented. Gaps remain, particularly regarding water availability for various purposes, such as drinking water and industrial activities, in terms of both quantity and quality. The lack of quantitative and qualitative data, encompassing at least current and projected freshwater uses, hydrogeological and hydro-morphological characteristics and impacts on aquatic ecosystems, continues to hinder the development or revision of RBMPs.

Although recommended in the First EPR, strategic reserves of surface and groundwater, along with the flexible use of both resources, have not been prioritized. Some progress has been achieved in developing information systems integrating quantity and quality monitoring data from ground and surface and groundwater sources. As of September 2024, water-related databases are under development, and efforts to incorporate several layers of information are ongoing. Nevertheless, shortcomings remain, including data fragmentation and a lack of coherence among the results across multiple datasets. Furthermore, not all databases are supported by GIS.

Another important source of information arises from the water use permitting process. The regulation of water use and pollution control through a process of issuing permits is already in place, and data are centralized in information systems. The integration of data from this process facilitates a more comprehensive and efficient overview of water resources, thereby enhancing the effectiveness of planning and decision-making at both national and basin levels. Despite some technical support provided for IWMP implementation, capacity at the national, regional and local levels has not been strengthened.

Integrating water reuse and recycling practices could significantly improve water management by decreasing freshwater consumption and pollutant discharges into receiving water bodies. Nonetheless, despite improvements in sewerage systems, the connection rate during the assessment period remained at 27.5 per cent, and the average performance of wastewater treatment facilities for biodegradable organic matter was 59.9 per cent. This highlights the need to increase sewer connection rates and improve access to advanced wastewater treatment facilities. Significant disparities persist in rural areas and *ger* districts, where open defecation still occurs. Major water pollution problems remain linked to the disposal of untreated or not sufficiently treated wastewater from municipal and industrial sources.

The Vision 2050 Long-term Development Policy introduces new targets and measures to increase the country's water resilience. The primary focus is on preventing water scarcity and promoting surface water storage. However, some previously established targets have been extended. Livestock and forest management have not received sufficient attention in relation to water resources availability.

The Government has introduced measures to establish efficient water reuse systems, promote the development of water reuse technologies and amend the Law on Water Pollution Fees to incorporate the polluter-pay principle. Several reclamation or recycling systems are already in place or under construction, with industrial and the mining sectors already

considering these practices. Reclaimed water can be stored and used for non-potable purposes instead for drinking water, making it a valuable alternative for industrial use. However, measures to ensure the safe use of reclaimed water and its preferential use over freshwater, particularly groundwater, remain inadequate. Furthermore, water fees are not aligned with these practices, which hinders making reclaimed water a more attractive alternative to groundwater for industrial purposes, including thermo- or heat-power plants.

Recommendations

Improving infrastructure for water supply, sanitation and wastewater treatment

Recommendation 10.1:

The Government should:

- (a) Increase investments in water infrastructure to improve and expand sewerage networks, particularly in rural areas, and construct wastewater treatment plants appropriate for the characteristics of effluents;
- (b) Enforce the regulatory instruments for industrial discharges into municipal sewers, ensuring appropriate pre-treatment and quality control through a dedicated permitting or authorization process;
- (c) Develop a service tariff for water, including sanitation and reuse, to address system cost recovery for infrastructure maintenance, operation, future rehabilitation and water storage, and accommodate differences in domestic and industrial water uses.

Improving water management

Recommendation 10.2:

The Government should:

- (a) Expand the monitoring networks for both surface and groundwater in terms of locations and of quality and quantity parameters;
- (b) Strengthen groundwater monitoring for toxic substances to protect drinking water resources;
- (c) Take appropriate steps to protect groundwater from toxic substances.

Recommendation 10.3:

The Ministry of Environment and Climate Change should develop and revise the river basin management plans for all 29 basins, in conjunction with the River Basin Councils, establishing specific targets and a corresponding plan of concrete measures, including investments, distributed in time and space to attain those targets.

Reusing water

Recommendation 10.4:

The Government should:

- (a) Develop policies to support water reuse practices and rainwater harvesting in urban areas, ensuring its safe use and its preferential use for non-potable uses whenever reclaimed water is available;
- (b) Adapt water fees legislation to water reuse practices to promote its preferential use for non-potable uses.

Improving water information management and capacity building

Recommendation 10.5:

The Ministry of Environment and Climate Change should:

- (a) Integrate the existent water-related databases and datasets into a central geographical information system (GIS) dashboard, incorporating all environmental data related to surface water, groundwater and wastewater, to assist in the implementation and revision of integrated water management plans;
- (b) Develop a digital permitting process, supported by GIS, for water abstraction and wastewater discharges;
- (c) Develop a train-the-trainers programme to promote long-term and sustained capacity development in information systems, monitoring, permitting and other relevant topics for implementing integrated water resources management.

CHAPTER 11

WASTE AND CHEMICALS MANAGEMENT

11.1 PRACTICES AND TRENDS IN WASTE MANAGEMENT

The general waste management strategic approach, including all waste categories, is set up by the central authority on environmental issues, which as of September 2024, is the Ministry of Environment and Climate Change. Within the Ministry, there is no specific sector that deals with waste, and waste management is done within the Department of Environmental Resources, while only one person has a full-time waste management-related job description.

Recommendation 10.1 of the First EPR of Mongolia recommended that the Ministry of Environment and Tourism to consider strengthening its capacity in waste management. The management setup of some specific waste, such as construction waste and medical waste, is shared with the ministries of health, transport and construction, while mining waste is shared with the Ministry of Mining and Heavy Industry. The Recommendation has not been implemented and remains relevant. According to the State of Environment Report 2017–2018, 50 per cent of all general waste is recyclable, but currently less than 10 per cent is recycled. Source-based segregation is not prioritized.

The Vision 2050 Long-term Development Policy outlines key waste management initiatives to be achieved by 2030, including the adoption of the 3Rs (Reduce, Reuse, Recycle) in comprehensive waste management. The plan involves launching pilot projects and programmes for recycling and integrating waste into the economic cycle. Additionally, it aims to upgrade Ulaanbaatar's central wastewater treatment plant and improve sanitation facilities in other cities, along with industrial pre-treatment facilities using eco-friendly technologies. The country's commitment to a circular economy includes making Ulaanbaatar a zero-waste city by 2050, with key milestones of introducing an Eco Park by 2030, generating energy from waste by 2040 and achieving zero waste by 2050. The vision sets ambitious recycling targets of 40 per cent by 2030 and 50 per cent by 2050, while also aiming to ensure that 64 per cent of waste is regularly collected and properly disposed of by 2030, increasing to 90 per cent by 2050.

To enhance efficiency, centralized waste management facilities are being established regionally, serving groups of *soums* and *aimags* to facilitate organized waste collection and disposal. The Ministry of Environment and Climate Change mandates that local governments in the 21 *aimag* centres, 329 *soums* and nine *duuregs* (Ulaanbaatar municipal district) implement waste management practices, including collection and disposal at central waste management sites. Only 13 out of 21 *aimags* have developed their own waste management plans.

Representatives of the 21 *aimags* submit waste management data to the NSO and/or Ministry of Environment and Climate Change annually. In general, data on waste are compiled by the Governor's Office of Subdistricts (*bags* and *khoroos*) and sent to the respective *soums*, then to the Ministry of Environment and Climate Change which transfers the data to the NSO. Districts send data to Ulaanbaatar, which then forwards them to the Ministry of Environment and Climate Change. The NSO publishes data on municipal solid waste and on other waste, such as agricultural, hazardous, manufacturing, medical, construction, energy and mining waste. Recommendation 10.3 of the First EPR of Mongolia recommended the then Ministry of Environment and Tourism, through the Environmental Information Centre, and the NSO to develop and implement a waste database. This recommendation was implemented.

As stated by the Ministry of Environment and Climate Change, in 2019, recyclable waste made up 50 per cent of the total waste generated, but only less than 0.31 per cent was recycled.⁴⁹⁰ Waste has been recycled mostly by primitive/crude recycling. However, some recycling units (e.g., tyre-to-oil plants have been established by the private sector in Ulaanbaatar).

Different waste streams produced by both industrial and domestic use have contributed to the complex and diverse composition of waste in the country. These wastes include waste from mining activities, waste containing harmful and substandard chemical substances, pesticides, packaging and wrappings, used car oil, car batteries, measurement devices that contain mercury, wastewater and sludge from water treatment plants and hazardous waste.

Municipal solid waste and similar waste

Solid waste management is organized at the level of local self-government units through state-owned or private companies selected via competitive tendering. Multiple companies may serve one or more *soums*. All waste management companies

⁴⁹⁰ Ministry of Environment and Tourism (2019).

must register with the Ministry of Environment and Climate Change, obtain permits and report data on collected waste types and quantities. In total, there are 396 collection points.

Collection of solid waste is concentrated in urban areas, which accounts for 70 per cent of the waste, while in rural areas only 30 per cent of the total waste is collected. Data collection is managed by the NSO (see Table 11.1). The amount of collected waste annually is 2.5 million tons in 2022.⁴⁹¹

Mongolia reports an increase in the proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities (SDG indicator 11.6.1) of the SDG target 11.6 (by 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality, municipal and other waste management). In 2017, about 5.1 per cent urban solid waste was regularly collected and with adequate final discharge, while in 2023, it reached 87.6 per cent, with a peak in 2022 of 90.4 per cent.

Table 11.1: Amounts of collected and disposed waste, 2019–2024, 1,000 tons

	2019	2020	2021	2022	2023	2024
Total waste	1 949.8	2 712.6	2 626.6	3 067.8	3 042.8	3 228.9
Amount of disposed waste	1 559.6	2 345.9	2 149.7	2 503.0	2 396.4	2 705.3

Source: NSO, 2025.

Household waste accounted for 63.3 per cent of general solid waste, and waste collected from commercial enterprises, roads and other places accounted for 36.7 per cent.⁴⁹² In 2023, the majority of the waste was classified as 'other', while biodegradable waste contributed 10.0 per cent, paper 10.1 per cent and glass 6 per cent (see Figure 11.1). In Mongolia, women and men occupy traditional roles. Cleaning domestic spaces, and therefore managing waste, typically falls to women. Women are also community and volunteer waste managers, who organize community clean-up days and attend public meetings on waste issues.

The amount of recycled and processed waste was 272,900 tons in 2020 and 186,800 tons in 2021, and it was 73,400 tons in 2022. Most recycled waste is of the "other" type, while metals were 11 per cent of the total recycled waste, and plastic 5 per cent (see Figure 11.2).⁴⁹³

Separate waste collection is listed as one of the barriers to the improvement of the solid waste management system in Mongolia and has not improve significantly over the years.⁴⁹⁴ The National Association of Waste Recycling Industries and the Office of the Mayor of Ulaanbaatar City started activities for the development of an EcoPark for waste recycling, but these activities are still to be implemented. In May 2017, the financing of an EcoPark was secured. Recommendation 10.5 of the First EPR of Mongolia recommended supporting the development of an EcoPark as a modern waste management centre. The Recommendation is in progress.

Efforts have been made to introduce waste separation at the source, but many people choose to sell their separated recyclables to buy-back centres to earn some extra income. As a result, voluntary programmes, which are common in European waste systems, while not as prevalent or successful in other parts of the world due to varying socioeconomic, cultural and infrastructural conditions,⁴⁹⁵ have struggled to compete with buy-back centres and have achieved only limited success. Additionally, voluntary schemes are often undermined by scavengers, which diminishes their effectiveness. In Ulaanbaatar, there are approximately 200 regular scavengers who are estimated to recover about 10 tons of recyclables per day. Waste collection coverage in the capital is estimated to be 90–95 per cent.⁴⁹⁶

⁴⁹¹ NSO, 2025.

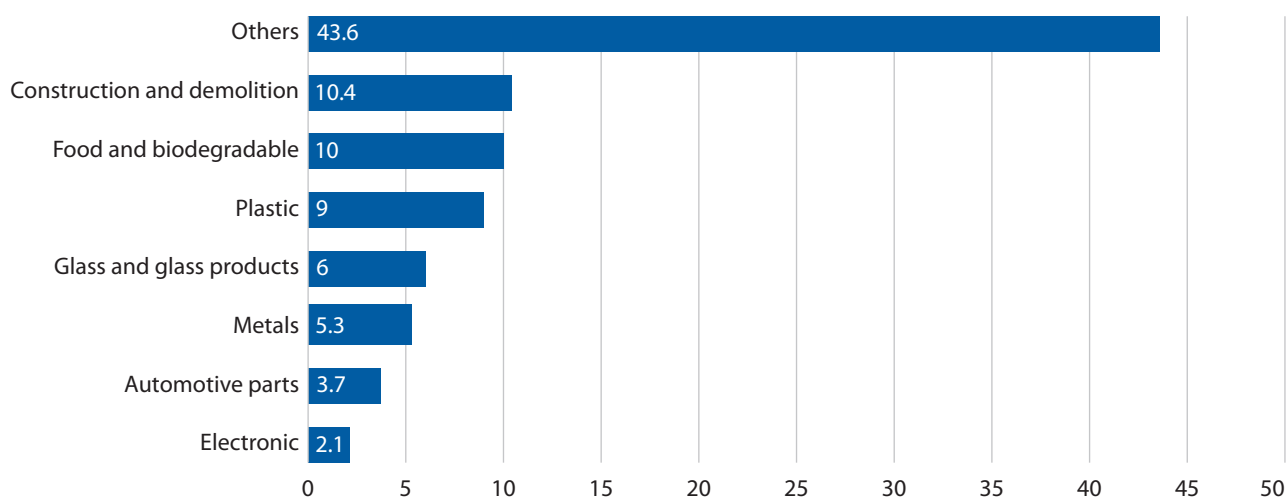
⁴⁹² Ministry of Environment and Climate Change, 2024.

⁴⁹³ Ibid.

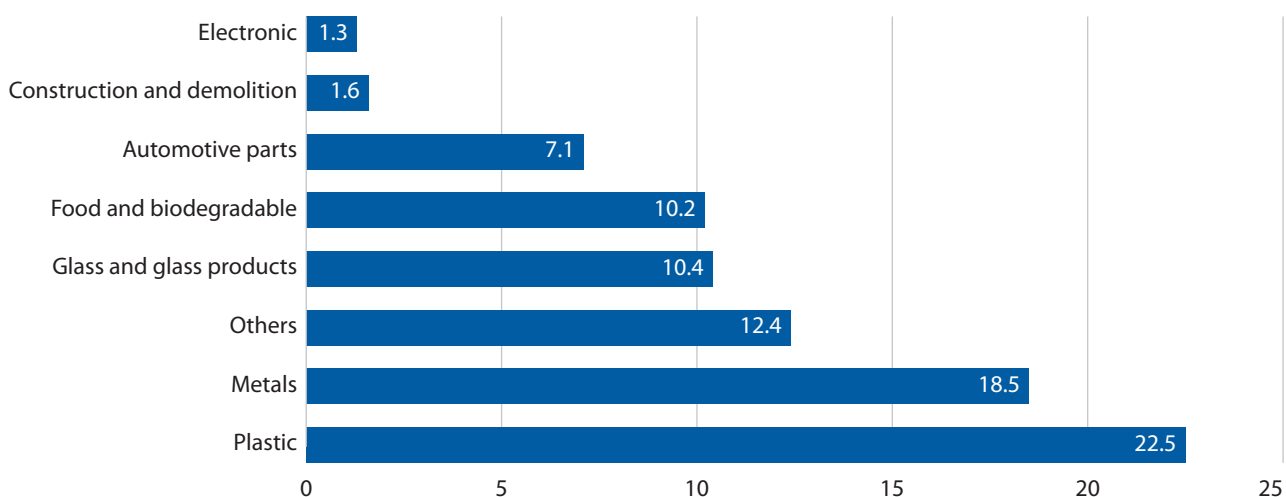
⁴⁹⁴ Ministry of Environment and Tourism (2017).

⁴⁹⁵ Chikarmane (2012). Ankhtuya (2020).

⁴⁹⁶ Mongolia (2020).

Figure 11.1: Waste types in collected waste, 2023, percentage

Source: NSO (2024f).

Figure 11.2: Waste types in the recycled waste, percentage

Source: NSO (2024f).

Waste collection in Ulaanbaatar is managed by the City Development Organization and Municipal Service Companies (TUKs). TUKs have two primary functions: providing municipal maintenance services and transporting waste. Their workforce ranges from 64 to 298 employees, depending on the district's population and size. There is no waste separation at the source. Municipal waste is collected by private and public companies, as per tendering results published by the Ulaanbaatar City Office and City Development Organization. The types of the vehicles used for the waste transport are not standardized: for example, no press, with press, adapted old trucks. Bayangol District has 21 trucks, Khan Uul District 12 trucks, Songinokhairkhan District 52 trucks and Nalaikh District 8 trucks. Most of the Ulaanbaatar districts lack waste trucks that can shred or melt waste, while only a few have compacting machines.⁴⁹⁷ This results in long distances being covered to transport relatively small amounts of waste, significantly driving up transportation costs.

Waste management in Ulaanbaatar primarily involves disposal, with various waste types deposited at the three major landfills: Naran Waste Disposal Site – the largest and primary landfill in the city, located in the southwestern part of Ulaanbaatar; Moringiin Davaa Landfill located to the northeast of the city, this landfill primarily serves districts on the eastern side of Ulaanbaatar; and Ulaan Chuluut Landfill – located in the northern part of the city. Ulaan Chuluut is another major waste disposal site that handles almost 90 per cent of municipal waste and is where waste collected

⁴⁹⁷ SWITCH-Asia (2023).

from the Sukhbaatar, Songinokhairkhan, Chingeltei, Bayangol and Nalaikh Districts is disposed of. Most of the waste was disposed in this site, but since 2022 improvements have been made to transform it into a green one.⁴⁹⁸ The landfills are getting filled quickly and are more than 80 per cent full.⁴⁹⁹ In the landfills, no women are employed. Landfills are also managed by men, while women often run small-scale recycling operations. A vast part of the population sees it as inappropriate for women to work in such sectors as they are expected to cook at home, and working in waste management is seen as unhygienic. In the informal sector, however, female workers are common.⁵⁰⁰

Photo 11.1: Waste collection vehicles, Ulaanbaatar



Photo credit: Maja Colovic-Daul.

Although the three landfills have access roads and a fence, disposal is performed directly on the soil, while the excavated soil, from the same location is used as a cover material. Old landfill (Naran) cells are sealed by a thick layer of soil and a gas extraction system is introduced.

Significant gaps exist in the city's waste management value chain, including waste segregation, collection, transportation, material recycling and energy recovery. Separate collection is mostly done by private companies, and some of them have premises near the landfills.

As of September 2023, there are 826 sorting points in Ulaanbaatar, while 369 are in residential blocks, 68 in schools, 32 in kindergartens and 345 in official buildings. In total, they generate 1,456 tons per year of recyclables. Collection is carried out by private companies.⁵⁰¹ Still, even at those sites, more than half of the collection points are organized in a way that is incompatible with adequate waste collection, loading and transportation technologies.⁵⁰² About 60 people hand-separate plastic waste at the Naran landfill and sell it to the nearby secondary raw material collection points.

A high number of waste pickers, including TUK employees, individuals, associations and recycling organizations collect plastic waste at disposal sites in Ulaanbaatar. Most of the waste pickers bring waste collected by themselves, select cables and/or plastic and burn the waste to extract valuable materials. Piles of waste in the vicinity of landfills are a common sight. Plastic waste is purchased in two categories: clean, such as drinks bottles, and dirty, such as bottles of oil. Recycling plants' raw material collection points, however, only buy clean plastic. Most waste pickers in landfills are women, who are mostly poor and live near or at the landfills.⁵⁰³

⁴⁹⁸ Ankhtuya (2020). JICA (2012).

⁴⁹⁹ Ministry of Environment and Climate Change, 2024.

⁵⁰⁰ UNEP (2019).

⁵⁰¹ Mongolia's waste management magazine 2023-01/I; Mongolian national recycling association.

⁵⁰² SWITCH-Asia (2023).

⁵⁰³ UNEP (2019).

Photo 11.2: Naran Waste Disposal Site, Ulaanbaatar**Photo 11.3: Dumpsite near the Naran landfill, Ulaanbaatar**

Manufacturing waste

The Vision 2050 Long-term Development Policy estimates that manufacturing will represent 14.6 per cent of the GDP in 2030, increasing to 27.4 per cent in 2050. Although the manufacturing sector is in constant growth and development, it represented only about 8.6 per cent of the GDP in 2022, compared with 13.1 per cent from the agriculture sector and 25.01 per cent from the mining sector.⁵⁰⁴ Municipal solid waste or similar generated by the manufacturing sector has decreased from 24,400 tons in 2020 to 13,900 tons in 2023, while hazardous waste remains stable at around 300 tons in the same period.⁵⁰⁵

⁵⁰⁴ NSO, 2025.

⁵⁰⁵ NSO (2024f).

Photo 11.4: Example of a secondary raw material collection point at Naran Waste Disposal Site, Ulaanbaatar



Photo credit: Maja Colovic-Daul.

Waste generated from food products, beverages and the manufacturing of textiles, clothing, leather and fur is comparable to municipal waste and is typically disposed of at designated municipal disposal sites. The transport of manufacturing waste to disposal sites is generally managed by the industry itself, either using their own vehicles or by contracting municipal services. Waste from the manufacturing of coke, refined petroleum products, basic metals and other non-metallic mineral products is typically disposed of at designated sites within or near the industrial area. However, data on waste generated by the manufacturing sector are not readily available nor is there a comprehensive monitoring system in place.

There are several projects and initiatives supported through the United Nations implementing agencies and the EU⁵⁰⁶ aiming to introduce sustainable manufacturing. The sustainable fibre alliance organization, founded in 2015, is focused on ensuring the long-term viability of the cashmere sector. UNDP is supporting Mongolia through several complementary initiatives, including the Improving Adaptive Capacity and Risk Management of Rural Communities in Mongolia project and the Sustainable Cashmere Platform.⁵⁰⁷

Waste from energy sector

Energy production includes any fossil fuels drilled and mined, which can be burned to produce electricity or used as fuels, as well as energy produced by nuclear fission and renewable power sources such as hydro, wind and solar photovoltaic. Coal is the primary source of energy in Mongolia, and accounts for over 96 per cent of the energy sector in Mongolia.⁵⁰⁸

Specifically, for electrical energy, coal is the main source with a share of 84 per cent of usage, while the natural resources such as wind and water contribute to the remaining need of electricity production.⁵⁰⁹ In 2019, the Government prohibited domestic raw coal use in six central and more urbanized areas of Ulaanbaatar,⁵¹⁰ but there was no possibility to ban the use of raw coal for coal-fired CHPPs. Ulaanbaatar covers its demand for electricity and heat using CHPPs. Each CHPP has its own series of ash ponds. The generation of bottom ash and fly ash from energy generation is estimated to be 600,000 t/y;

⁵⁰⁶ SWITCH-Asia (n.d.). SWITCH-Asia (n.d. a).

⁵⁰⁷ UNDP (2021a).

⁵⁰⁸ IEA (n.d.).

⁵⁰⁹ Ibid.

⁵¹⁰ UNDP (2018).

with CHPP4 plant contributes about 300,000 t/y.⁵¹¹ Coal ash also referred to as coal combustion residuals is produced primarily from the burning of coal in coal-fired CHPPs. Coal-fired CHPPs may dispose of coal combustion residuals in surface impoundments or landfills.

Data on current use of coal in the country, and specifically in Ulaanbaatar, are not available.⁵¹² In general, ash is the main waste type generated from coal-burning power plants, and it amounts to 10–30 per cent of burned coal. Ash is typically stored in ash ponds, to which it is transported as slurry. Ash ponds are constructed according to Russian standards. Since the former Soviet Union provided funds and technical support for the construction of power plants. Information on the amount of ash already deposited in ash ponds or the annual generation of ash is not available.⁵¹³

Ger districts are one of the major producers of ash. Residents of the *Ger* districts may discharge it into a nearby illegal dumpsite. There are around 198,000–230,000 tons of coal ash generated per year.⁵¹⁴ Unfortunately, due to the lack of management for coal ash disposal in the *ger* area, residents are disposing of coal ash in illegal and unregulated points such as public waste collection points and ravines near the *ger* area. As a result, coal ash is becoming one of the main sources of soil pollution in the *ger* area of Ulaanbaatar city.

Ulaanbaatar has initiated a project with Naanovo Waste to Energy solutions with an installed capacity of 14 MW, 24 hours a day, 355 days a year. Investment needs are US\$112.4 million and construction and set up can be completed in a year once the investment is secured. Around 500 tons of waste would be used per day, while 90 per cent of grey water from the Tuul River will be treated and 70 per cent must be purified to drinking water.

Construction and demolition waste

The majority of construction work is conducted by small and medium-sized contractors, who are responsible for a significant portion of irregularly disposed construction and demolition waste (CDW), which constitutes 20–25 per cent of the country's total solid waste.⁵¹⁵ CDW is thus one of the largest waste streams in Mongolia. It is typically collected and disposed of by construction companies, through direct contracting with waste collection companies or via private truck owners. Recycling was mainly a back-end process with recyclables of economic value targeted by groups of waste pickers operating at the city's landfills/dump sites. Data on current amounts and CDW flow are not publicly available, however, they are collected by the Ministry of Environment and Climate Change. Regarding the amounts collected, sorted and prepared for recycling in Ulaanbaatar, data are collected by the Environmental Pollution and Waste Management Department of the Office of the Mayor of Ulaanbaatar.

With an EBRD loan, co-financed by the capital and supported by the EU Asia Investment Facility grants, the Moringiin Davaa landfill is nearing completion, including Mongolia's first CDW Recycling plant. As of August 2024, the landfill is 90 per cent finished, the CDW plant is 85 per cent complete, and all 29 machinery units have been delivered and accepted by the city.⁵¹⁶ The plant was put into operation on 30 September 2024.⁵¹⁷

Mining and quarrying waste

Mining is a key industrial sector of the Mongolian economy. In 2022, it accounted for 21.05 per cent of GDP, 57.7 per cent of gross industrial output,⁵¹⁸ and the production per capita was around 0.012 million tons of coal, 0.8 barrel of crude oil and 356.2 kg of copper concentrate. In 2022, there were 3,055 registered mining companies in Mongolia with mining production mainly centred around gold, copper, coal and iron, and accounting for over 30 per cent of the national budget revenue.⁵¹⁹ Regarding waste from the mining industry, a total of 434 million m³ of waste was collected in 2022.⁵²⁰ Table 11.2 provides an overview of waste collected in the mining industry during 2022 and its composition.

⁵¹¹ ECE (2018).

⁵¹² Energy Regulatory Commission (2023).

⁵¹³ Mongolia (2023a).

⁵¹⁴ Battsengel (2020).

⁵¹⁵ Switch2Green (n.d.). SWITCH-Asia (2017).

⁵¹⁶ EBRD (n.d.). Ulaanbaatar City Planning Office, 2024.

⁵¹⁷ Amrida (2024).

⁵¹⁸ With, among other activities, mining of coal and lignite, extraction of crude petroleum and mining of metal ores.

⁵¹⁹ NSO, 2025.

⁵²⁰ EITI (2024).

Table 11.2: Waste collected in mining industry during 2022 and its composition, m³

			<i>Amount</i>
Total			434 168 937
Ordinary	284 664 958	Disposed	432 930 051
		To companies	478 389
Toxic	149 504 978	To companies	44 833

Source: EITI (2024).

Several gold mines are located around 110 km north of Ulaanbaatar, including the Boroo and Gatsuurt Gold Mines. The Khotgor Coal Mine is situated about 120 km west of Ulaangom. In southern Mongolia, major mining projects like the Tavan Tolgoi coal mine and the Oyu Tolgoi copper mine contribute to the country's economy and play a crucial role in global mineral markets.⁵²¹ The growing mining industry attracts foreign investors from the EU, Japan, the Republic of Korea and the United States of America. The EU, through EBRD investments, supports sustainable mining practices, local community development, environmental protection and biodiversity conservation.⁵²² In addition, larger, public and private companies are focusing on the use of renewable energy and using a modern and environmentally friendly dry tailings facility that should recycle 100 per cent of the wastewater, stacking the waste into a solid form for easier disposal.⁵²³ Information on the handling of chemicals and waste chemicals used for the mining and minerals extraction is not available.

The waste management practices vary greatly depending on the type of gold deposit, geographic location of deposits and infrastructure. The most common practices are hard rock deposit and placer deposits.

Initiatives were put in motion for reduced risks of communicable and non-communicable disease spread by joint action of local government authorities who introduce sanitary and hygiene procedures at ASGM sites and tackle the problems related to household solid waste collection, transportation and disposal, with *Aimag* and Capital Division of Specialized Inspection, *Aimag* and Capital Governor's Offices and NGOs for awareness raising.⁵²⁴ However, it is important to stress that the focus should be placed on more rigorous attempts to implement the legislative framework and activities to protect the health of the involved population as well as the environment from the effects of highly hazardous waste from the mining sector.⁵²⁵

Agricultural waste

Agriculture is the second major industrial contributor to Mongolia's GDP after mining and in 2022, it accounted for 13.1 per cent of GDP.⁵²⁶ Agricultural waste is calculated using coefficients⁵²⁷ related to harvested amounts, food products and handling methods during transportation, as well as waste from households and the food industry. Data on the amounts are not available. Waste recycling, related to the food and beverage industry, can be integrated or harmonized with the municipality programmes on waste disposal.⁵²⁸ During March 2024, a *dzud* caused the loss of 5.2 million livestock or about 8 per cent of total livestock in Mongolia (see Chapter 15).⁵²⁹ Four recycling, fertilizer plants process animal waste in Ulaanbaatar.⁵³⁰ However, specific statistical data on agricultural waste are not available, while the most of the waste is used as fertilizer (see Figure 11.3).⁵³¹

Hazardous waste

Mongolia imports a substantial amount (more than 40 per cent) of second-hand goods from China (representing 34 per cent of total imports), the Republic of Korea (4.85 per cent of Mongolia's total imports) and the United States of America

⁵²¹ Mine (2020).

⁵²² EBRD (2024).

⁵²³ Global Business Report (2024).

⁵²⁴ planetGold Mongolia (2021).

⁵²⁵ planetGold Mongolia (2022).

⁵²⁶ NSO, 2025.

⁵²⁷ SWITCH-Asia (2022a).

⁵²⁸ Mongolia Sustainable Finance Association (2022).

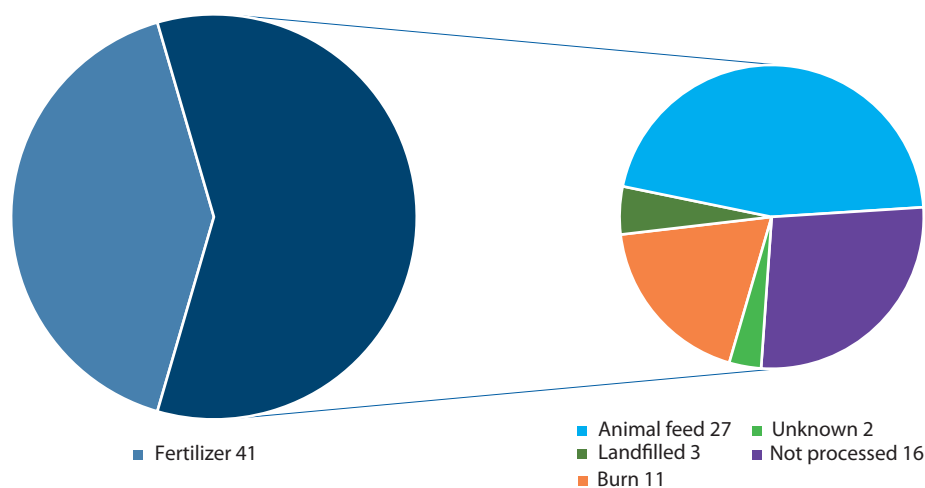
⁵²⁹ Relief web (2024).

⁵³⁰ Mongolia (2023a).

⁵³¹ SWITCH-Asia (2022a).

(making up 3.03 per cent).⁵³² Thus, due to the short lifespan of such products, hazardous chemical waste and e-waste may often be generated.⁵³³ The majority of hazardous waste comes from hospital and healthcare facility waste and waste from power plants and thermal production (see Table 11.3).

Figure 11.3: Agriculture waste management methods, percentage



Source: SWITCH-Asia (2022a).

Table 11.3: Hazardous waste, 2020–2023, 1,000 tons

	2020	2021	2022	2023
Total	467.0	222.3	567.4	433.9
Hospital and healthcare facility waste	358.1	5.4	294.8	156.7
Waste from educational and scientific institutions	0.0	0.1	0.0	0.1
Waste from power plants and thermal production	99.9	124.6	185.9	187.7
Waste from mining operations	3.4	90.0	84.9	87.4
Chemical production waste	0.1	0.0	0.0	0.0
Waste from waste processing industry	0.2	0.3	0.0	0.0
Construction and building materials industry waste	0.2	0.0	0.0	0.2
Household waste	3.2	1.1	1.1	1.1
Leather, fur, wool, cashmere, and industrial waste	0.2	0.3	0.3	0.4
Other waste	1.6	0.6	0.4	0.3

Source: NSO (2024f).

In 2022, a concrete step in fulfilling its obligations under the Basel, Minamata, Rotterdam and Stockholm conventions and securing a sustainable future for its citizens has been initiated.⁵³⁴ The objective of the mentioned project is to analyse the current state of hazardous waste production and management, including what types of waste are being generated and how they are being treated and disposed of.

⁵³² TrendEconomy (n.d.).

⁵³³ PAGE (2016).

⁵³⁴ UNEP (2022).

The Ministry of Environment and Climate Change collects data on hazardous waste, but the availability of data is limited. Despite the adoption of hazardous waste management legislation, enforcement is lacking, leading to ongoing challenges in treatment and disposal. The primary known sources of hazardous waste include sludge from tanneries, waste from crude oil processing and soil contaminated with cyanide and mercury from gold ore processing. Regular data collection on the quantities and types of hazardous waste is lacking. In 2022, the total amount of hazardous waste was 1.17 million tons.⁵³⁵ In 2024, there are seven hazardous waste generators and enterprises licensed to transport, collect, recycle, dispose and export hazardous waste.⁵³⁶ As of September 2024, there are 17 hazardous waste recycling plants in Ulaanbaatar, out of which 2 (Tsetsuh Trade and Tumenhishig) are licensed to recycle hazardous chemical packaging and hospital waste. There are also three battery recycling plants and three oil recycling plants. There are 40 recycling plants and more than 160 waste separating and processing sites with about 1,500 employees registered in Mongolia.⁵³⁷

According to the legislation, hazardous waste must be transported in special containers, along the routes established under the control of the Specialized Inspection Agency and relevant local government authorities. This is done by notifying the Governor's office and other relevant offices of the respective *aimag* and obtaining permission from them.

The National Waste Management Improvement Strategy and Action Plan⁵³⁸ states that there are companies that are adopting their manufacturing process to substitute the use of raw material to prevent hazardous waste generation and, in some cases, to improve the quality of the final product. However, the list of those companies and data on the waste that they are generating during the production processes is not available.

Regarding unmanaged chemical waste, in Ulaanbaatar, a total of 360 tons of liquefied chlorine is still at the water supply department (Central Water Purifying facility of the Mongolian Integrated Water Resource Management Authority). It was imported from the Russian Federation and China in the 1970s and 80s. It is stored in a high-pressure tank. There are many chemicals stored in this way. Also, 50–60 tons of arsenic are stored in Nalaikh District. Chemical packaging is simply sold, and citizens are taking them directly and using them in their households for storage of milk and water.⁵³⁹

Regarding SDG target 12.4 (By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment), according to the then Ministry of Environment and Tourism, in 2019, Mongolia generated 316,416 tons of hazardous waste. In the period 2020–2023, about 97.73 per cent of the hazardous waste has undergone final treatment and since 2022, 98.3 per cent underwent final treatment (SDG indicator 12.4.2).⁵⁴⁰

Medical waste

Data on medical waste, amounts, packaging, temporary storage and facilities are collected by the Health Development Centre under the Ministry of Health, who compiles health statistics and sends monthly reports on health statistics to the NSO. Data are not publicly available. In most districts of Ulaanbaatar, medical waste is collected and disposed of by a specialized contractor. However, in Bayangol District, TUK is responsible for both collecting and transporting medical waste and household waste under its existing contract.⁵⁴¹

Medical waste comprises about 40 per cent of the health care facility waste and varies among the health care facilities.⁵⁴² In 2021, medical waste management was carried out per the tripartite public–private partnership contracts that were signed between the Government and two private companies (Element LLC and Element Medical LLC) on land and facilities owned by the companies. During COVID-19, Element LLC serviced 1,407 health care facilities, including pharmacies, state general hospitals, private hospitals and family care centres. Medical LLC has contracts with pharmacies, state general hospitals, private hospitals and family care centres in Mongolia. Approximately 2.8–3.0 tons of medical waste are being collected from health care facilities daily. In 2024, two enterprises are licensed for medical waste management, Green Purification LLC and Element LLC.⁵⁴³ Some of the medical hazardous waste facilities are located near solid waste management landfills.

⁵³⁵ NSO, 2025.

⁵³⁶ EIC (n.d. a).

⁵³⁷ Mongolian National Recycling Association (2023).

⁵³⁸ Ministry of Environment and Tourism (2017).

⁵³⁹ Ibid.

⁵⁴⁰ NSO (2024f).

⁵⁴¹ SWITCH-Asia (2023).

⁵⁴² ADB (2023c). CSIH (n.d.).

⁵⁴³ EIC (n.d. a).

Centralized medical waste disposal facilities in Ulaanbaatar and health care facilities in the *aimags* use autoclaves to disinfect waste, which is then disposed of in landfills. Health care waste management remains a systemic challenge in rural primary health care services. If a central waste management facility is not available, particularly in *soums*, waste is often disposed of in fire pits.⁵⁴⁴

Radioactive waste

Radiation sources and radioactive substances are used in various fields such as medicine (radiotherapy and diagnostics), veterinary medicine, geology and mining, science, research and education. The amount of radioactive waste generated is relatively low and primarily comes from spent sources that are stored at the Isotope Centre. As of September 2024, 10 uranium deposits have been discovered in the country with about 160,000 tons of uranium.⁵⁴⁵ Although uranium mining has not yet started, such quantities could ensure not only the development of Mongolia's own nuclear power industry but place the country first in Asia and 12th in the world in terms of output.⁵⁴⁶

Recommendation 10.4 (a) of the First EPR of Mongolia suggested participating the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. As of December 2024, no active participation has taken place. Recommendation 10.4 (a) has not been implemented and remains valid.

Photo 11.5: Hazardous medical waste treatment facility at Naran landfill



Photo credit: Maja Colovic-Daul.

Food waste

Food waste management is a challenge mainly pertaining to the Ulaanbaatar area and its districts. From the overall solid waste generated by the households living in apartments, 34 per cent is food waste, while in the waste generated from the *ger* area the share of food waste goes up to 50 per cent. Continuous urbanization and large quantities of imported food add additional pressure even after government initiatives for lowering food waste. Food waste amounts decrease during the winter season (6.9 per cent) and increase during the summer season (16.3 per cent).⁵⁴⁷ According to ADB, approximately 2.9 million tons of solid waste is generated annually in Mongolia, out of which approximately 1.2 million tons is in Ulaanbaatar.⁵⁴⁸ Although 17.8 per cent of solid waste is recycled in Ulaanbaatar, food waste is not recycled and is disposed of in formal landfills or illegally dumped.⁵⁴⁹ Mongolia will face challenges to achieve SDG target 12.3 (By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses).

⁵⁴⁴ ADB (2021a).

⁵⁴⁵ Nuclear Energy Agency, IAEA (2020). World Nuclear Organization (n.d.). IAEA (2023).

⁵⁴⁶ IAEA (2023). Orano (n.d.).

⁵⁴⁷ Ministry of Environment and Tourism and Ulaanbaatar City (2019).

⁵⁴⁸ UNEP (2022a).

⁵⁴⁹ Mongolia (2023a).

A large-scale composting facility has been constructed as part of a US\$3.2 million initiative, primarily funded by the Japan Fund for Poverty Reduction.⁵⁵⁰ The new community composting facility is designed to process a minimum of 2 tons of food waste per day. It is expected that around 700 tons of food waste will be composted annually.⁵⁵¹

There are pilot projects run by different SMEs related to biodegradable waste and composting, trying to produce fertilizer out of the food waste.

Photo 11.6: Example of production of organic fertilizer from biowaste



Photo credit: Maja Colovic-Daul.

Pesticides

In 2021, fertilizer consumption was 31.3 kg per hectare. Though fertilizer consumption fluctuated substantially in recent years, it tended to increase through the 1972–2021 period ending at 31.3 kg per hectare in 2021.⁵⁵² No information is available on how and where the packaging of fertilizers is collected, treated and disposed of. A study on POPs in Mongolia highlighted high amounts of pesticides such as hexachlorobenzene, dichlorodiphenyltrichloroethane and hexachlorocyclohexanes in soil samples. Hexabromocyclododecane had by far the highest concentrations.⁵⁵³

Polychlorinated biphenyls

Polychlorinated biphenyls contaminated equipment was recognized as a major existing hazardous waste in Mongolia. In 2020, Mongolia destroyed 709 tons of equipment contaminated with polychlorinated biphenyls.⁵⁵⁴ Mongolia does not import contaminated waste for local destruction nor export contaminated equipment; all processes are done locally.

Specific streams

Mongolia currently lacks implemented management plans or strategies for specific waste streams. In 2021, 76 enterprises or 0.1 per cent of all enterprises were ISO14001 certified.⁵⁵⁵ In 2023, 188,000 tons of solid waste were recycled or reused (see Table 11.4). Regarding SDG target 12.5 (By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse), in 2020, the rate of waste recycling was 10.5 per cent and decreased to 6.5 per cent in 2023 (SDG indicator 12.5.1).

⁵⁵⁰ Larsen (2021).

⁵⁵¹ ADB (2019).

⁵⁵² World Bank (n.d. a).

⁵⁵³ Enkhtuul (2023).

⁵⁵⁴ Mongolia (2023c).

⁵⁵⁵ Mongolia (2023b).

Table 11.4: Reuse, recycling and disposal of general waste by type, 1,000 tons

<i>Waste type</i>	<i>2020</i>	<i>2021</i>	<i>2022</i>	<i>2023</i>
Total	272.9	186.6	225.8	188.8
Paper and paper product waste	42.7	55.3	30.2	30.2
Glass and glass product waste	19.0	5.1	19.6	89.2
Metal product scrap	17.9	30.6	34.9	34.9
Plastic product waste	16.0	39.5	42.5	42.5
Construction waste	9.0	17.1	3.0	16.6
Food and biomass waste	12.4	9.3	19.3	19.3
Electronic waste	0.9	0.5	2.4	2.4
Car parts	43.5	51.4	13.4	7.4
Other waste	25.2	16.9	23.5	35.1

Source: NSO (2024f).

Organic waste

Organic waste includes kitchen waste and garden waste, however only data for kitchen and food waste from 2019 are available. An estimated 310 million tons of food waste is separated from the total amount.⁵⁵⁶ Ulaanbaatar has a currently active initiative for the reduction of organic waste, where with the support from the Japan Fund for Poverty Reduction, food waste is turned into compost.⁵⁵⁷ There are currently four waste recycling plants that operate as fertilizer plants for processing animal waste (manure, dung etc.) for further commercial usage.

Glass

Erdes Plasm LLC from Mongolia and China Triumph International Engineering Co., Ltd from China signed an agreement to build a 150t/day flat glass line and an 80t/day packing glass line. This is the first glass factory in Mongolia and before opening in 2021, 100 per cent of glass products in Mongolia were imported. It is estimated that out of the total recycled waste, glass and glass products account for 17,600 tons. Approximately 30 per cent of the separated glass waste will be recycled in the glass factory.⁵⁵⁸

Paper

Recycled paper and paper product waste is calculated at 74,300 tons or 18.3 per cent out of the total recycled waste amount in 2019.⁵⁵⁹ Data on the amounts of recycled paper and paper products are not available publicly. Currently there are three operational brown cardboard paper processing plants. The data on amounts of recycled paper and paper products are available through the Mongolian National Recycling Association, which is in collaboration with 21 active recycling companies in Mongolia.

Plastic and PET

There are 150 registered plastic collection points nationwide, along with 14 unregistered points.⁵⁶⁰ Out of the 150 plastic collection points registered with the Mongolian National Waste Recycling Association, 67 (44.7 per cent) are in Sükhbaatar and Bayan districts. Additionally, 43 (64.2 per cent) of the plastic raw material purchasing points are also concentrated in these two districts. In other areas, Khan-Uul district has 11 collection points, Bayangol 5 and Chingeltai 4. Nalaikh, Sükhbaatar and Baganur districts have only 1–2 points each in operation. Although some collection points exist, districts do not have systematically organized plastic collection, and do not classify and sell it; rather, companies they collect and transport all waste to their designated drop-off locations. Plastic raw material outlets primarily focus on purchasing three types of plastics: polyethylene terephthalate, high-density polyethylene and polyethylene. The quality of the processed

⁵⁵⁶ Ibid.

⁵⁵⁷ Larsen (2021).

⁵⁵⁸ Anudari (2021). ADB (2022).

⁵⁵⁹ Ministry of Environment and Tourism and Ulaanbaatar City (2019).

⁵⁶⁰ SWITCH-Asia (2022c).

plastics was controlled by GASI until 2023, when its functions were redistributed to various line ministries; waste is now primarily controlled by the Ministry of Environment and Climate Change (see Chapters 1 and 2). The density and purity of the recycled plastic have the greatest influence on the acceptability for the processing technology and thus the price.⁵⁶¹

In 2021, in Ulaanbaatar there were 17 plants with an annual recycling capacity of approximately 18,500 tons of plastic. Due to the low level of separate collection, companies reached only 52.4 per cent of their capacity in 2021.⁵⁶² The number of plants reached 24 by 2022 and a recycling production capacity of 44,420 tons of plastics.⁵⁶³ One of them is TML Plastic Company, which inaugurated Mongolia's first plastic recycling plant, with the capability to process 75 tons of waste daily and produce 45 tons of PET raw material. The plant's output is supplied to MCS Coca-Cola, a partner and investor in the TML venture. Waste is provided to resellers or directly to the end point plant.

Although the country has sufficient recycling capacity, it lacks a well-developed system for waste separation at the source and proper sorting. If this issue is not addressed, recycling companies may soon face challenges due to a shortage of recyclables. To compensate for this, waste might need to be imported from other countries, which could result in significant environmental impacts.

Metal and aluminium

The primary inputs for metals reprocessing fall into three material streams: steel, aluminium and other non-ferrous materials. The recycling industry receives and purchases wasted metal from scavengers, collection points and other industries. Once the aluminium metal is in a molten state, its alloy levels are tested and adjusted before casting into aluminium ingots for further processing.⁵⁶⁴ Out of the metal scrap, only iron scrap is being exported. In 2022, 200,000 kg of iron scrap was exported from Mongolia.⁵⁶⁵ Information on the exact amount of recycled metal and aluminium in the period of 2017–2024 is not available online.

In 2021, Shredwell Recycling, China, installed the first metal recycling system in Mongolia.⁵⁶⁶ Some of the scrap treatment companies are importing waste into Mongolia.⁵⁶⁷ The metal recycling Company Bugat Altai; 3–4 *khooros* in the area bring the raw materials (5–10t/day). Waste is provided to resellers or directly to the end point plant.⁵⁶⁸

Batteries and end of life vehicles

There are three main types of battery used in vehicles in Mongolia: lead acid starter/systems batteries (most vehicles), lithium-ion batteries (electric vehicles) and nickel-Metal-Hydride batteries (hybrid vehicles).⁵⁶⁹

There is no unified system or facilitation for collecting, reusing and recycling End-of-Life batteries in Mongolia. About 77 per cent of the 799,891 vehicles used in Mongolia are more than 10 years old.⁵⁷⁰ In 2018, 57,372 tons of solid waste from cars were generated in Mongolia (57.5 per cent was from Ulaanbaatar and 42.5 per cent from rural Mongolia). A total of 38.43 tons of this volume was from high voltage hybrid electric vehicle batteries.⁵⁷¹

Under the Basel Convention, Mongolia agreed not to transport end-of-life batteries through its neighbouring countries China and the Russian Federation because of the hazards of oxidizing, heating up and burning. Non-reusable batteries can only be exported as raw materials or products after recycling. The national standard is aimed at regulating the collection, storage and transport of 12V lead-acid batteries until a recycling facility is in place. There is no clause related to decommissioned vehicles and batteries in the Law on Road Transport, nor are batteries mentioned in the standard on recycling of end-of-life vehicles (MNS 6594: 2016). Currently, four waste battery disassembly and sorting plants are operating in Ulaanbaatar.

⁵⁶¹ SWITCH-Asia (2022b).

⁵⁶² SWITCH-Asia (n.d. b).

⁵⁶³ SWITCH-Asia (2022b).

⁵⁶⁴ SWITCH-Asia (2017).

⁵⁶⁵ NSO, 2025.

⁵⁶⁶ Shredwell (2021).

⁵⁶⁷ RecycleinME (n.d.).

⁵⁶⁸ Mongolia's waste management magazine 2023-01/I.

⁵⁶⁹ Capacity Development for Climate Policy in the countries of Southeast, Eastern Europe, the South Caucasus and Central Asia (2022).

⁵⁷⁰ CEIC (n.d.). Ichinnorov (2023).

⁵⁷¹ Capacity Development for Climate Policy in the countries of Southeast, Eastern Europe, the South Caucasus and Central Asia (2022).

Used tyres

With the number of registered vehicles and other transportation modes like bicycles, Mongolia generates an estimated 700,000 waste tyres annually. The total number of end-of-life tyres is around 2.3 million. As of September 2024, Mongolia has two waste tyre processing factories. Recycling Mongolia, a private company in Tsogttsetsii, uses pyrolysis to convert used car tyres and plastic into oil, producing 15,000 litres of oil daily and recycling 10,000 kg of tyres and plastic. Data on the amount from the other private company is not available online.

Electrical and electronic equipment

Mongolia faces challenges in managing e-waste due to high imports of machinery and equipment, which exceeded 20 per cent of total imports annually until 2022, when it decreased to just over 14 per cent. E-waste poses environmental risks due to toxic substances like lead, mercury and cadmium. Proper management involves recycling, refurbishing, or safely disposing of e-waste to recover valuable materials and reduce harm. Although the exact data on Waste Electrical and Electronic Equipment are unavailable, efforts are underway to raise awareness about responsible disposal and recycling. In 2021, the government signed an agreement with a private company to open an e-waste recycling facility in Darkhan, Mongolia's second-largest city.⁵⁷²

Sludge

Sludge from tanneries is the main source of hazardous waste in Mongolia and represents a specific problem considering its chemical content and its potential risk to human health, especially chromium III (Cr). In 2023, ADB financially supported a project for the Management and Reuse of Sludge from On-Site Sanitation Facilities and Decentralized Wastewater Treatment Plants.⁵⁷³ In Mongolia, sludge is treated, recycled and used as compost for trees and greenery growing. There is no available official data on annual sludge production (from wastewater or tanneries) nor on the amount of recycled and reused sludge.

Keumgang Corporation completed a feasibility study for a sewage sludge treatment facility in Ulaanbaatar, which has been handed over to city authorities. The study was funded by KRW 90 million from the United Association of Korean Groups and KRW 210 million from Keumgang Corporation. The facility will treat 2,500 tons of sewage per day, dehydrating and incinerating 200 tons of sludge, producing ash with a 75 per cent moisture content.⁵⁷⁴

Used oil

Research from the Mongolian University of Science and Technology has shown that out of 8,700 tons of six types of liquid waste, 6,840 tons of engine oil, 0.43 tons of brake fluid, 0.485 tons of gearbox fluid, 0.299 tons of hydraulic steering fluid, 0.484 ton of coolant and 0.219 ton of transmission oil are produced in the country. About 70 per cent of this liquid waste is thrown into the environment.⁵⁷⁵ An oil recycling company, Golden Universe Group LLC, part of GU Corporation in Bagakhangai, about 85 km outside Ulaanbaatar is, as of September 2024, recycling waste oil from mining industry trucks. There is no publicly available online information on the amount of used oil collected and stored.

11.2 TRANSBOUNDARY MOVEMENT OF HAZARDOUS WASTE

Since 2017, no hazardous waste has been exported or imported.

11.3 PRESSURES FROM WASTE

In Mongolia, methane emissions from solid waste disposal sites surged by 914.88 per cent in 2020, while industrial wastewater emissions increased by 146.19 per cent. Methane and nitrous oxide emissions from domestic wastewater treatment also grew by 142.28 per cent and 120.14 per cent, respectively. Additionally, open waste burning is common near landfills and in residential areas, releasing harmful pollutants into the air and soil, though its full environmental and health impacts remain unassessed.

⁵⁷² Baldé (2024).

⁵⁷³ ADB (2020c).

⁵⁷⁴ Ooluun (2024).

⁵⁷⁵ Ichinnorov (2023).

Air pollution from waste, particularly coal ash, poses a significant threat to human health in Mongolia, with fine particulate matter (PM_{2.5}) being the most harmful, contributing to diseases such as stroke, heart disease, lung cancer and respiratory illnesses (see Chapter 17). A 2022 study revealed elevated levels of radionuclides, including 226Ra, 232Th, 40K and 137Cs, at the Naran Enger landfill, with 40K activity in waste zones being twice the global average.⁵⁷⁶

In addition to landfill residents, waste scavengers—over 2,000 people in Ulaanbaatar—are particularly vulnerable, exposed to harmful emissions from burning waste and decaying materials, risking injuries while collecting waste. Meanwhile, methane emissions from solid waste disposal sites surged by 914.88 per cent in 2020, and industrial wastewater emissions increased by 146.19 per cent, compounding the environmental pressures from waste mismanagement. Open waste burning, a frequent occurrence, further exacerbates air and soil pollution, although its full impact remains unassessed.

The 396 official waste collection sites lack impermeable layers and basic environmental standards, leading to leachate migration into soil and groundwater. Of these, 36 are in protected river zones, 24 in normal security zones and 8 in sanitary zones. These sites officially cover 3,811.6 hectares, but numerous unregistered dumpsites further increase environmental threats.

The Galbiin Gobi area, a major mining region, has experienced significant ecosystem degradation, with vegetation loss due to insufficient land restoration. Pollution from both mining and urban sources also impacts rivers, causing sedimentation that affects fish species like sturgeon by disrupting their spawning grounds.⁵⁷⁷

In addition, use of mercury in ASGM has caused extensive soil and water pollution and waste dumping near mining sites. Quantitative data on mercury trade, mercury releases and environmental pollution resulting from mercury use are limited despite a broad range and variety of studies on ASGM.

Regarding SDG target 3.9 (by 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination) and Indicator 3.9.3 on mortality rate attributed to unintentional poisoning, Mongolia reports an increase since 2017 from 0 in 2017 to 36.5 cases in 2022. In 2019, according to the WHO Global Health Estimates, the mortality rate attributed to unintentional poisonings was 2.8 deaths per 100,000 population, of which 1.7 were female and 3.8 were male.

11.4 TRENDS IN CHEMICALS MANAGEMENT

According to the legislation, chemicals that affect human health, the environment, livestock and wildlife, posing risks of death or extinction (excluding household, food and medical chemicals) are classified as toxic. Toxic chemicals are categorized as highly toxic, toxic, or mildly toxic based on their impact. The Government and the Ministry of Health determine the classification list. Local governors regulate the production, trade and use of toxic chemicals, while highly toxic chemicals are regulated at the national level following assessments.

Production

Most chemicals are imported due to limited domestic production. In 2022, chemical manufacturing accounted for just 1 per cent of the gross industrial output. From 2014 to 2019, 260 agencies imported approximately 430,000 tons of 2,600 types of chemicals, primarily for commercial use.⁵⁷⁸ In 2022, imported chemicals and related products were valued at US\$723.4 million, while chemical exports generated US\$2.8 million.⁵⁷⁹ Toxic chemicals may only be traded at authorized locations, separate from food or other goods, and only to permitted citizens, entities, or organizations.

A total of 93,468 kg of mercury is emitted and released per year in Mongolia and 96.31 per cent of this release is from primary (virgin) metal production.⁵⁸⁰ The second largest source of mercury release is fuel extraction and use (1.47 per cent), mercury-added products (0.67 per cent), waste deposition and treatment (0.58 per cent), cement and lime production (0.40 per cent), waste burning (0.29 per cent), manometers and laboratory equipment (0.19 per cent), recycled ferrous metal (0.05 per cent) and crematoria/cemeteries (0.05 per cent). Of the total mercury released, 76 per cent goes to soil, 16 per cent to air, 2 per cent to water, 4 per cent to by-products and impurities, 1 per cent to general waste and 1 per cent to sector-specific disposal. The mercury inventory in ASGM, carried out under the National Adaptation Plan project in

⁵⁷⁶ Dorjsuren (2022).

⁵⁷⁷ CBD (Mongolia-Biodiversity Facts).

⁵⁷⁸ ADB (2024a).

⁵⁷⁹ NSO, 2025.

⁵⁸⁰ Ministry of Environment and Tourism (2019b).

2018, estimated that 235.4 kg of mercury were likely to be used per year. This number appears to be below the actual size. As released by media and by data from police sources, mercury smuggling amounted to 170.4 kg in 2017. There are no available data on the amounts of illegally traded mercury.

Storage

Chemical storage procedures are set at the national level, with governors designating locations for toxic chemical storage. An interim storage facility with a 1-tonne capacity was established for mercury and mercury compounds collected during a national inventory. Currently, it stores over 300 kg of liquid mercury and 18 kg of mercury compounds.⁵⁸¹

Transportation

Transport of chemicals is done by assigning the routes, authorized by the Police Office, to transport flammable, explosive or extremely toxic chemicals.

Disposal

Chemical waste and unusable toxic chemicals are disposed of in locations indicated by the local governors in accordance with established procedures on chemical waste. In 2023 there were two recycling plants that were handling the neutralization and destruction of chemical packaging.⁵⁸²

Pressure from chemicals management

The presence of heavy metals was found in the blood of children. Multiple factors contribute to this problem. For example, leaded fuel from vehicles has been identified as a source, as well as heavy metals in paint. The custom of schools repainting their walls every year exacerbates the problem, as children are repeatedly exposed to fresh paint containing heavy metals. Additionally, imported goods such as toys often contain toxic materials, as these products are not adequately inspected for hazardous substances.

Gender-specific challenges also arise from toxic and polluting chemicals. Women, who are often responsible for household chores, are disproportionately exposed to harmful substances. They use chemicals for cleaning and may reuse chemical packaging to store food items like milk or dairy, inadvertently increasing their exposure. Men, on the other hand, often face risks through unintentional emissions of chemicals when burning waste to extract valuable recyclables. Despite these gendered risks, there are currently no gender-specific laws in Mongolia's waste sector. The Law on Waste does not include a gender component, leaving these disparities unaddressed.⁵⁸³

Chemicals emergency preparedness, response and follow-up

Chemical emergency preparedness and response in Mongolia follow the Law on Protection against Disasters, which regulates disaster management systems and outlines the roles of national and local councils, emergency services, public organizations and citizens. Chemical emergencies are classified as technical accidents or disasters based on their impact. The law mandates disaster risk reduction (DRR), monitoring, disaster protection planning and maintaining a disaster information database, including GIS data, population, infrastructure and records of hazardous events. Mongolia has established a command hierarchy for chemical accidents (see Chapter 16).

The Government appointed a minister and state emergency management agency to oversee disaster risk assessments, which must meet government-approved requirements. All public, local organizations and legal entities must have disaster protection plans based on these assessments. There are three readiness levels: daily, high and all-out. The State disaster protection inspector ensures compliance with laws, procedures and disaster plans. Testing and checkups of readiness are approved by the emergency management head.

⁵⁸¹ Ibid.

⁵⁸² Mongolia (2023a).

⁵⁸³ UNEP (2019).

11.5 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

The 2017 Law on Waste management, accompanying 16 procedures, has been amended since then bringing about a great deal of improvements and offers comprehensive framework for managing waste, focusing on reducing, reusing and recycling (3R). It was designed to promote better waste management practices across Mongolia, including setting specific goals for recycling rates. It regulates various types of waste, including municipal solid waste, hazardous waste, industrial waste, agricultural waste, electronic waste and plastic waste. It promotes the 3R approach and introduces Extended Producer Responsibility, requiring producers to manage the waste generated by their products. The law sets standards for waste collection, disposal and bans open waste burning, which contributes to pollution. It also establishes monitoring systems and penalties for non-compliance, aligning with international treaties. Waste legislation includes the Law on Environmental Protection, the Law on Environmental Impact Assessment, the Law on Toxic and Hazardous Chemicals, the Law on Air Pollution Fees, Law on Water Pollution Fees, Law on Water, the Law on Hygiene and the Law on Use of Urban and Rural Settlement Water Supply and Sewage Systems.

New procedures for transportation, collection, storage and recycling of hazardous waste, approval of methodological instructions, establishment of centralized points for common waste, identification of responsibility of manufacturers and importers of waste generated have been adopted to secure budgetary upgrades for investments in the waste sector.

The 2018 Order No. 505 of the Ministry of Health: Approval of Instructions on the Segregation, Collection, Storage, Transportation, Disinfection and Disposal of Medical Waste outlines government guidelines for the safe management of healthcare waste, incorporating national laws and WHO-recommended international best practices. It defines waste management procedures in health facilities, categorizes medical waste, and details packaging and labelling requirements. Additionally, it specifies standards for temporary storage, transportation and collection of waste within health facilities.⁵⁸⁴

By Minister of Roads and Transport Development's decision, procedures for cleaning, collecting, sorting, transporting, recycling, reusing, destroying and landfilling vehicle waste have been adopted in 2020.

The 2016 Law on Construction enhances the management and structure of construction and demolition waste, aiming to minimize its negative impacts on the environment and human health, and to prevent potential hazards and risks. This Law also bolsters the circular economy by promoting sustainable production and consumption practices to improve waste management.

Mongolia does not have specific legislation for radioactive waste and other general legislation on nuclear and radioactive sources. A 2022 Government Resolution, No. 445, regulates waste safety arising from activities concerning radiation and nuclear installations. Recommendation 10.4 (b) of the First EPR of Mongolia on developing a specific strategy, plans and legislation for radioactive waste management has not been implemented and is still relevant.

Policy framework

The National Waste Management Improvement Strategy and Action Plan aims to guide Mongolia towards sustainable waste management from 2017 to 2030. It promotes resource conservation, the use of environmentally friendly technologies and the reduction of waste at the source. The Strategy focuses on lowering GHG emissions and enhancing the adoption of the 3R principles. It supports the strengthening of the legal framework compliance through penalties and contamination fees, encourages public education for waste segregation, and supports capacity building. The Strategy addresses various types of waste, including municipal, healthcare, industrial and e-waste, with goals such as reducing final waste disposal by 30 per cent, managing hazardous waste and ensuring organizational and financial stability for waste management systems. Recommendation 10.2 (b) of the First EPR of Mongolia recommended the approval of the strategy on waste and the preparation of a related financing plan. The recommendation has been implemented. However, Recommendation 10.2 (a) of the First EPR of Mongolia recommended the Government to ensure that sectoral ministries develop and implement waste management strategies, as applicable. This recommendation was not implemented.

The Vision 2050 Long-term Development Policy outlines ambitious goals for waste management as part of its broader commitment to sustainable development. The strategy focuses on fostering green growth through the adoption of environmentally friendly technologies and practices. Key waste management objectives include reducing pollution, promoting resource conservation and enhancing recycling efforts. Vision 2050 emphasizes reducing air, soil and water

⁵⁸⁴ ADB (n.d.).

pollution by improving waste management infrastructure and enforcing stricter regulations on waste disposal. It also prioritizes waste segregation and aims to recycle a significant portion of waste to ease the pressure on landfills. Eco-friendly technologies will be introduced, especially in urban areas, to promote sustainable waste disposal across various sectors. Additionally, the vision seeks to strengthen public awareness and education on sustainable waste practices, advocating for the widespread adoption of the 3R principles. The Vision 2050 Long-term Development Policy aspires to position the country as a leader in sustainable waste management, aligning its efforts with international environmental goals and contributing to overall green growth.

The National Action Plan for reducing mercury pollution caused by ASGM in Mongolia 2019–2023 and the Workplan for Implementation of the National Action Plan for Reducing Mercury Pollution Caused by ASGM in Mongolia. The Plan addresses waste management by focusing on reducing mercury emissions and waste from ASGM activities. The plans emphasize controlling the use of mercury and the need to manage mercury-contaminated waste effectively. Key measures include promoting mercury-free technologies, improving the collection and safe disposal of mercury-contaminated materials, and strengthening monitoring and enforcement to prevent illegal mercury handling and waste disposal. The plans also stress raising awareness among miners about the environmental and health impacts of mercury waste.

One of the objectives in the Five-Year Development Guidelines for 2021–2025 is to increase the waste recycling rate to 27 per cent.

Institutional framework

The Ministry of Environment and Climate Change is the primary body responsible for environmental waste management. The Ministry has only one person in the Natural Resources Management Division who is full-time responsible for hazardous waste management, and two colleagues that have their mandates combined with waste and other environmental issues. The Ministry is responsible for licensing units and organizations involved in the transport, collection, storage, recycling, destruction and export of hazardous waste, as well as approving the procedures for these licenses. It also manages the authorization of imports of toxic and hazardous chemicals, and, since the Minamata Convention came into force, no permits for mercury imports have been issued by the ministry. The Ministry collects data and reports on export, import, trans-border transportation and production, storage, trade, transportation, use and deposition of hazardous and toxic chemicals, and establishes a databank; approves annual reports on activities concerning the use of hazardous and toxic chemicals and provides undertakings related to the use of hazardous and toxic chemicals with professional and methodological guidance and approves necessary recommendations. The Ministry is also responsible for ensuring enterprises compliance with regulations for the safe transport, use and disposal of chemicals.

The Ministry of Health oversees hazardous waste management in healthcare facilities, providing leadership, technical guidance and financial support for waste operations. The Ministry develops guidelines for sorting, collection, transportation, recycling and disposal of healthcare waste and approves service fee calculations for handling medical hazardous waste.

The Ministry of Science and Education supports waste management in the education sector, offering advice, financial aid, and conducting research on pollution prevention, processing, recycling and disposal technologies.

The Ministry of Mining and Heavy Industry advises on waste management during mining operations, approving and enforcing guidelines for sorting, collection and disposal of mining waste. The Ministry of Urban Development, Construction and Housing manages construction and demolition waste, setting norms and enforcing regulations for its collection, recycling and disposal.

The Ministry of Road and Transportation regulates waste from transportation vehicles, overseeing operations such as collection, sorting and landfilling at local, national and international levels. The Ministry of Energy and the Energy Regulatory Commission handle waste from energy production, approving tariffs and monitoring waste recovery.

The Ministry of Finance is responsible for the development of policy incentives to operations related to collection, transportation, recycling, recovery and disposal of solid wastes. In general, the waste sector is financed by the state and local budget lines, solid waste service fees and funds obtained from established business and corporations.

The National Association of Waste Recycling Industries has been focusing on sustainable plastic recycling especially in Ulaanbaatar and Bulgan *aimag*. They have been developing sustainable plastic waste management in both urban and rural areas improving the collection, sorting and classification of plastic waste, providing access to advanced recycling technologies and supporting small and medium-sized enterprises in adopting sustainable production and consumption practices.

The Isotope Centre, located about 25 km from Ulaanbaatar, is responsible for the central storage, transportation and disposal of radiation sources, radioactive material and radioactive waste. The Centre has two storage facilities: one

with 12 wells for low-activity waste and spent sealed sources, and another with 6 wells for high-activity and long-lived radioactive sources like Co-60, Cs-137, Pu-Be and Ra-226. It also manages the transportation of radioactive sources within Mongolia. All radioactive sources are imported, and the Centre lacks the equipment needed for conditioning spent sealed sources and radioactive waste.

Other institutions relevant to the matter of chemicals management are:

- Customs General Administration (inspection of goods at border crossings);
- National Agency for Meteorology and Environmental Monitoring (testing and analysis of chemical products);
- NEMA (safety codes and procedures for chemical spills).⁵⁸⁵

In *aimags*, environmental and climate change departments oversee local waste management programmes and monitor the activities of *soums* (see Chapter 1). Only several *aimags* (Orkhon, Bulgan, Darkhan-Uul, Khishig-Undur *soum* within Bulgan *aimag*) in Mongolia have initiated local waste management programmes to address environmental concerns and improve public health.⁵⁸⁶ *Khurals* develop local waste management programmes, while City Governors ensure the implementation of national policies, issue permits for waste disposal operations and manage reporting to the Ministry of Environment and Climate Change. Governors are also responsible for subcontracting waste services, following procurement laws to engage businesses for recycling, regeneration, landfilling and disposal activities. Recommendation 10.2 (c) of the First EPR of Mongolia recommended ensuring that waste management plans are developed and implemented at the municipal level. The recommendation has not been implemented.

Coordination between institutions at national and local levels on matters related to waste and chemicals management

The Ministry of Environment and Climate Change works closely with other ministries, particularly Health and Mining, to develop sector-specific waste management regulations and plans. The Ministry of Environment and Climate Change also coordinates with city mayors and *aimag* governors to implement waste legislation. While cooperation with local authorities is generally strong, Ulaanbaatar Municipality has expressed a need for additional support from the Ministry of Environment and Climate Change. Waste management in Ulaanbaatar is primarily handled by the Urban Landscaping Department, which manages solid waste collection, disposal and landfill operations, outsourcing services to Ulaanbaatar TUK. District governments are responsible for waste collection from households, businesses and non-public spaces, setting fees and contracting private companies for transportation and cleaning.

At the local level, *soums* governors are tasked with enforcing waste management laws, organizing collection and transportation, and supporting public awareness and compliance with waste regulations. They also ensure waste collection systems in public areas and take measures to mitigate the environmental and health impacts of waste disposal. Through these multi-level collaborations, Mongolia aims to strengthen waste management governance across its regions.

Regulatory, economic, fiscal and information measures

The Ministry of Environment and Climate Change issues permits to legal entities and organizations for the transportation, collection, storage, recycling, disposal and export of hazardous waste. The Ministry describes and adopts procedures for licensing as well. As of September 2024, there were seven hazardous waste generators and enterprises licensed to transport, collect, recycle, dispose and export. Permits for disposal site operation are issued by the *aimag* and Capital City governors on the *aimag* level and permits for collection and transport of waste are issued by *soums* and districts in their respective jurisdiction.

Regarding the financing of the sector, the Ministry of Environment and Climate Change together with the Ministry of Finance approve the methodology for calculation of unit tariffs for costs related to the cleaning, collection, transportation, burial and landfilling of regular solid waste and enforce implementation of service fee collection. Revenue sources for waste management (e.g., waste fees, water and wastewater charges, polluter pays taxation) do not cover the full cost of solid waste collection, transportation, treatment and disposal, so funding often depends on grants or is project based. Additional funds for the sector and projects in the waste sector are from international organizations either through grants or through loans. The Government is actively cooperating with relevant international organizations and donors to achieve objectives stated in national policies for waste management, environmental protection and sustainable development of Mongolia.

⁵⁸⁵ ADB (2024a).

⁵⁸⁶ Khankhuu (2024).

11.6 ASSESSMENT AND RECOMMENDATIONS

Assessment

In the period before 2017, developments in waste management were slow, and no major reforms or improvements were implemented by the Government. Since 2017, with the introduction of the Law on Waste, this sector has been a greater attention. However, the overall performance of the sector remains relatively weak, despite the steady increase in municipal solid waste collection rates, separate sorting and the number of companies handling recyclables and specific waste streams. Waste data collection and reporting systems remain incomplete, resulting in a lack of reliable information on waste generation, composition, recycling rates and hazardous waste management. Without accurate data, policymakers are unable to assess progress or make informed decisions.

Mongolia faces significant challenges in municipal waste management due to the lack of sanitary landfills for both municipal solid waste and hazardous waste. This has led to widespread environmental pollution caused by uncontrolled waste dumping. As of September 2024, efforts to improve waste handling, such as the introduction of an extended producer responsibility scheme, have not yet to prove fully effective, as the Government continues to bear most of the financial burden for public waste services. There is also a notable lack of incentives to encourage more active participation in separate waste collection and recycling. Consequently, concerns remain that the existing system is insufficient to divert enough waste from landfills to provide an adequate supply of raw materials for the recycling industry.

In relation to specific waste streams, plastic and battery recycling present significant opportunities, although both remain underdeveloped. Some promising initiatives have emerged, including separate collection programmes for plastics and batteries, yet these efforts are too limited in scope to have a meaningful impact. The country lacks a systematic national approach to expanding separate waste collection across a broader range of products. While several plastic recycling plants are operating in Ulaanbaatar, they currently run at only about half their capacity due to limited availability of source-separated plastic waste.

Municipal waste collection in Ulaanbaatar is managed primarily by private and public companies; however, waste separation at the source remains rare. The heavy reliance on outdated waste transport vehicles and inadequate waste separation infrastructure increases operational costs and reduces the efficiency of waste management. This situation is further exacerbated by informal waste pickers who operate in and around landfills, recovering recyclable materials but inadvertently contributing to inefficiencies within the formal recycling system.

The institutional capacity for waste management remains limited. The Ministry of Environment and Climate Change employs only one full-time staff dedicated to hazardous waste management, while a few others contributing to waste issues as a part of their duties. Moreover, the absence of a dedicated waste management department within the Ministry leads to fragmented efforts and poor coordination. This shortage of personnel hampers the Government's ability to effectively coordinate waste management activities across different ministries and regional authorities.

The introduction of the Vision 2050 Long-term Development Policy and the National Waste Management Improvement Strategy and Action Plan represents a positive step towards more sustainable waste management. These strategies set ambitious targets for waste reduction and the transition to a circular economy, but implementation has been slow, often hindered by limited funding and weak coordination. As of September 2024, the financing model for waste management continues to rely heavily on public funds and does not provide the basis for a sustainable waste management system.

Although Mongolia does not produce nuclear energy, small quantities of radioactive waste are generated from medical, industrial and research activities. The country currently lacks a comprehensive legal framework for managing radioactive waste, raising concerns about long-term safety and environmental impacts.

Despite having some recycling infrastructure, Mongolia's recycling rate remains low. Many facilities are underutilized due to insufficient waste separation at source. Voluntary waste separation programmes have achieved limited success, while informal waste pickers continue to play a major role in the recycling value chain.

Recommendations

Waste management data

Recommendation 11.1:

The Ministry of Environment and Climate Change, in cooperation with relevant ministries, aimags and local self-governments, should:

- (a) Improve the usability of the waste database, and include relevant Sustainable Development Goal indicators;
- (b) Introduce procedures to validate waste data.

Institutional capacity for waste management

Recommendation 11.2:

The Ministry of Environment and Climate Change should strengthen capacity of waste management to consolidate technical knowledge, and coordinate waste management efforts across the country.

Strategic waste management documents

Recommendation 11.3:

The Government should:

- (a) Explore additional funding sources, such as through public-private partnerships and international grants, to support waste management;
- (b) Encourage municipalities to adopt localized waste management plans, with support for training and capacity building at the local level.

Radioactive waste

Recommendation 11.4:

The Government should:

- (a) Develop a national strategy for radioactive waste management, in line with international best practices;
- (b) Develop legislation to ensure the safe handling, storage and disposal of radioactive materials.

Recycling

Recommendation 11.5:

The Government should:

- (a) Scale up initiatives for the separation of plastic and battery waste across a broader range of product categories;
- (b) Enhance its support for the recycling sector by incentivizing businesses to invest in recycling technologies and encouraging households to participate in waste separation;
- (c) Introduce tax incentives for recycling companies;
- (d) Prioritize the development of EcoParks to enhance recycling capacity;
- (e) Expand and better regulate the existing system of buy-back points for recyclables.

Open waste burning

Recommendation 11.6:

The Government should require local authorities to take action to eliminate and prevent open waste burning near waste disposal sites and in populated areas.

Controls in areas bordering waste disposal sites

Recommendation 11.7:

The Ministry of Environment and Climate Change should ensure that inspections are carried out to control air, soil and surface and groundwater pollution in areas bordering waste disposal sites.

CHAPTER 12

BIODIVERSITY AND PROTECTED AREAS

12.1 CURRENT SITUATION AND TRENDS IN SPECIES AND ECOSYSTEMS

Species diversity

According to the Ministry of Environment and Climate Change, as of 2024, flora included 7,626 plant species in total: 3,047 vascular plant species or subspecies, 580 moss species, 1,079 lichen species, 2,289 algae species and subspecies and 631 fungus species (even though the last constitute a separate fungi eukaryotic kingdom, different from Plantae kingdom). Further, the Ministry of Environment and Climate Change informed of the occurrence of 14,125 animal species, including 141 mammal, 519 bird, 79 fish, 13,000 insect, 6 amphibian, 23 reptile, 34 mollusc and 323 worm species in Mongolia. The National University of Mongolia produced a list of 243 micro-organism genera under the project “Creation of a database of taxonomic records of fauna, flora and micro-organisms of Mongolia”, implemented in 2017–2018 on the request of the then Ministry of Environment and Tourism, financed by the Fund for Sciences and Technology.

Globally threatened species

The International Union for Conservation of Nature (IUCN) global Red List version 2024-2 contains records on 241 plant, 12 fungus and 667 animal species occurring in Mongolia. Thus, many species extant (resident) in Mongolia have not yet been listed by IUCN. As for the number of threatened species in each major taxonomic group, 44 species extant were assessed as globally threatened by extinction (Vulnerable (VU), Endangered (EN) and Critically Endangered (CR)), including 1 plant species, 4 fungi, 2 invertebrate (other than mollusc), 1 fish, 26 bird and 10 mammal species.

According to 2024 IUCN assessments, 1 plant species present in Mongolia is globally threatened by extinction, categorized as CR, while the conservation status of 2 other plant species was assessed as Near Threatened (NT) or Lower Risk/near threatened (LR/nt), of 228 as Least Concern (LC) or Lower Risk/least concern (LR/lc), and of the 10 plant species as Data Deficient (DD). Compared to 2017 IUCN assessments, the status of some plant species occurring in Mongolia worsened at the global scale, as the species previously considered as near threatened was categorized seven years later as critically endangered, while 2 other plant species categorized as LC in 2017 were categorized as NT.

As for fungi, IUCN assessed the status of 4 fungi species extant in Mongolia as globally threatened by extinction, including 1 categorized as EN and 3 as VU. Another 7 fungi species listed by IUCN were categorized as LC or LR/lc, and 1 fungi species as DD.

The IUCN Red List version 2024-2 categorized 39 animal species extant in Mongolia as globally threatened by extinction, including 4 CR, 11 EN and 24 VU. Another 30 species were categorized as NT or LR/nt, a further 587 species as LC or LR/lc and 11 animal species as DD. Compared to 2017 IUCN assessments, the conservation status of some animal species extant in Mongolia improved at the global scale. Firstly, at the time of the First EPR two more (41) animal species were globally threatened. Secondly, the number of EN species decreased from 12 to 11, and of VU species from 25 to 24. However, the same 4 animal species remained CR at the global scale, while the number of NT species increased from 29 to 30.

Not all plant, fish, mollusc and other invertebrate species have been assessed for the IUCN Red List. Therefore, the flora, fungi and fauna of Mongolia could include many more species globally threatened by extinction, but are not yet assigned a relevant IUCN Red List extinction threat category. Further, due to missing or incomplete data from recent field research and inventory works, numerous species were temporarily categorized as DD, despite their confirmed rarity status.

Photo 12.1: Przewalski horses

Photo credit: loflo/stock.adobe.com.

Trends in populations of selected globally threatened wild mammal species

The most globally threatened Mongolian animal species, the Gobi bear (*Ursus arctos gobiensis*), categorized by IUCN as CR, occurs only in the Gobi Desert, which is likely to be one of the most challenging physical environments of any brown bear population worldwide, characterized by extreme temperature ranges (between -45°C and $+45^{\circ}\text{C}$) and extreme dryness (with less than 100–200 mm of precipitation annually). Its small population, which is the most isolated brown bear population in Asia, resides in some parts of the Great Gobi Strictly Protected Area (StrPA). The Gobi bear is classified as an “extremely rare animal” in Mongolia. The Gobi bear population size is very limited but stable or slightly growing (about 30 in 2016, 33 in 2018 and 51 in 2021).

In 2018–2024, the Technical Assistance Project for the Protection of the Gobi Bears of Mongolia was implemented in part A of the Great Gobi StrPA, supported by a grant from China. Further, according to the Biennial National Report for the period 2019–2022 (NR 2022)⁵⁸⁷ to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) at the initiative of the President of Mongolia the National Mazaalai Conservation Conference was organized on 14 April 2022. Also in 2022, a special working group was established by the then Minister of Environment and Tourism (2022 Order No. A/54) to develop a National Mazaalai Protection Programme and a 5-year action plan for 2022–2026. As of October 2024, the programme and action plan were not adopted.

According to IUCN, threats to the persistence of the Gobi bear include an extremely small population size and limited genetic diversity, limiting species adaptation potential, but also ongoing illegal mining practices and the potential of larger scale proposed mining operations.

Another globally threatened species categorized by IUCN as CR is the wild Bactrian camel (*Camelus bactrianus ferus*), different and distinct from the domesticated Bactrian camel. One of four wild Bactrian camel subpopulations inhabits the Great Gobi StrPA part A, while the other three subpopulations occur in China. Around 2019 its population was estimated at some 450 specimens that survived in Mongolia, compared to 350 in 2004, and some 600 in China. However, the CBD Sixth National Report (SNR) informed that Mongolia had between 800 and 1,200 wild Bactrian camels.

Mongolia's population of successfully reintroduced Przewalski's horse (*Equus ferus ssp. przewalskii*) categorized by IUCN as EN, constantly increased, from 540 specimens in 2016 and 649 in 2019 to some 850 in 2023, in three subpopulations, inhabiting Great Gobi StrPA part B and two national parks (NPs), Hustai Nuruu NP and Khomiin Tal NP. Mongolia designated Khomiin Tal NP in 2020 also to protect the habitat for the still growing Przewalski's horse free roaming local subpopulation established there in 2004, whose protection is supported by the Khomyn Talyn Takhi NGO.

⁵⁸⁷ Ministry of Environment and Tourism (2023a).

The Mongolian saiga (*Saiga tatarica mongolica*), categorized by IUCN as EN, is the endemic local subspecies of the saiga antelope species. The Mongolian saiga population often fluctuated in numbers, in some periods slowly increasing due to favourable climatic conditions and as a result of conservation measures, in other periods depleted by repeating *dzud* climatic phenomena (see Chapter 15) or by the outbreak of livestock-transmitted contagious *peste de petits ruminants virus* between late 2016 and early 2017, which drastically reduced the population from approximately 11,000 in 2016 to only 3,400 individuals in 2017, later further affected by drought in summer 2017 and a severe snow storm in January 2018. According to SNR, based on the inventory carried out in March 2018, the Mongolian saiga population was estimated at over 3,000 specimens. According to NR 2022, the Mongolian saiga population recovered, reaching at least 10,077 individuals as of November 2021. Further, NR 2022 informed that by November 2021 saiga reclaimed its historical range by establishing at least 3 subpopulations in the southern valley of Khyargas Lake (405 specimens), Khomiin Tal (201) and Mankhan (290). According to the WWF estimates, the Mongolian saiga population reached some 13,925 specimens by November 2022 and some 15,000 in 2023.

The population of the snow leopard (*Uncia uncia*), categorized by IUCN as VU, according to the assessment completed in March 2021 by WWF-Mongolia and the Snow Leopard Conservation Foundation, was estimated at some 953 (ranging from 806 to 1,127) adult individuals, and the population trend is likely stable.

The geographic range of the Gobi khulan (*Equus hemionus ssp. hemionus*) categorized by IUCN as NT is currently limited to the Mongolian Gobi and adjacent areas in northern China. According to NR 2022, its size was estimated at some 36,298 individuals in 2015 and 51,691 in 2019. The survey conducted in 2020–2021 estimated the total Gobi khulan population at some 64,000, while the subsequent survey conducted in 2021 estimated the population number at some 65,307 individuals. According to the Wildlife Conservation Society-Mongolia, the main threats to the Gobi khulan, apart from climate change impacts (see Chapter 15), are human activities that may negatively impact the size, quality and functional connectivity of the Gobi-Steppe ecosystem. The main human-induced ecosystem degradation factors include the increase in livestock populations, the rapid development of the mining sector with the associated technical infrastructure, in particular the expansion of transport infrastructure, resulting in Gobi khulan habitat fragmentation.

According to NR 2022, the survey conducted in 2020–2021 estimated the population of argali (*Ovis ammon*), categorized by IUCN as NT, at some 19,000 ($19,691 \pm 814$) specimens. According to the census carried out every two years by WWF-Mongolia and WWF-Russia, the transboundary population of argali inhabiting the Altai Mountain range as of October 2021 reached 6,189 individuals (4,095 in Mongolia, 2,094 in the Russian Federation), increasing by some 27 per cent over two-years since the previous census. NR 2022 informed also that the 2020–2021 survey estimated the population of Siberian ibex (*Capra sibirica*), also categorized by IUCN as NT, at some 31,000 ($31,178 \pm 1,469$) individuals.

Identification and legal protection of regionally rare and threatened species

Species abundant in other countries of their biogeographical range, hence not perceived by IUCN as threatened at the global scale and assigned the LC category, can be rare and threatened by extinction in Mongolia. Secondly, some species extant in Mongolia have not yet been assessed for the IUCN Red List. Therefore, Mongolia's national Red Lists, assessing the conservation status of regionally rare and threatened species at the country scale, remain the best sources to identify the most urgent priorities for species conservation in Mongolia.

Before 2017, Mongolia developed the third edition of its Red Lists of animal species (amphibian, reptile, fish and mammal species in 2006, bird species in 2011), and the first part of the third edition of the Red List of Plants in 2011, for the first time following the guidelines for adopting IUCN criteria at the regional level. As many as 110 of all 148 assessed vascular plant species (over 74 per cent) were classified in 2011 as regionally threatened in Mongolia: 16 species as CR, 39 species as EN and 55 species as VU. As for the fauna, of the 24 native reptile and amphibian species assessed in 2006, 2 reptile species and 4 amphibian species were classified as regionally threatened and categorized as VU. A further 5 reptile species were categorized as NT, 1 as DD and 12 as LC. Of 48 fish species (from among 64 native species) 11 were considered as regionally threatened, including one species categorized as CR, 6 species as EN and a further 4 fish species as VU. Of the 476 bird species assessed in 2011, 20 were considered to be threatened on a regional scale, including 2 categorized as CR, 6 as EN, 12 as VU and a further 16 bird species as NT.

On the basis of the Red Lists, proposals for their legal protection are justified. Mongolia grants the legal protection of plant and animal species classified either as "very rare" or "rare". Pursuant to the 2012 Law on Fauna, very rare animals are endangered animals whose number has reduced drastically in their whole distribution area or in most parts, and there is no resource available for use. Such species are listed in the Law, and their specimens can only be acquired for scientific purposes. Rare animals are those whose number has reduced in their range area, have few resources and which are at risk of extinction. Such species are included on a separate list approved by the Government and can be hunted or trapped

also for other purposes. Pursuant to the 1995 Law on Natural Flora, very rare plants are those with no natural restorative capacity, a very restricted distribution, no usable reserves, and in danger of extinction. Such are determined in an Annex to the Law on Natural Flora and their specimens can only be acquired for scientific purposes. Rare plants are those with limited natural restorative capacity, restricted distribution and reserves, and potentially in danger of extinction. The list of rare plants is approved by the Government. Rare plants can be used only for household and research purposes. The Annex to the Law on Natural Flora lists 133 very rare plant species. Another Annex to the 1995 Government Resolution No. 153 lists 356 vascular plants, 11 lichen, 5 algae, 4 moss and 5 fungus species. In January 2012 the Government approved the list of rare animals (2012 Government Resolution No. 7). The Law on Fauna listed 31 extremely rare animals.

However, the credibility of information on species included in the national Red Lists largely depends on their regular periodic verification and updating. The Red Lists, as well as the resulting lists of “very rare” and “rare” species were adopted well before 2017.

According to SNR, the project “Red List of Plants in Mongolia-II” was implemented in 2018–2019, at the request of the then Ministry of Environment and Tourism, funded by the Zoological Society of London. Under this project the status of 489 vascular plant (other than those considered in 2011), 15 moss, 35 algae, 32 lichen and 21 fungus species was assessed with the use of IUCN criteria.

Also according to SNR, the Government aimed to include 248 species categorized as CR or EN (195 vascular plant, 11 moss, 17 algae, 18 lichen and 7 fungus species) in the List of Very Rare Plants, and 267 species categorized as VU (217 vascular plant, 4 moss, 18 algae, 14 lichen and 14 fungus species) in the List of Rare Plants. Justifications and supplementary details of these species were, as of 2019, being prepared and compiled for submission for the Government’s approval. Inclusion of the plant and fungus species in the respective Lists will grant these species legal protection in Mongolia. But, as of October 2024, no information on the progress with the inclusion of these species in the respective lists was available.

The second edition of the Red List of Plants⁵⁸⁸ was published in 2019 and the first ever Red List of Non-tuberosus Plants⁵⁸⁹ was published in 2020. Thus, the first part of the 2011 Red List of Plants has been updated, and its second part successfully elaborated, in line with Recommendation 11.1 (b) of the First EPR of Mongolia. However, updating both legally binding lists of “very rare” and “rare” plants by the Government was, still pending, as of October 2024. Mongolia had not yet updated its Red Lists of animal species (amphibian, reptile, fish and mammal species of 2006 and bird species of 2011), each accompanied by a separate Summary Conservation Action Plan published in the same year as the corresponding volume of the Red List. Therefore, as of October 2024, this recommendation can be assessed as only partly implemented.

According to the Institute of Biology of the Mongolian Academy of Sciences (MAS), an extensive assessment of the current conservation status of animal species financed by MAS, a collective study compiled by several experts on particular groups of species, based on recent research, is planned to be published in 2025 in the MAS Journal.⁵⁹⁰

Endemic species

The IUCN Red List version 2024-2 lists only one endemic species of Mongolia. The conservation status of most endemic species or sub-species occurring in Mongolia has never been assessed by the IUCN. Endemic species are often even more threatened by extinction than the globally red-listed ones. Moreover, ongoing climatic changes have stronger adverse effects on the last survived habitats and refuges of endemics requiring specific environmental conditions.

According to the “Mongolia’s flora includes 151 endemic species belonging to 64 genera from 25 families”, and that “among the vascular plants grown in Mongolia, there are 120 endemic species, 532 sub-endemic species”. The same SNR informed that the vascular flora of Mongolia included 70 relict species.

The 2024 Fourth National Communication of Mongolia under the United Nations Framework Convention on Climate Change (NC4)⁵⁹¹ informed that “currently a total of 125 species (3.91 per cent) are endemic and 532 species (16.65 per cent) are sub-endemic to the vascular flora of Mongolia”.

According to the Ministry of Food, Agriculture and Light Industry, 46 local breeds are kept in the country, 13 transboundary breeds (including extinct ones) exist in the country and 3 transboundary breeds have sufficient genetic resources stored for reconstitution (SDG indicator 2.5.1 of the SDG target 2.5 (By 2020, maintain the genetic diversity of seeds, cultivated plants

⁵⁸⁸ Tungalag (2019).

⁵⁸⁹ Enkhzhargal (2020).

⁵⁹⁰ MAS (n.d.).

⁵⁹¹ Mongolia (2024).

and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed). Also, 46 local breeds are not extinct, while 3 local breeds are with unknown risk status (SDG indicator 2.5.2).

Widespread species

As reported under the First EPR, the population numbers of the Mongolian gazelle (*Procapra gutturosa*), categorized by IUCN as LC, were subject to fluctuations, due to extreme weather events causing die-offs in ungulates and periodic outbreaks (e.g. in 2010) of the highly contagious livestock-transmittable foot-and-mouth disease. Moreover, the Mongolian gazelle population was also subject to poaching. In 2017, the size of the Mongolian gazelle population was estimated at around one million individuals. According to NR 2022, the 2020–2021 survey commissioned by the then Ministry of Environment and Tourism estimated the Mongolian gazelle population at some three million specimens.

According to SNR, populations of the wild boar and roe deer were increasing but it provided no detailed assessments of their populations. No consolidated inventories and assessments of fauna have been carried out, but partial inventories were conducted for assessment of certain species' stocks in some selected regions.

Information on population trends in other widespread species was not available, as data on species populations were generally not included in statistical yearbooks published by NSO. Until 2020, subsequent statistical yearbooks provided data on the number of rare animals allowed to be hunted and caught for special purpose hunting and sport fishing, as well as the number of (widespread) animals allowed to be hunted and caught for consumption or domestic use purposes in a particular year and in particular *aimags*. Since 2021, such data have been no longer published in statistical yearbooks. EIC regularly publishes annual reports on animal use and protection.⁵⁹²

Although Mongolia's widespread species enjoy much less attention than those rare and globally threatened, they have a much stronger effect on ecosystems. Trends in populations of widespread wild ungulates affect, in a positive or negative manner, their natural habitats but also the wellbeing of carnivorous species, including those globally threatened. For example, a decline in populations of widespread wild ungulates and other animals being prey to the snow leopard reduces its nutrition base, turning them to feeding on livestock, which aggravates human wildlife conflicts and often results in retributive killing by herders.

Invasive alien species

Not all alien species are invasive (can spread naturally, without human influence). Secondly, not all invasive alien species (IAS) can pose significant threats to natural ecosystems and native species' populations; such potential adverse effects require thorough studies. Further, ongoing climate changes enhance the biogeographical expansion and spread of invasive species well beyond their historical natural ecological ranges, which can result in transformations of Mongolia's natural ecosystems.

Until 2017 no research on IAS had been undertaken in Mongolia and no data on IAS were available. Mongolia's scientists assumed that the American mink could threaten many wild species, and that some non-native invasive plant species were imported from China for tree planting and land rehabilitation of mining areas in the Gobi region.

According to SNR, the first ever list of IAS in Mongolia was compiled in 2018, and included 51 plant and 82 animal (40 insect, 10 arachnid and mite, 24 fish, 8 mammal) species.

According to UNDP Mongolia, as of 2024, alien species occurring in Mongolia included some 153 to 154 plant species (out of which only 33 species were considered invasive) and only 43 animal (25 arthropod, 13 fish, 5 mammal) species. As of 2024, the IAS spread was increasing, while no other information on further research on IAS or measures aimed at the prevention or control of IAS undertaken in Mongolia was available. Hence, it can be assumed that the prevention and control of IAS had not yet adequately been resourced in Mongolia, which means that the country has not yet achieved SDG indicator 15.8.1.

Ecosystems

In Mongolia, 19 natural ecosystems (15 matrix and 4 patch ecosystems) can be distinguished in terrestrial and aquatic biomes: 4 ecosystems in the high mountain biome (alpine tundra, alpine meadow, high mountain steppe and

⁵⁹² EIC (n.d. c).

sub-alpine woodland), 2 in the forest biome (boreal coniferous forest and sub-boreal mixed forest), 4 different types of steppe ecosystems (meadow steppe, moderate dry steppe, dry steppe and desert steppe), 3 desert ecosystems (semi-desert, true desert and extreme arid desert), 2 aquatic ecosystems (lake, perennial rivers and floodplains) and 4 patch ecosystems, covering numerous but small areas (intermittent rivers and ephemeral channels, closed depressions and salt banks, sand dunes and glaciers).

As emphasized in the 2001 Initial National Communication⁵⁹³ to UNFCCC, “Mongolia’s natural ecosystems are relatively fragile, given that they are highly susceptible to degradation by both natural and human impacts, and slow to recover.”

Ongoing climate changes have significantly affected at least some of Mongolia’s natural ecosystems throughout the last decade. As of October 2024, no information on ecosystems’ distribution was available.

In December 2019, the Atlas of Ecosystems was published in both paper and digital formats.⁵⁹⁴ It is a comprehensive cartographic scientific publication and was developed based on monitoring the state of natural ecosystems of all *aimags* between 2010 and 2015, while the most recent data on anthropogenic disturbances to Mongolia’s ecosystems dated back to 2017.

12.2 PERFORMANCE AND GAPS IN BIODIVERSITY MONITORING NETWORKS

No consolidated inventories and assessments of fauna have been carried out, but partial inventories were conducted for assessment of certain species’ stocks in some selected regions. Animal censuses are required every 5 years and usually commissioned by the ministry responsible for the environment to the Institute of Biology of MAS. Such periodic single-species focused population surveys concerned the Mongolian saiga, argali, ibex and saker falcon (*Falco cherrug*).

In the absence of nationwide surveys and wildlife censuses, the remaining vast areas outside protected areas and hunting grounds were not adequately covered by biodiversity monitoring, and, in the best possible case, had been monitored only occasionally and irregularly. Also, the abundant populations of wide-ranging animal species require vast tracts of intact habitats to survive, and migration corridors, to ensure genetic exchanges between populations. No wildlife corridor has been established to allow migration and survival of wild animals during extreme weather events, such as *dzuds*. The wildlife disease monitoring and early detection systems are not sufficiently enhanced to avoid disease propagation to livestock.

In the situation when the current trends in populations of rare and threatened species cannot properly be assessed, e.g. due to the absence or discontinuation of nationwide biodiversity monitoring and research programmes, no updated information is available for the development of species conservation action plans. Recommendation 11.1 (a) of the First EPR of Mongolia advised to support, in cooperation between several ministries, the nationwide biodiversity monitoring and research programmes, in particular those targeted at threatened ecosystems and endangered species of fauna and flora. But, as of October 2024, such programmes have not yet been developed, much less implemented. Therefore, this recommendation has not yet been implemented.

Monitoring in protected areas or for specific species

More complex biodiversity monitoring and wildlife inventories were carried out inside protected areas, in state-managed strictly protected areas and national parks, where field rangers recently received professional training and were provided some basic equipment for wildlife observations.

The Spatial Monitoring and Reporting Tool (SMART) monitoring and registration system was introduced in the first three pilot protected areas and in the saiga ranger network, with the objective to improve the effectiveness of the area patrolling, law enforcement and site-based conservation activities. The platform consists of a set of software and analysis tools that enables the collection, storage, communication and evaluation of data on patrol efforts, patrol results and threat levels. In July 2019, WWF-Mongolia trained data managers in pilot protected areas. Further, in early 2020 WWF-Mongolia trained 35 rangers on the use of the mobile SMART application, while the next trainings, organized in May and June 2020 (held online due to the pandemic) focused on reporting functions of the system and planning of patrolling. In 2023, the use of SMART in protected areas, was officially approved (2023 Ministerial Order No. A/219 on the approval of the manual methodology of the SMART programme to be used in the organization of monitoring and inspection activities in the SPAs of the State).

⁵⁹³ Mongolia (2001).

⁵⁹⁴ Ginin (2019).

In December 2023, during the National Forum of Rangers, WWF-Mongolia officially handed over an upgraded version of the BIOSAN biodiversity monitoring database to the then Ministry of Environment and Tourism. BIOSAN is an online GIS-based platform designed for long term biodiversity monitoring and research, aimed to enhance the protected area management by facilitating the planning and implementation of appropriate conservation measures. BIOSAN platform and its mobile application allow digitizing the primary data collected in the field, real-time transmission of data entry to the platform, quick data processing and sharing (among the authorized users). It was expected that a wide use of the BIOSAN platform and its mobile application could enhance the functioning and efficiency of the national database on biodiversity, and allow to determine the wild species population numbers, but also help define and modelling wildlife habitat areas and migration corridors, providing valuable data for the elaboration of protected area management plans, but also for devising the rationale for the allocation of new areas for protection. But, most probably BIOSAN will mostly be used in State-managed protected areas.

Data on rare plant, fungus and animal species and their populations, are gathered in the course of scientific field research projects (most often commissioned by the ministry and co-financed by the Fund for Sciences and Technology and/or various international donors) by national scientific institutions, in particular the Institute of Biology of MAS and the National University of Mongolia. For example, in 2018–2024, monitoring of the population of the endemic Gobi bear was conducted twice a year in Great Gobi StrPA part A under a bilateral project, supported by a grant from China.

Monitoring of wild animal species is also conducted by numerous wildlife research and conservation oriented international, regional and local NGOs. Namely, the Zoological Society of London monitors the population of the wild Bactrian camel in Great Gobi StrPA part A, the Wildlife Science and Conservation Centre monitors the population of the Siberian crane in Khurkh-Khuitenii Golin Khundii / Khurkh-Khuiten River Valleys.

Monitoring of Przewalski's horse local sub-populations is regularly carried out in Hustai Nuruu National Park by the local Hustai Nuruu NP Trust, and in Khomiin Tal NP by the Khomyn Talyn Takhi NGO, while WWF-Mongolia and the Snow Leopard Conservation Foundation jointly conduct censuses and monitor the snow leopard population. Mongolia's branch of the Wildlife Conservation Society monitors the population of the Gobi khulan, WWF-Mongolia and WWF-Russia jointly monitor the transboundary population of argali inhabiting the Altai Mountain range, while The Nature Conservancy monitored cinerous vultures and Mongolian gazelles in two nature reserves.

As of 2018, 25 community-based organizations, 7 local NGOs and 21 private companies were managing 171 hunting areas, and were responsible for wildlife monitoring and population surveys, the findings of which were used at the central level for determining annual hunting quotas. However, wildlife censuses carried out in hunting areas are primarily focused on game species as potential targets of hunting activities, much less on protected rare and threatened animal species.

In 2021, WWF-Mongolia in cooperation with the Ministry of Education and Culture, and the Institute of Biology of MAS, published a manual on popular methods used for the monitoring of animal and plant species, targeted at conservationists, amateur conservationists, environmental activists and community members, which could facilitate the collection of primary data, regardless of whether inside or outside protected areas.⁵⁹⁵

12.3 TRENDS IN DEVELOPMENT AND MANAGEMENT OF PROTECTED AREAS

Protected area network

The 1994 Law on Special Protected Areas (SPAs) listed four categories of state SPAs: StrPA, NP, nature reserve (NR) and monument. The Law on Special Protected Areas classified monuments either as natural monuments (NMs), historical and cultural monuments, or world and national cultural heritage sites. NRs are classified as (i) natural complex reserves aimed at preserving natural conditions and features; (ii) biological reserves aimed at protecting rare flora and fauna and creating an environment suitable for their reproduction; (iii) fossil reserves aimed at preserving rare fossils in their natural conditions; (iv) geological reserves aimed at preserving natural conditions of special geological formations and exposures and their structures; or (v) water reserves aimed at preserving the source of rivers and water.

As of 2017, the State SPA network included 102 SPAs that encompassed about 28 million ha (over 279,534 km², which accounted for 17.87 per cent of the country's territory): 20 StrPAs (7.93 per cent), 32 NPs (7.6 per cent), 36 NRs (2.26 per cent) and 14 NMs (0.08 per cent). However, this area neither included the areas of state SPA buffer zones nor of local protected areas (LPAs) designated by the local authorities.

⁵⁹⁵ Chimeddorj (2021).

Since 2017, the State SPA network has been extended, by designating new SPAs, enlarging the size of protected areas and/or upgrading the legal protective status of several previously designated SPAs. In the period 2017–2024, Mongolia designated 21 new state SPAs (1 StrPA, 4 NPs, 14 NRs and 2 NMs) and extended the area of 4 NPs and 3 NRs. Some of the newly designated StrPAs and NPs incorporated previously designated NRs and NMs, which decreased their numbers respectively. According to the Ministry of Environment and Climate Change, as of October 2024, the State SPA network included 120 areas: 22 StrPAs, 37 NPs, 47 NRs and 14 NMs, which jointly encompassed 21 per cent of the country's territory.

Local protected areas

The 2022 amendment of the Law on Special Protected Areas states that *aimag/soum* may take certain areas within its territory under local special protection. Therefore, the protected area (PA) network also includes LPAs. The establishment of a complementary network of PAs to the state SPA network is justified by the size of the country paired with the high level of integrity of its natural ecosystems, due to which the state SPA network cannot incorporate all ecologically important areas.

The 2022 and 2023 amendments of the Law on Special Protected Areas assigned powers to the *Khural* (assembly of elected representatives) of *aimag*, capital city, *soum* and district to decide on the designation of LPAs, delineating LPA boundaries, and determining applicable protective regime. The Law did not define any additional PA category for LPAs, but, depending on the main subject of protection, LPAs were classified as forest, wildlife, plant and water reserve land, or natural and historical heritage reserve land. If necessary, LPAs can be divided into protective and limited use zones.

The LPA designation is valid for not more than 10 years (although most often prolonged), which resulted in frequent changes in LPA number. As the local authority level information on the designation of a new LPA or on the extension of the LPA protective status period of the previously designated ones did not always immediately reach the central level, there were numerous instances when the Ministry of Mining and Heavy Industry issued a mining concession within an LPA, which resulted in legal conflicts. However, according to EIC, since November 2017, most LPAs were designated for much longer periods, most often for 20 years, in some cases up to 30, 40 or even 60 years.

As of 2023, the ecological network included 2,902 LPAs (980 designated at the *aimag* or city level, and 1,922 designated by *soums* or districts). But in the case of 1,237 LPAs their legal status (the validity of their designation) was not clear, and in the case of 716 LPAs the boundaries were not clearly determined.

Nevertheless, the number of remaining 1,401 non-disputable LPAs compared to 1,103 in 2015 indicated that between 2015 and 2023 the LPAs network increased.

The EIC database includes LPAs. However, their identification remains a challenge.

Buffer zones

The ministry responsible for the environment officially approved buffer zones of several state SPAs (StrPAs and NPs). Such locally managed buffer zones could be perceived as another separate buffer zone category of SPAs. In 2017, the total area of all SPA buffer zones was estimated at some 15 million ha. Nevertheless, taking into account that 15 million ha equals 9.59 per cent of the country's total territory, the official inclusion of SPA buffer zones into the SPA network could largely facilitate the achievement of the national target by 2030.

Enhancing the management of already designated buffer zones and harmonizing conservation measures prescribed in buffer zone management plans of either adjacent or neighbouring SPAs could largely improve the consistency of the whole SPA network and increase its ecological connectivity. As of 2024, there is no available information on buffer zones numbers and areas. Also, they do not appear in official statistics and are absent in SPA databases.

Management

State SPAs cannot easily and precisely be assigned to IUCN PA management categories, mostly due to their extensive size, but also due to the traditional patterns of land and natural resources use by local communities allowed in some state SPA categories (NRs and NMs) or in restricted (limited use) zones of StrPAs and NPs.

SNR presented an innovative approach, by assigning mixed IUCN PA management categories to StrPAs and NPs accordingly to the protective regimes of each of their internal functional zones: Strictly Protected Area (IUCN categories Ia, Ib and II) and National Parks (IUCN Ib, II and V). Further, SNR assigned NRs to IUCN category IV (Habitat/Species Management Area) and NMs to IUCN category III (Natural Monument or Feature). As for LPAs, SNR assigned them to IUCN category VI (Protected area with sustainable use of natural resources) which is relevant. As of 2024, no information was available on the number of staff assigned and employed by the local authorities, in charge of e.g., patrolling and law enforcement in LPAs.

According to the Ministry of Environment and Climate Change, as of 2024, the number of staff responsible for 21 StrPAs and 36 NPs accounted for 842 employees (in total, including not only field rangers, but also staff entrusted with typical office duties, e.g. accountants). The Ministry indicates that also state SPAs managed by the State are largely understaffed, taking into account that these 842 employees were responsible for the protection of some 27.3 million ha. Due to a shortage of staff, the Ministry plans to entrust the management of SPAs to civil society and NGOs, under certain conditions. In fact, there are numerous successful examples of such SPA co-management arrangements, as community-based conservation and community-based natural resource management is deeply rooted in Mongolia's tradition and culture. For example, since 2003 Hustai Nuruu NP is managed by the local Hustai Nuruu NP Trust. Contracts between local authorities and NGOs or herder group associations are often concluded for the management of NRs, NMs and LPAs. The most recent example can be the agreement signed in November 2022 between the Governor of Khentii *aimag* and the Wildlife Science and Conservation Centre, entrusting this NGO with the coordination of management of Khurkh-Khuitenii Golin Khundii/Khurkh-Khuiten River Valleys NR designated in May 2020.

Apart from patrolling the SPA area, law enforcement, carrying out wildlife census and biodiversity monitoring, and undertaking conservation measures prescribed in management plans, the real challenge in managing SPAs is the collection and removal of garbage throughout and after the tourist season. This task, additional to daily rangers' regular duties and consuming a large portion of their time, is even more challenging in hardly accessible areas, which cannot be reached by vehicles other than a motorcycle (or on horseback). To support rangers, in the last few years, state SPA rangers were provided professional training and received some modern equipment (e.g. notebooks for wildlife monitoring/observations), although in some SPAs there are problems with e.g. timely replacement of worn-out equipment such as motorcycles (due every 3 years) or binoculars. State SPA rangers were also provided with uniforms and outdoor clothing although not waterproof. In many cases, field rangers use their private cars (supplied with fuel by SPA administration) or their own horses for performing official duties. Most often SPAs lack not only modern visitor centres and visitor facilities, but also field facilities and shelters for rangers and scientists carrying out research and biodiversity monitoring activities in SPAs.

In 2024, the then Minister of Environment and Tourism approved the Training Programme for the Qualification of Rangers (2024 Ministerial Order No. A/189). The Department of State Administration and the Heads of the Department of Environment and Tourism of the then Ministry of Environment and Tourism at the *aimag* level were obliged to ensure funds required for the organization of this professional training in their respective annual budgets. Recommendation 11.4 (a) of the First EPR of Mongolia on providing consistent professional training has been implemented. According to the Ministry of Environment and Climate Change, during the period 2022–2024, SPA rangers have been transferred from the assistant officer category to the lieutenant officer category, as a result the average rangers' salary increased 3.6 times. Beginning from 2022, the increment of the period of service was to be considered every year, and the allowance for working in the local area was due to increase by 20 per cent every month. Some other additional cash bonuses and rewards were planned in the 2024 budget. All SPA employees were included in the preventive health examination. All rangers were fully covered by accident insurance and were eligible for compensation and full payment of medical expenses in the event of an accident. Standards on working conditions and social security programmes for environmentalists were approved and implemented. Recommendation 11.4 (c) of the First EPR of Mongolia on increasing budgets and raising staff remunerations has been implemented. However, Recommendation 11.4 (b) of the First EPR of Mongolia on providing modern biodiversity-monitoring equipment, outdoor equipment and uniforms, off-road and specialized vehicles is partly implemented.

Donors have been actively supporting the Government in protected areas management with policy and planning approaches where spatial analysis is utilized as an integral part. Recommendation 11.3 (d) of the First EPR of Mongolia has been implemented.

Management plans

In 2017, management plans for SPAs were not explicitly required by the law, but the state-managed StrPAs and NPs were expected to have such, duly consulted with the local stakeholders, and approved by the Minister responsible for the environment. As of 2010, 7 StrPAs and 10 NPs had valid management plans. Due to budgetary constraints, management plans for state SPAs (but also for some LPAs) were prepared under internationally funded projects implemented by UNDP and/or WWF.

On 22 January 2021, the then Ministry of Environment and Tourism approved the methodology for the SPAs management plan (2021 Ministerial Order No. A/16).

Since January 2023, the 2023 amendment of the Law on Special Protected Areas requires SPAs to have management plans for a period of 10 years, duly consulted with local stakeholders, and approved by the minister responsible for the environment. Such long-term State SPA management plans are further translated into resulting subsequent annual management plans. However, as some State SPAs had management plans approved before the 2023 amendment, as of October 2024 some SPAs continued to implement their mid-term (4 to 5 years) management plans and resulting annual management plans.

According to UNDP Mongolia, as of 2024, only 60 state SPAs (probably counting cluster SPA parts as separate entities) were implementing management plans. In another 26 State SPAs their management plan validity period expired but such had not yet been revised (most probably due to the lack of funds), while the 44 remaining state SPAs were operating without any plans.

Recommendation 11.5 of the First EPR of Mongolia recommended the Ministry to support the development and/or revision of protected area management plans, as well as ensure their implementation. As of 2024, considering that approximately half of state SPAs operated without valid management plans, this recommendation can be assessed as only partly implemented.

No information on the possible development and implementation of LPAs management plans is available, although explicitly required by the Law on Special Protected Areas

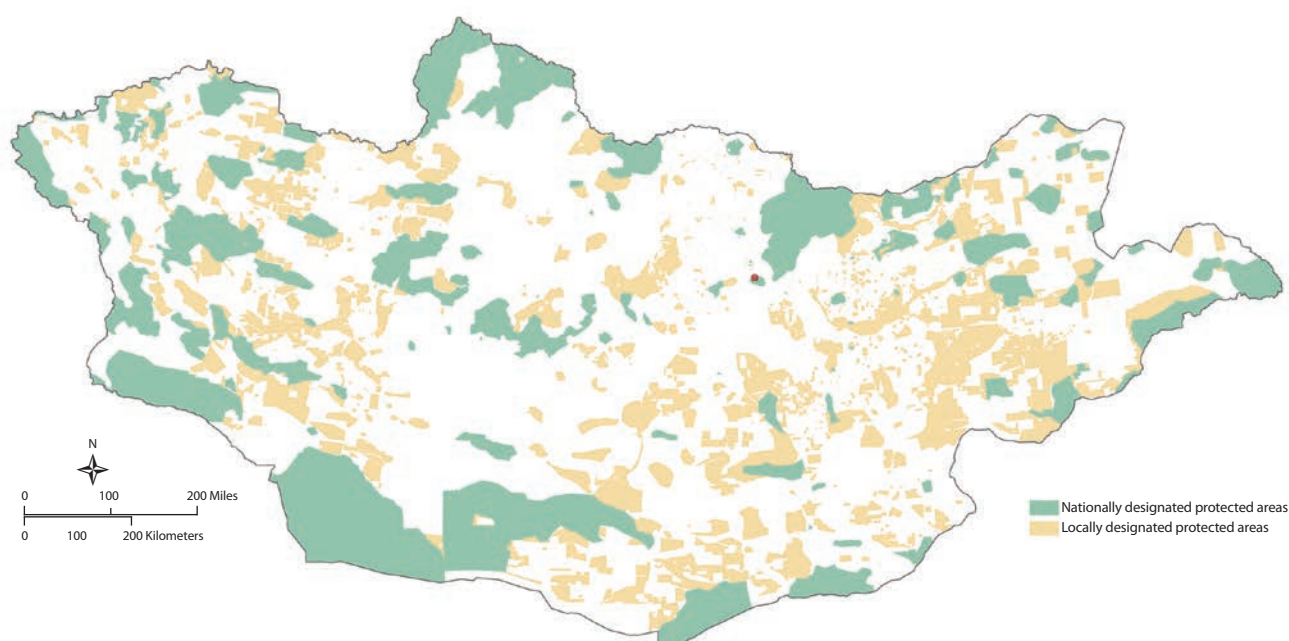
According to the Law on Special Protected Area Buffer Zones, local governors, in cooperation with relevant protected area administration and the buffer zone council, must develop and implement a buffer zone management plan). No information on the development and implementation of buffer zone management plans is available.

12.4 TRENDS IN DEVELOPMENT AND MANAGEMENT OF ECOLOGICAL NETWORKS

State SPAs and LPAs designated in accordance with the national legislation and provided legal protective status, constitute the most important parts of the country's national ecological network (Map 12.1).

The constantly increasing coverage of the territory by state SPAs and LPAs can of course, be perceived as progress towards achieving ambitious national targets (e.g. 30 per cent by 2030). However, this increase cannot prove that all best-preserved areas of representative natural ecosystems and the main refuges and mainstays of rare and threatened plant, fungi and animal species protected by the legislation have adequately been covered by the national network of PAs.

Map 12.1: Nationally and locally designated protected areas in Mongolia, 2020



Source: The Nature Conservancy. Jenkins (2020).

Note: The boundaries shown on the map do not imply official endorsement or acceptance by the United Nations.

As of 2010, 7 of 19 natural ecosystems were underrepresented in state SPAs, and the steppe ecosystems, which are most representative of Mongolia and covered 55.42 per cent of the country, had the smallest coverage (7.62 per cent of the meadow steppe, 5.39 per cent of the moderate dry steppe, 4.24 per cent of the dry steppe and 6.59 per cent of the desert steppe). However, although most State SPAs in Mongolia encompass vast territories, the highest protective regime is often assigned to small portions of a state SPA, and as a result the zoning pattern of some State SPAs did not adequately safeguard their biodiversity values.

The NBP for the period 2015–2025 included Goal 5: At least 30 per cent of each representative of the main ecosystems are included into the national protected area network and their management must be improved. However, related indicators (e.g. Percentage of total area under protected area system) did not sufficiently correspond to this goal. NBP 2015–2025 also determined the related Objective 10: “Expand and strengthen PA network through integrating ecosystem representative areas into national and local land use management plans”, whose expected outputs included the revision of the national action plan for PAs and creating a mechanism aimed to ensure representativeness of ecosystems by 2020, and the expansion of the PA network with the inclusion of at least 30 per cent of representative ecosystems by 2025.

SNR stated that “From the ecosystem representativeness point of view, Mongolia has reached its objective to protect 30 per cent for all major ecosystems, except the steppe ecosystem. As of 2019, only 8.5 per cent of the steppe ecosystem is protected and half of the PAs in the steppe region are at the level of Nature Reserves i.e., IUCN category IV – Habitat/species management area that aims to protect particular species or habitats through traditional management approaches”.

As of October 2024, no information was available on the possible evaluation and resulting revisions of the internal zonation of StrPAs and NPs carried out since 2017. Similarly, no information was available to assess to which extent the coverage of the main ecosystem representative for Mongolia by the state SPA network improved. Therefore, Recommendation 11.3 (a), (b) and (c) of the First EPR of Mongolia have not yet fully been implemented.

Planned extension of the SPA network

In 2017, The Nature Conservancy in cooperation with the then Minister of Environment and Tourism published “Expanding the Protected Area Network in Mongolia. A Review and Assessment Report” aimed to facilitate and enhance the implementation of the state policy target to put 30 per cent under protection. Also in 2017, an ecological regional assessment, carried out in the four main ecoregions by the Ministry of Education, Culture, Sports, Science and Technology in cooperation with The Nature Conservancy, WWF-Mongolia and other partners, was completed. This assessment identified 216 sites important for biodiversity, covering a total area of 434,154 km². As of October 2024, these sites are legally protected. In December 2018, the Government approved the National General Land Management Plan 2019–2030 that assumed the designation of 131 new state SPAs.

As of October 2024, no new State programme foreseeing a roadmap on the planned increase of the SPA network has been adopted, to replace the 1998 National Programme on Special Protected Areas. According to the Ministry of Environment and Climate Change, as of October 2024 the target was to extend the State SPA network to 25 per cent of the total territory by 2025, but no further, more detailed information on the extension of the State SPA network planned to be achieved in the next months was available.

Trends and progress in the extension of LPA network

As of October 2024, the LPA database was not regularly updated (the last entry concerned LPA designated in July 2023). The database provided information on 2,902 LPAs. However, some data can be erroneous, e.g. that LPAs designated in Övörkhangai *aimag* accounted for as much as 110.73 per cent of its land area. As of 2023, four *aimags* contributed to the LPA network with almost a half (48.87 per cent) of the total LPA area (almost 3.9 million ha of 103 LPAs in Sükhbaatar *aimag*, 3.2 million ha of 139 LPAs in Govi-Altai, 2.7 million ha of 49 LPAs in Ömnögovi, and 2.3 million ha of 113 LPAs in Dornogovi). Since 2017, the number and total LPA area in some *aimags* significantly decreased (e.g. in Ömnögovi, from almost 4 million ha of 69 LPAs) while in some other *aimags* considerably increased (e.g. in Sükhbaatar, from more than 2.6 million ha of 78 LPAs), which indicates that the LPA network considerably evolves, due to the ongoing de-gazetting of some older LPAs and designation of new ones. Consequently, the coverage of *aimags* by the LPA network changes even throughout such relatively short periods, e.g. as of 2023 in the Ömnögovi *aimag* LPAs cover only 16.49 per cent of its area (compared to 24.05 per cent in 2015) and in Sükhbaatar *aimag* already 46.75 per cent (32.06 per cent in 2015).

Photo 12.2: Adult Ural owl (*Strix uralensis*) perching on a branch in the Mongolian taiga forest



Areas of the ecological network of Mongolia with internationally designated status

Areas included in international ecological networks, based on MEAs to which Mongolia is a Party, either overlap with SPAs and/or LPAs, or supplement the national ecological network. However, their international designation does not provide for any additional protection other than that provided by the national legislation of Mongolia.

World Heritage sites

Since 2017, no new natural or mixed (natural and cultural) criteria World Heritage Sites (WHSs) in Mongolia were inscribed by UNESCO on the World Heritage List. In 2023, the Deer Stone Monuments and Related Bronze Age Sites site was inscribed, but according solely to cultural WHS designation criteria. As of 2024, there were six WHSs in Mongolia, four cultural and two natural:Uvs Nuur Basin inscribed on the World Heritage List in 2003 and Landscapes of Dauria inscribed in 2017 (both as transboundary WHSs are shared with the Russian Federation).

In January 2023, the work on the preparation of an updated dossier for the potential “Desert Landscapes of the Mongolian Great Gobi” site commenced. Compared to 2014, the new dossier aimed at the inclusion of not only the three previously considered SPAs (Great Gobi StrPA parts A and B, and Small Gobi StrPA part B) but also Small Gobi StrPA part A, Alagkhairkahn NR and Eej Khairkhan NM. Several workshops with the stakeholders were organized in 2023 and 2024, including one concerning threat to the Gobi region (held on 22 March 2024 in Ulaanbaatar), with the participation of representatives of several relevant ministries (responsible for environment, economy and development, roads and transport) as well as border authorities.

However, in August 2024 the Parliament approved the 2024–2028 Government Action Programme (2024 Parliament Resolution No. 21), which included the re-opening of the Naransevstei port (transport and logistics hub) at the previously closed border crossing with China, that will require building a paved road crossing the Great Gobi StrPA part A, which will be inconsistent with several legal acts in force in Mongolia, which could then seriously compromise the WHS nomination process for the “Desert Landscapes of the Mongolian Great Gobi” site. The Law on Special Protected Areas prohibits building roads inside StrPAs. These may only be built in the StrPA restricted zone, but solely for the purposes described in the Law, which do not include facilitating commercial freight traffic. Secondly, pursuant to the Law on Fauna, the Government can decide on laying auto road and railways in the habitat of extremely rare animals based on findings of EIA, while EIA on this planned development was conducted prior to the approval of the 2024–2028 Government Action Programme.

Experience from opening the Naransevstei-Mazunshant border crossing in 1992/1993 already demonstrated the disturbance potential of a road and associated vehicle traffic inside or near Great Gobi StrPA. Upgrading the Naransevstei port and construction of a paved road across Great Gobi StrPA part A is expected to dramatically impact the integrity of this area, with adverse effect on the two most threatened and iconic Gobi species. Given the size and remoteness of the area,

controlling the influx of people into Great Gobi StrPA will not be feasible, which is well illustrated by the ongoing struggle to prevent illegal mining. The foreseen pressures can result in the decline or even extinction of the populations of the Gobi bear and wild Bactrian camel, which would then put decades of dedicated conservation work to waste. It can also be expected that eventually the construction of additional linear infrastructure may be necessary to make the Naransevstei port economically viable, requiring further development.

But, allowing such large-scale infrastructural development in Great Gobi StrPA would compromise the WHS nomination process and undermine trust in the commitment to guarantee the long-term protection of the proposed site. Further, it will breach Mongolia's international obligations. The construction of a road across Great Gobi StrPA part A was not planned in the 2018 National General Land Management Plan 2019–2030.

Biosphere Reserves

Since 2017, Mongolia contributed to the development of the World Network of Biosphere Reserves (BRs) under the UNESCO MAB Programme, aiming at reconciling biodiversity conservation in the core and buffer zones of each BR with sustainable development and use of natural resources in its surrounding transition area. Until 2017, six BRs were nominated in Mongolia. As of October 2024, Mongolia harbours nine BRs.

In 2020 UNESCO nominated Toson-Khulstai BR in north-eastern Mongolia (in Dornod and Khentii *aimags*), stretching over 1,010,356.00 ha (including 469,928 ha of the core zone, protected in Toson-Khulstai NR, designated in 1998) in a transition zone between forest steppe and grassland ecosystems, harbouring habitats of e.g. the Mongolian gazelle, Mongolian marmot (EN), white-naped crane (VU) and steppe eagle (EN). As the core zone of Toson-Khulstai BR is used as cattle grazing area by resident and nomadic herders, an agreement on ensuring sustainable grazing practices has been reached.

In 2022 UNESCO nominated Lake Khuvsgul BR in northern Mongolia (Khövsgöl *aimag*), encompassing as total area of 1,758,583.6 ha, of which core zone(s) accounts for 677,408 ha, buffer zone(s) for 498,194 ha, and transition area(s) for 582,981.6 ha. The BR was established on the basis of Khuvsgul Nuur NP. Animal species protected in Lake Khuvsgul BR include the brown bear, snow leopard (VU), Siberian ibex (NT), Siberian musk deer (VU) and reindeer (VU). The transition zone of this BR is inhabited by some 7,000 people.

In 2023, UNESCO nominated Onon-Balj BR in north-eastern Mongolia (in Dornod and Khentii *aimags*), covering 1,153,490 ha at the southern edge of the Siberian taiga and boreal coniferous forest, encompassing the Onon and Balj River basins, and vast forest, grassland and freshwater ecosystems, the last being a hotspot for wetlands and water birds. The BR was established on the basis of Onon-Balji NP. Part of this BR is managed as traditional common land and used for livestock herding by local communities, accounting in total for 5,556 people. Moreover, due to the presence of culturally important areas including historical sites related to Chinggis Khaan, Onon-Balj BR attracts a lot of cultural tourism, which also provides opportunities for the development of community-based ecotourism.

No information on potential plans for proposing new areas in Mongolia for the nomination as UNESCO MAB Biosphere Reserves was available.

Ramsar network

Since 2017, no new Wetland of International Importance (Ramsar site) was nominated. All Ramsar sites in Mongolia (including those not yet protected) were assigned in 2009 another internationally recognized status of Important Bird Areas (IBAs). The information on Ramsar sites in Mongolia provided by the Ramsar Sites Information Service (RSIS) has not been updated since the year of their designation.

Transboundary ecological network

A specific ecological network can emerge at the transnational scale, including several PAs designated in border areas of neighbouring countries. Transnational cooperation in such transboundary PA complexes, often referred to as transboundary protected areas (TBPAs) allow the harmonization of conservation measures planned and/or undertaken on each side of the state boundary, and the application of the ecosystem approach at a larger spatial scale.

As of 2024, Mongolia is involved in two TBPAs: the trilateral Dauria International Protected Area (including Mongol Daguur StrPA) established in 1994 in cooperation with China and the Russian Federation, and the bilateral TBPA established in 2011 in the Lake Uvs Basin (including Uvs Nuur StrPA) in cooperation with the Russian Federation. While the then Ministry of Environment and Tourism planned the establishment of another three TBPAs, as of October 2024, no new TBPA was established,

Key Biodiversity Areas and Important Bird Areas

As of October 2024, according to the World Database of Key Biodiversity Areas (KBAs), several KBAs/IBAs in Mongolia were only partly covered by either state SPAs or LPAs, while 28 areas remained entirely unprotected, which indicated the need for their inclusion into the PA network. Other remaining areas identified in 2009 in Mongolia were either fully or at least partly covered by existing state SPAs or LPAs. The number of 70 KBAs/IBAs identified already in 2009 in 18 of Mongolia's 21 *aimags* did not change. However, since 2017 the total area of these 70 areas decreased from 5.34 to 4.46 per cent of Mongolia's territory.

12.5 PRESSURES ON SPECIES AND ECOSYSTEMS

The Constitution of Mongolia states that the citizens of Mongolia enjoy the right to a healthy and safe environment and to be protected against environmental pollution and ecological imbalance. However, as of 2024, numerous pressures increasingly threatened Mongolia's natural ecosystems and the species (both wild and domesticated) these ecosystems sustain.

Mining and quarrying have rapidly developed in recent years and became the leading sector in the economy of Mongolia. As suitable geological conditions make open cast mining the most economically feasible method of resources extraction in Mongolia, land uptake by minerals exploration and extraction is increasingly affecting the state of natural landscapes and ecosystems of the country. According to the Ministry of Environment and Climate Change, some 10 to 15 per cent of Mongolia's pastures were degraded as a result of mining and quarrying operations. Secondly, the growing demand for pastures resulting from the still increasing livestock numbers, further limits the size of habitats harbouring rare and endangered plant species and leads to the competition between livestock and wild ungulate populations. Considering the size of the country paired with the settlement trends, land uptake for the urban and transport infrastructure development was, as of 2024, much less significant.

Mining operations affected also the state of aquatic ecosystems. According to SNR, a growth in mining operations near large riverbeds led to water pollution, which considerably degraded the habitats of fish, resulting in spawn deaths. Further, illegal gold mining often caused the acidification of soil, surface and ground water, resulting in fish, amphibian and reptile population declines or local extinctions.

Another pressure was the pastureland overgrazing (see Chapter 14), caused by the rapid growth of livestock numbers resulting in the massive deterioration of several ecosystems and loss of natural habitats. According to NC4, pastureland "should more accurately be described as rangeland because it grows primarily native vegetation and serves as a habitat for wildlife (...) while being used for nomadic livestock herding and haymaking". According to the Department of Land Management, Geodesy and Cartography, as of 2022, the land classified as agricultural encompassed 133.56 million ha (equalling to 72.61 per cent of Mongolia's territory), while pastureland extended over 109.5 million ha (thus 70 per cent of the country's territory and almost 82 per cent of agricultural land). As of 2022, Mongolia's vast rangeland generated livelihoods for over 200,000 families of nomadic and semi-nomadic herders. According to NC4, along with the increase in the livestock number, exceeding the rangeland carrying capacity, the herd composition changed substantially, and the proportion of goats (more harmful to rangeland compared with other livestock species) in the total number of livestock had increased from 19.83 per cent in 1990 to 38.06 per cent in 2023. According to the Department of Land Management, Geodesy and Cartography, as of 2022 as much as 88 per cent of rangeland in Mongolia was degraded, 5.1 per cent of rangeland was fully degraded, 14.4 per cent heavily degraded, 15.8 per cent moderately degraded and 52.3 per cent slightly degraded, while the non-degraded rangeland accounted for 12.4 per cent of the total. Another related pressure is the eutrophication of aquatic ecosystems, due to uncontrolled livestock husbandry waste discharge into watercourses.

One of the main factors leading to the increasing desertification of land in Mongolia (see Chapter 14) was the excessive increase in the number of livestock and improper use of pastures, further aggravated by climate changes. According to NC4, as of 2020, 76.9 per cent of the total territory of Mongolia has been affected by desertification, of which 31.5 per cent was classified as slight, 22.1 per cent as moderate, 18.6 per cent as severe and 4.7 per cent as extremely severe. Compared to 2010, the area classified as severely affected by desertification increased by 11.9 per cent, which indicated that the area that was in the slight or moderate level of desertification had converted to severe level. Desertification affects the habitats of numerous rare and threatened plant species, but also decreases the regeneration potential of vegetation, which results in adverse changes of grassland and steppe habitats, reducing the nutrition base for herbivorous animals and as a result also affects the availability of prey for carnivorous mammal and bird species. Further, drying of surface water points, smaller ponds and marshes reduces the availability of water and destroys habitats of amphibians and waterfowl.

Climate changes (see Chapter 7) increasingly threatened Mongolia's natural ecosystems and their species, accelerating land desertification processes which degrade species' habitats, deepening the scarcity of surface water points indispensable for the survival of wildlife, and increasing the threat of forest and steppe fires, fatal to insects, birds and rodents, and temporarily altering habitats of herbivorous mammals. Drying out of oases in the Gobi region altered the ranges and migration patterns of e.g. the wild Bactrian camel and Gobi khulan.

As for the direct exploitation of species, the collection of NWFPs, medicinal and aromatic plant species is well regulated in Mongolia (including standards for harvesting, drying, packaging, transportation and storage of 10 most commonly collected wild plants, and regulations prohibiting the collection and harvesting of some plant species) and does not pose a significant threat, although some species could be overharvested in particular regions. Trophy hunting of rare species is continued, however at limited scale. SNR informed that in 2018 a quota for 81 argali, 38 red deer, 92 Siberian ibex hunting and 490 Taimen fish catch-and-release was approved, based on the game management plans of the hunting reserves, but poaching of birds (mainly for medicinal uses) was still a serious concern. According to NR 2022, 16 cases of poaching in snow leopard were revealed in 2019–2020, and 4 specimens of Gobi khulan were poached in Small Gobi StrPA and Dornogobi NR in 2020, while no poaching of Mongolian saiga has been reported since May 2017 (until 2022). Illegal logging is still a concern in Mongolia, although its intensity decreased since the establishment of the Ecological Police in 2020.

Pressures resulting from the spread of invasive alien species, or the influence of GMOs cannot be assessed, due to the lack of research, but are most probably not yet significant. The intensity of tourism pressure on the most accessible and therefore most visited SPAs cannot be assessed, due to the lack of data. However, taking into account the extensive size of Mongolia's SPAs and protective regimes of their internal functional zones (allowing tourism-related developments solely in the NP restricted zone), compared to the relatively small number of domestic and foreign tourists, the impact of tourism is mainly associated with the increasing quantity of solid waste and wastewater in some areas.

Since 2017, several linear infrastructure development projects (in particular the construction of fenced roads and railway lines) threatened the migration and free long-distance movement of Mongolia's large ungulate species, driven by the changing availability of forage and surface water, or the need to escape from extreme events. Such impermeable man-made barriers could therefore lead to drastic population declines or regional extinctions. Since the adoption of mandatory standards concerning wildlife passages across the linear infrastructure objects, the pressure decreased. However, the development of the road network not only leads to habitats' fragmentation but also facilitates access to regions and areas attractive for tourism and hunting (resulting in increased human penetration of wildlife habitats) and for natural resources prospecting and exploration, eventually resulting in large scale land conversion and degradation or destruction of previously intact habitats.

Potential pressures

Since the adoption of the Vision 2050 Long-term Development Policy in 2020, pressures from the development of energy installations and large infrastructural investments might increase. The construction of multi-purpose reservoirs with flow regulation on large rivers is expected to be started under Stage I (2021–2030). The implementation of the Blue Horse⁵⁹⁶ water infrastructure programme (unpublished, as of October 2024), developed since 2019 by the Water Department, assuming the construction of some 31 to 33 reservoirs on some 9 to 13 major rivers and the construction of several associated hydropower plants. According to civil society sources, the implementation of the Blue Horse programme can worsen the state of at least two WHSs, four Ramsar wetlands, four UNESCO biosphere reserves, and all of Mongolia's major free-flowing river ecosystems.

12.6 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework and its implementation

The Constitution of Mongolia states that it is a sacred duty for every citizen to protect nature and the environment. As of October 2024, the legal framework for biodiversity conservation, as well as the designation and operation of protected areas in Mongolia has not considerably changed since 2017. All relevant laws (the Law on Special Protected Areas, Law on Environmental Protection, Law on Natural Flora, Law on Special Protected Area Buffer Zones, Law on Land, Law on the Regulation of International Trade in Endangered Species of Wild Fauna and Flora and Derivatives Thereof, Law on Minerals, Law on Fauna and Law on the Payment of Fees for Natural Resources) remain in force. Most of these laws have not been

⁵⁹⁶ Bold (2023).

considerably amended since 2017, the majority of minor changes resulted from the need to align these laws with e.g. the 2017 Law on Protection against Disasters, the 2021 Law on Genetic Resources, the 2022 Law on Permits and the 2024 Law on Plant Health and Plant Protection. However, the Law on Special Protected Areas was amended several times, while, as of October 2024, another significant revision of this law was planned.

The 2020 Law on Development Policy and Planning and its Management aims at enhancing the consistency of development planning-related policies. However, based on this law, in October 2021 the Government decided to declare adopted State policies and programmes as void, and in November 2021 the Parliament annulled 17 policy documents, perceived as inconsistent with the 2020 Law (see Chapter 1). As a result, not only were the 1997 State's Ecological Policy and 2015 State's Forestry Policy cancelled, but also the 1998 National Programme on Special Protected Areas.

The 2023 Law on Tourism aims to develop sustainable tourism based on Mongolia's historical and cultural heritage. It prohibits tourism organizations to carry out tourism activities in a manner that has a negative impact on the environment and includes the obligation of the tour operator to take necessary measures to protect the tangible heritage of nature. It requires the development of management plans of tourism areas (either state or local tourism areas, which cannot overlap). Pursuant to the Law, the management of camping points located in SPAs must be carried out by the SPA administration, however the management of these camping points may be performed by legal entities or local citizens on the basis of an agreement. Issues related to receiving and spending fees for camping point services located in SPAs are regulated by the Law on Special Protected Areas. But, as of October 2024, such regulations were not yet incorporated into the Law.

Following an extended revision process initiated due to numerous deficiencies and internal contradictions within the Law on Special Protected Areas, a final version was adopted in 2022. This concluded a process that had previously included a 2016 proposal to merge the law with legislation governing buffer zones. The 2022 amendments had two key effects: first, they delegated significant powers and responsibilities to local authorities. Second, they enacted a mixed reform of the NR protective regime. New restrictions prohibited granting land to herdsmen during winter and spring and banned any activities that could lead to river pollution. However, these restrictions were balanced by a new allowance for commercial activities inside the protected areas, moving beyond the scope of traditional household activities.

In 2023 the Law on Special Protected Areas was again revised. This resulted in amendments aligned with the Law on Permits, but also introduced terms, SPA management plans and internal zoning of SPAs. In addition, the revisions included many new sources of funding for SPAs and the obligation for SPAs to have long-term (10 year) and short-term (annual) management plans. However, the vast majority of the 2023 amendments concerned the use of land inside SPAs. Further, the amendments revoked the powers of the state SPA administrations to determine the allowed species and numbers of animals that could be kept in the SPAs.

As of October 2024, a new revision of the Law on Special Protected Areas was prepared. As planned in 2017, the revised law should incorporate provisions concerning the SPA buffer zones. The classification of SPAs has to be refined, and criteria for classifying areas designated for special protection will carefully be determined for each SPA category. Additionally, areas with internationally designated status must also be classified as a separate category of SPAs. SPA classification has to determine also the SPA internal zonation. Planned provisions on the use of land inside SPAs must require the presence of a general land use plan, consistent with the SPA management plan. Provisions on SPA management should include new regulations concerning the management of SPAs adjacent to the state border as well as the management of SPAs by State agencies, private entities, NGOs and local communities, on a contract basis. As stated in the outline of the proposed law revision "the management of specially protected areas can be assigned either entirely or partially to local community organizations, NGOs and the private sector, thereby reducing the burden on the Government and fostering public-private partnerships in environmental protection."

As of October 2024, the revision of the Law on Special Protected Areas was not finalized, and the revised Law was not adopted. Therefore, Recommendation 11.6 (a) of the First EPR of Mongolia on finalizing the revision of the Law on Special Protected Areas has not yet been implemented.

Moreover, a comprehensive legal framework for the designation and functioning LPAs is absent. Although local authorities technically hold the power to designate and manage LPAs, they have often failed to become operational. A primary reason for this is the lack of national-level regulations, particularly concerning financing from local budgets. This gap was recognized, and a detailed procedural draft was developed to address it. The proposal included, clear purposes and criteria for LPA designation, a classification system based on conservation and management objectives, a formal designation procedure, a legal basis for conservation activities within LPAs, provisions for creating, approving and implementing programmes and management plans for their sustainable use, financing mechanisms and a framework for delegating management responsibilities to NGOs, local communities, or other entities. However, this draft proposal was never approved and remains excluded for the revisions of the Law on Special Protected Areas.

According to the 1997 Law on Special Protected Area Buffer Zones, one of the objectives for the designation of such protective zones is to minimize, eliminate and prevent actual and potential adverse impacts on StrPAs and NPs. The Law stated that buffer zones of StrPAs must be established outside of their boundaries, while buffer zones of NPs may be established either outside or overlapping with the NP restricted zone. Further, *soum* and district Citizens Representatives *Khural*s can establish buffer zones also around NRs and NMs.

Since 2017, several orders of the then Minister of Environment and Tourism approving regulations or procedures related to biodiversity conservation and protected area management were adopted, for example banning the collection of antlers (2017), prohibiting the collection and harvesting of plant species (2018), approving the methodology of the SPA management plan (2021), and the SMART methodology for wildlife monitoring in SPAs (2023).

Some of the proposed legal acts were, as of October 2024, absent in Mongolia's legal system, such as a law on pasture protection, as mentioned by the 1996 Biodiversity Conservation Action Plan for Mongolia, and the NBP 2015–2025. As of October 2024, the rational use and protection of pastureland and hayfields is regulated by the 2002 Law on Land.

Policy framework and its implementation

National Biodiversity Programme

In 2018, the then Ministry of Environment and Tourism prepared the Mid-term Plan for the implementation of the NBP 2015–2025. The most recent SNR was the first national report that assessed Mongolia's performance on NBP 2015–2025 implementation and progress towards achieving the CBD Aichi Targets. The 2018 Plan identified 11 subjects responsible for the implementation of measures planned under NBP 2015–2025 by the end of 2021, and another 40 stakeholders to be involved, while the Government's re-organization in 2024 further increased the number of key actors for the implementation of the NBP 2015–2025. Therefore, coordination between several ministries, State agencies and other relevant stakeholders would also be indispensable for the implementation of activities planned under the new National Biodiversity Strategic Plan for 2025–2030.

However, the NBP 2015–2025 validity period expires in 2025, while in December 2022, COP15 adopted the Kunming-Montreal GBF,⁵⁹⁷ guiding global action on nature and biodiversity protection until 2030, building on, but simultaneously replacing the CBD Strategic Plan for Biodiversity 2011–2020. Therefore, Mongolia is required to develop and adopt a new NBSAP, aligned with the GBF. As of October 2024, the new National Biodiversity Strategic Plan for 2025–2030 was under preparation in the frame of the Global Biodiversity Framework Early Action Support project implemented by UNDP Mongolia, in cooperation with the Ministry of Environment and Climate Change and other stakeholders, expected for adoption in 2025.

National Programme on Special Protected Areas

In 1998, Mongolia adopted the National Programme on SPAs. The Programme assumed the establishment of the ecologically representative network of protected areas, to cover 30 per cent of Mongolia by 2015. As of 2017, a new national programme on SPAs was planned to be developed. Therefore, the First EPR recommended the Government to finalize and adopt the new programme on SPAs, foreseeing a roadmap on the planned increase of the SPAs system, including the enhancement of its management capacity and budget (Recommendation 11.6 (b) of the First EPR of Mongolia).

However, the adoption of the Law on Development Policy and Planning and its Management led to the cancellation of the 1998 National Programme on Special Protected Areas. As of October 2024, no new national programme on SPAs was in place. Recommendation 11.6 (b) of the First EPR of Mongolia has not been implemented.

Other policy and strategic documents

The 2018 National General Land Management Plan 2019–2030 (2018 Government Resolution No. 384) is based on the 16–20-year perspective of the country's socioeconomic development, maintaining a land management policy adapted to natural and geographic conditions, land resources, ecological and economic considerations, spatial capacity and potential. The Plan also determined the land management planning at the *aimag* level, including the development of the transport network and lands under special state protection. The Plan assumed the further inclusion of 131 areas into the State SPA network, while 34 million ha of land have been registered for local special protection.

As of October 2024, no policy strategic documents resulting from the Vision 2050 indicated in detail how the objectives would be achieved. Pursuant to the 2020 Law on Development Policy and Planning and its Management, the Environmental

⁵⁹⁷ CBD (n.d. a).

Target Programme must determine Mongolia's medium-term or 10-year development policy concerning the environment. The draft Environmental Target Programme submitted to the Parliament in 2022 was not approved as of October 2024.

The 2024 National Adaptation Plan to Climate Change assumes more biodiversity-related commitments:

- The approval and ensuring the implementation of the NBP and Action Plan;
- Taking under special protection and improving management of at least 35 per cent of each main representative ecosystems, and entire ecosystems that are unique and vulnerable to climate change;
- Taking action to intentionally breed, cultivate and protect the habitats of endangered and rare animals and plants that are susceptible to exploitation and vulnerable to climate change;
- Assessing the conservation status of animal and plant species according to the criteria of the International Red List (IUCN 2001);
- Determining and implementing conservation measures for endangered species;
- Conducting phased studies on the distribution and resources of plant and animal species nationwide, and periodically determining the resource changes;
- Establishing a comprehensive surveillance and control system for changes in the population number, habitat, and species migration of wild animals due to climate change;
- Taking peatlands under special state protection and promoting rehabilitation and sustainable use of degraded lands;
- Implementation of pilot projects for nature-based conservation measures, specific to regional features to improve regional ecosystem capacity to recovery, to protect forest and biodiversity;
- Implementing sustainable use and ecological restoration based on grassland ecosystem capacity for recovery.

The 2011 National Programme for the Protection of the Rare and Threatened Species (2011 Government Decision No. 277) is no longer valid. Further, a 2015 draft national programme on natural/wild flora conservation (expected to replace the 2002 Programme for the Protection and Appropriate Use of Rare Plants of Mongolia) aimed at the conservation and sustainable management of rare and endangered floral species was not approved. SNR also emphasized, that Mongolia had no policy that aimed to limit the growth of livestock number, which was impacting land degradation, and commented that "Instead, the populist decisions made during the election period to get more support from herders leading to increase the number of livestock economic instruments (compensation for wool producers, subsidies for cashmere makers, etc.) is further exacerbating the situation."

Mongolia also implemented several national action plans and programmes for the protection of rare or endangered species, although reliable information on their effectiveness was missing. Moreover, each Red List published so far in Mongolia was accompanied by a Summary Conservation Action Plan published either together with the Red List, or in the same year as the corresponding volume of the Red List (which is a best practice example, recommended to other countries). As of October 2024, the Ministry of Environment and Climate Change is working on getting approval for a strategic plan to protect rare and endangered mammal species (including the Gobi bear).

Recommendation 11.2 of the First EPR of Mongolia advised the relevant ministry to (a) evaluate the effectiveness of national action plans and programmes for the protection of rare and/or endangered species; and (b) identify other rare and/or endangered species in urgent need of enhanced conservation and develop and implement relevant national action plans and programmes for their protection. As of October 2024, information on the possible evaluation, modification or adjustments of the previously approved and implemented species conservation national action plans and programmes, or the approval and implementation of new ones was neither publicly available nor provided by the Ministry of Environment and Climate Change, despite that numerous other rare and/or endangered species were identified under the project, Red List of Plants in Mongolia-II. Therefore, Recommendation 11.2 (a) and (b) of the First EPR of Mongolia have to be assessed as not yet implemented.

In 2021, the President of Mongolia initiated the OBTNM, aimed at reducing the impact of global climate change and desertification as well as increasing Mongolia's contribution to the achievement of global SDGs (2021 Presidential Decree No. 58) (see Chapter 13). This initiative includes measures such as agroforestry development, planting trees, and developing the green infrastructure in cities and towns. The Movement is not directly targeted at the conservation of biodiversity or the protection or restoration of natural ecosystems as it will take decades until its positive results could be achieved. However, some associated measures can bring positive effects for biodiversity already in the near future, e.g. the creation of water resources required for planting trees, especially transfer of surface water to the Gobi region, the construction of floating ponds can increase the number of waterpoints, important for the survival of numerous wild animal species (in

addition to those restored by the Zoological Society of London in Great Gobi StrPA or under the 100 Springs of Life⁵⁹⁸ project implemented by WWF-Mongolia).

As of October 2024, no national wetlands policy or programme for wetlands conservation was in place in Mongolia.

Institutional framework

As of October 2024, the Ministry of Environment and Climate Change was the main central administrative body responsible for the protection of the environment, including biodiversity conservation and SPAs. The Ministry's organizational structure includes nine departments (see Chapter 1), of which two departments are directly involved in implementing biodiversity conservation policy, namely the Natural Resources Policy Implementation Department and the Special Protected Areas Policy Implementation Department (as of October 2024, the latter Department employed 4 staff members out of the 7 planned). Simultaneously with the Government's reorganization in 2024, the then Ministry of Environment and Tourism was transformed into the Ministry of Environment and Climate Change. According to UNDP Mongolia, in 2024, the structure and powers of the central state administrative body responsible for biological diversity and its subordinate organizations have been changed and reorganized for the seventh time since 2014, which hinders the consistent implementation of the policy.

As of October 2024, other ministries most relevant for Mongolia's biodiversity conservation issues included:

- The Ministry of Education and Science, which supervises the Mongolian Academy of Sciences, its specialized research Institutes and the MAS-associated Academy of Agricultural Sciences, as well as research and academic institutions, including the National University of Mongolia;
- The Ministry of Food, Agriculture and Light Industry, which regulates agricultural development, pasture and livestock management;
- The Ministry of Mining and Heavy Industry, which has the authority over mineral resources extraction and licensing.

As of October 2024, state agencies most relevant for biodiversity conservation issues include:

- The Agency for Land Administration and Management, Geodesy and Cartography, overseeing spatial and land use planning;
- The Environmental Research and Analysis Centre (including EIC, operating databases on biodiversity and SPAs);
- The Forestry Agency, which coordinates the implementation of the forest-related policies and activities of the forestry sector;
- The Water Agency, whose responsibilities included water resources, basin management and water monitoring;
- The Ecological Police Service (2020 Government Resolution No. 3) of the General Police Department, which is responsible for combating crimes and violations against the environment.

The institutional framework for biodiversity conservation and ensuring the functioning of the SPA network includes also the local level, i.e. local authorities at the *aimag* and *soum* levels (in particular *aimag* departments of environment and climate change), as well as 30 State-funded SPA administrations (each responsible for one or more SPA located within their respective operational range) and 4 administrations of SPAs fully or partially managed by NGOs, or through public-private partnership.

Regulatory, economic, fiscal and information measures

Regulatory measures implemented since 2017 include the introduction of the unified methodology for the development of SPA management plans in 2021 and of the SMART methodology for monitoring and inspection activities in State SPAs in 2023. In addition, several mandatory standards concerning wildlife passages across the linear infrastructure objects and concerning wildlife rescue and care have been implemented. These include standards for:

- Wildlife passages: requirements for highways and railroads in mountainous and forested, steppe and Gobi areas (MNS 6735:2018, MNS 6515: 2019, MNS 6735: 2019).
- Wildlife rescue and care: general requirements (MNS 6943: 2021) and specific protocols for mammals (MNS 6944: 2021), birds (MNS 6945: 2021) and amphibians and reptiles (MNS 6946: 2021).

⁵⁹⁸ CMS (2024). Projects reporting template for saiga-related activities. Available at https://saiga.cms.int/sites/default/files/document/cms_saiga_mos5_inf.11_report-wwf-mongolia_e.pdf.

- Infrastructure design: general requirements for barrier fences for railways and highways (MNS 7042:2024).

Since 2017, fiscal measures implemented include the Regulation on collecting, spending and reporting the revenue of payments for environmental protection and rehabilitation measures (2022 Government Resolution No. 2) aimed at ensuring the implementation of the provisions of the Law on Payment for the Use of Natural Resources. The Regulation determined measures that can be funded, including measures to protect natural vegetation and restore degraded pasture land, rehabilitation of the land included in the management plans of the state and local protected areas and environmental zones, implementation of NR, NM and LPA management plans, as well as employ and reward active conservationists, and organize trainings to improve the knowledge and attitudes of local people concerning the protection and proper use of natural resources (see Chapter 3).

According to SNR, SPA administrations continued to “send major revenues generated from PAs such as tourists’ entrance fee (estimated at US\$117,000 as of 2018) and land use fee (estimated at US\$7.6 million as of 2018) either to central or local budget.” According to the Ministry of Environment and Climate Change, as of October 2024, there were plans “to open up the right to fully spend the income of the main activities of the PA to the respective defence administration, to clarify the share of the excess income of the PA to be returned to the investment direction, for example, to assess the importance of protecting water resources and forests, and to spend it on protective measures in that direction according to laws and regulations”. Hence, it was not yet clear whether SPAs could retain their full income, or the “excess income”.

In January 2023, entrance fees to fee-collecting State SPAs were increased and differentiated, mostly depending on the means of travel (but also visitors’ nationality), to 3,000 tugriks for a pedestrian Mongolian visitor, 5,000 tugriks for a pedestrian foreign visitor, 9,000 tugriks for a regular car, 24,000 tugriks for smaller busses (up to 24 seats) and 42,000 tugriks for bigger tourist buses. But, as of October 2024, fee-collecting State SPAs could not retain their entire revenue (generated by different sources, not only the entrance fees) and were obliged to send a portion of their revenues, calculated as a fixed amount resulting from their annual revenue report for the previous financial year, and could only retain the surplus over this fixed amount (sometimes exceeding the fixed amount). 60 per cent of this surplus was spent on staff /rangers’ social security, while the remaining 40 per cent of this surplus could be spent on other operational costs (e.g. fodder and mineral supplements for wild animals, fuel for rangers’ personal cars). Thus, Recommendation 11.6 (c) of the First EPR of Mongolia on considering increasing entrance fees and providing that the revenues from entrance fees are returned to the collecting protected area, in order to enhance the management capacity of strictly protected areas and national parks was partly implemented.

Issues related to receiving and spending fees for camping point services located in SPAs (2023 Law on Tourism) were, as of October 2024, not yet regulated by the Law on Special Protected Areas. Recommendation 11.6 (d) of the First EPR of Mongolia recommended that land use fees from tourist facilities accrue to the protected area and are used to enhance the management capacity of SPAs and national parks. Citizens, business entities and organizations operating in SPAs are charged a land fee by increasing the base price set by the relevant *soum* and district *khural* by three times. This fee is concentrated in the tax accounts of the relevant *soum* and district. The Government issued 2014 Resolution No. 43 to transfer a minimum percentage specified in the Law on Payment for the Use of Natural Resources to the protection administrations of SPAs, but this percentage has not been calculated. The financing mechanism for improving the capacity of SPAs has not been decided. However, this is reflected in the draft revised version of the Law on Special Protected Areas. Recommendation 11.6 (d) of the First EPR of Mongolia has not been implemented and is still valid. Recommendation 11.6 (e) of the First EPR of Mongolia recommended tourism facilities within the protected areas to pay a percentage of gross income to the protected area in recognition of their privilege in being able to operate a private business in a SPA or national park. Citizens, business entities and organizations operating in SPAs should allocate appropriate funds. However, the mechanism is not yet in place. This is reflected in the draft revised version of the Law on Special Protected Areas. Recommendation 11.6 (e) of the First EPR of Mongolia has not been implemented and is still valid. Recommendation 11.6 (f) of the First EPR of Mongolia recommended tourism facilities within protected areas to provide their own transportation within the protected area in a sustainable way, to minimize the impact of driving on the land and habitat disturbance. The major tourism bases of Khuvsgul and Gorkhi-Terelj provide pick-up and drop-off services for travellers and tourists with their own buses, medium-sized and small cars. In recent years, the number of travellers traveling by private cars has increased, but no regulations have been made. Recommendation 11.6 (f) of the First EPR of Mongolia has not been implemented and is valid.

According to the NSO, expenditures on biodiversity conservation and state-managed SPAs considerably increased from 13,948.4 million tugriks in 2017 to as much as 79,085.9 million tugriks in 2018. Later a decreasing trend could be observed: from 24,396.5 million tugriks in 2019, to 17,502.5 million tugriks in 2020, 18,135.2 million tugriks in 2021 and only 17,718.6 million tugriks in 2022 (see Chapter 3).

SNR noted that “one of the limiting factors on capacity building of PA network and its specialists and rangers was the almost stagnant state fund allocation to the PAs despite the local currency depreciation and inflation rate higher than real

GDP growth of the country. The staffing needs of State SPAs were driven by the State budget availability and hence did not reflect actual needs of protected area. Although the then Ministry of Environment and Tourism put mandatory online training into operation, capacity need at local level was not met due to limited budget available. To date, international project support continues to play major role in capacity of PA network in Mongolia.”

According to the report commissioned by UNDP Mongolia, 44.4 per cent of the total financing in the environmental sector was coming from the State budget and the remaining 55.5 per cent from international organizations. Moreover, about 80 per cent of the state SPA total budget was spent on salaries and other operational expenses, while expenses for conservation measures were greatly insufficient.

However, the Eternal Mongolia initiative launched in April 2024 can significantly improve the financing of State-managed SPAs and support community-based natural resource management in their external buffer zones throughout the next 15 years (see Box 12.1).

Box 12.1: Eternal Mongolia Initiative

On 20 April 2024, the Government, The Nature Conservancy and other partners announced the launch of the Eternal Mongolia initiative. Goals of Eternal Mongolia include:

- Extension of the State SPA network by an additional 14.4 million ha (equivalent to 9.2 per cent of the country's territory) by 2030, which will enable Mongolia to achieve the national target of protecting 30 per cent of representative ecosystems;
- Strengthening the management effectiveness of the state SPAs system by 2035;
- Supporting community-based natural resource management in up to 34 million ha of high biodiversity areas outside state SPAs by 2040.

The Eternal Mongolia initiative follows the Project Finance for Permanence (PFP) model. PFP is a tool to enable governments and local communities, in partnership with funders and NGOs, to secure long-term management and financing for networks of conservation areas. Eternal Mongolia is expected to deliver US\$198 million investment over 15 years, including a US\$71 million transition fund from private and other global donor sources. Donor funding will be managed by the Mongolian Nature's Legacy Foundation, an independent conservation trust fund set up in March 2024 specifically for the Eternal Mongolia PFP.

On 22 October 2024, the Legacy Landscapes Fund, The Nature Conservancy and WWF-Mongolia concluded “The Land of the Blue Sky” 15-year partnership. The Legacy Landscapes Fund committed to support activities in Onon-Balji NP and its buffer zone with a grant of US\$1 million every year, with the goal to establish a model landscape encompassing over 11,534 km², where protected area conservation and socioeconomic development work hand in hand.

The implementation of the Eternal Mongolia initiative is expected to facilitate the achievement of biodiversity-related SDGs and their resulting targets by Mongolia, as accomplishing SDG target 15.a (Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems) would provide favourable conditions for progressing with the achievement of other targets under SDGs 6 and 15, in particular target 6.6 (concerning protection and restoration of the water-related ecosystems, including vegetated wetlands, rivers and estuaries, lakes and aquifers), target 15.1 (conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems), target 15.2 (sustainable management of forests, halting deforestation, restoration of degraded forests, afforestation and reforestation), target 15.4 (conservation of mountain ecosystems) and target 15.5 (reducing the degradation of natural habitats, halting the loss of biodiversity, protecting and preventing the extinction of threatened species).

As for the information measures, as of 2024, the information on the environment provided by the NSO was limited to data concerning land, water, forest, climate, disasters and air quality. Data on species are present but not on SPAs in the statistical yearbooks published by the NSO. As of October 2024, the most recent report on the state of the environment (SoER) was the SoER concerning the period 2019–2020, while, according to the Ministry of Environment and Climate Change, the 2021–2023 SoER was under development (see Chapter 5). However, much more information is available in the online Environmental Database, which was as of 2024 expected to consist of 52 thematic sub-databases, including data on e.g. forest resources, wild plants and animals, state SPAs and LPAs, and the BIOSAN biodiversity monitoring database (see Chapter 5). Recommendation 11.1 (c) of the First EPR of Mongolia on establishing and maintaining an efficient biodiversity information system and (d) a metadata base on biodiversity can be assessed as implemented.

12.7 ASSESSMENT AND RECOMMENDATIONS

Assessment

As of 2024, Mongolia continues to preserve its pristine natural ecosystems and remains one of the last refuges for wildlife species in East Asia. Community-based conservation and sustainable natural resource management is deeply rooted in Mongolia's traditions and culture. The Constitution of Mongolia declares that it is the sacred duty of every citizen to protect nature and the environment.

Mongolia has successfully preserved not only the beauty of its vast open landscapes, pristine mountain and desert ecosystems, but also the abundance of wild species of fauna, fungi and flora, including numerous species that are globally

threatened by extinction, as well as many regionally and locally endemic species which have neither been researched elsewhere nor categorized by the IUCN. populations of many rare and threatened fauna species are either stable or increasing, while hunting of game species remains at a sustainable level. Poaching has also significantly decreased, partially due to the establishment of the Ecological Police in 2020.

The availability of comprehensive and up-to-date information on biodiversity is a prerequisite for the proper formulation of cost-effective national policies, strategies, plans and programmes for the conservation and sustainable use of biological diversity. However, the absence of regular nationwide research on ecosystems, habitats and their species, hampers effective biodiversity conservation. The last nationwide assessment of species across different biomes was carried out in 2010. Since then, biodiversity monitoring has been limited to periodic single-species population surveys or more regular observations and wildlife inventories carried out by the scientific personnel and field rangers in SPAs and NPs. Since 2017, Mongolia has extended its network of state protected area by designating new SPAs, as well as enlarging and upgrading existing ones.

Several pressures on natural ecosystems and habitats of rare and threatened species have intensified since 2017, particularly those resulting from mineral prospecting, exploration and extraction; excessive increase in livestock numbers; and the improper use of pastures. These factors have triggered land desertification, which is further exacerbated by climate change, leading to more frequent and severe extreme weather events, that are fatal not only to livestock but also to wildlife. Biodiversity loss is progressing on a global scale and Mongolia is no exception.

In addition, potential infrastructure developments under the 2024–2028 Government Action Programme may affect the integrity of the Great Gobi Strictly Protected Area (Part “A”) and threaten the survival of several species that are critically endangered both globally and locally, many of which are also iconic to Mongolia. Such developments would contravene the provisions of several laws and international obligations under MEAs, thus compromising the WHS nomination process and undermining trust in Mongolia’s international commitments. While China financially supported the Technical Assistance Project for the Protection of the Gobi Bears of Mongolia for the period 2018–2024, the Gobi bear remains among the species most threatened by the planned development. Alternative solutions have not been considered.

As of 2022, rangelands covered over 70 per cent of Mongolia’s territory and accounted for nearly 82 per cent of its agricultural land. Pastures constitute one of the country’s most important and valuable natural assets of the country, critical to both the national economy and the subsistence needs of roughly one third of the population. They are particularly vital for over 200,000 nomadic and semi-nomadic herder families, whose livelihood is highly dependent on the health of rangelands. However, the continuity of Mongolia’s traditional nomadic livestock herding is increasingly threatened by pastureland degradation caused by unsustainable livestock husbandry practices, overgrazing and land desertification, all of which are further aggravated by climate change.

The lack of sustainable rational use and protection of Mongolia’s vast rangeland also hampers progress towards achieving SDG target 15.5 (concerning the degradation of natural habitats). Another obstacle preventing an adequate response to these challenges is the lack of a specialized institution capable of reconciling the need for sustainable economic use of pastures with their protection. Such an institution would combine expertise on agricultural pasture use with ecosystem conservation and enhance communication and horizontal coordination among the relevant ministries and specialized state agencies.

As of October 2024, the legislative and institutional framework did not ensure effective biodiversity conservation. Several key legal acts remained either outdated or absent from the biodiversity conservation framework. For example, the revision of the Law on Special Protected Areas, initiated in 2014, had not been finalized, and the corresponding by-laws drafted in the same year were still waiting adoption. Similarly, despite the fact that LPAs covered, as of 2020, a total area equal to 15.7 per cent of Mongolia’s territory, often protecting ecosystems and habitats critically underrepresented in the state SPA system, the legislation does not provide clear provisions concerning their status, management or financing. Likewise, external buffer zones of protected areas, although regulated by the Law on Special Protected Area Buffer Zones, are not officially recognized as part of the national ecological network. The lack of clear provisions on LPAs and buffer zones undermines the coherence and consistency of the ecological network.

As of 2024, several key strategic documents were still missing from Mongolia’s policy framework for biodiversity conservation. These include an updated NBSAP duly aligned with the GBF; a new national programme on special protected areas; a national policy or programme for wetland conservation and national programmes and plans for species conservation or recovery, as well as for the preservation or restoration of natural ecosystems, habitats and plant communities. The presence and progressive implementation of such national policy documents would significantly facilitate the mobilization and increase of financial resources, both domestic and international, for the conservation, restoration and sustainable

management of natural ecosystems and biodiversity, thereby supporting progress towards SDG targets 6.6, 15.1, 15.4 and 15.5.

Recommendations

Monitoring and research on ecosystems, habitats and species

Recommendation 12.1:

The Ministry of Environment and Climate Change, in cooperation with the Ministry of Education and Science, the Mongolian Academy of Sciences and other relevant stakeholders, should:

- (a) Update the Red Lists of animal species;
- (b) Include priority long-term biodiversity monitoring and research topics in the National Biodiversity Strategy and Action Plan;
- (c) Initiate the development of a nationwide long-term research programme on biodiversity.

Legal framework for biodiversity conservation

Recommendation 12.2:

The Government should:

- (a) Grant legal protection to plant species identified as a result of the project Red List of Plants in Mongolia-II by including them in the List of Very Rare Plants or the List of Rare Plants, as appropriate;
- (b) Grant legal protection to species identified in the course of updating the Red Lists of animal species and approved for classification as extremely rare or rare, by adding the extremely rare species to the Law on Fauna and adding the rare species to the List of Rare Animals;
- (c) Finalize the revision of the Law on Special Protected Areas and submit it for approval by Parliament.

Policy framework for biodiversity conservation

Recommendation 12.3:

The Government should:

- (a) Finalize, adopt and implement the National Biodiversity Strategic Plan for the period 2025–2030, duly aligned with the Global Biodiversity Framework;
- (b) Include the identified sites for the extension of special protected areas in the National General Land Management Plan 2019–2030;
- (c) Develop, adopt and implement a national wetlands conservation plan;
- (d) Develop, adopt and implement national single species conservation or recovery plans, and national programmes or action plans for the preservation or restoration of natural ecosystems, habitats and plant communities, consistent with the Summary Conservation Action Plans included in or accompanying respective volumes of the Red Lists of animal and plants species;
- (e) Consider alternative solutions to any road or railway construction project in the habitat of extremely rare animals, and ensure that an environmental impact assessment for the selected alternative solution is conducted, as required by the Law on Fauna.

Dzud climatic phenomena and wildfire

Recommendation 12.4:

The Government should:

- (a) Enhance wildlife disease monitoring and early detection systems;
- (b) Establish wildlife corridors to allow migration and survival of wild animals during dzud.

PART III:
MAINSTREAMING
ENVIRONMENTAL ISSUES
IN SELECTED SECTORS

CHAPTER 13

SUSTAINABLE FOREST MANAGEMENT

13.1 DESCRIPTION OF THE CURRENT SITUATION

Forests

In Mongolia, the term forest land is used to refer to both forested areas and non-forest areas and the surrounding environment, including the area needed for forest growth. Forest land includes naturally forested areas; planted forests; bush and shrub stands; forests damaged by forest and steppe fire, insects and diseases; glades; tree nursery areas and an area of 100 metres outside forest edges. Non-forest areas include some grasslands, shrub lands, wetlands and agricultural areas. As such, the 2012 Law on Forest defines forest land as a form of land use rather than forest cover and includes areas not covered by forests in addition to the forested areas. As of 2023, about 19.1 million hectares were considered to be forest land, representing 11.8 per cent of the country's total area. In 2017, the total area of forest reserves was about 18.6 million hectares. By 2023, this area had increased to 19 million hectares. Similarly, the area actually covered by forests rose from 12,411,695 hectares in 2017, representing 7.94 per cent of the total land area, to 12,949,814 hectares in 2023, accounting for 8.28 per cent. With less than 10 per cent of the total land area under closed forest, Mongolia is considered to be a "low forest cover" country according to the FAO definition. However, due to its small population (3.495 million people) and vast territory, and thus its low population density (2.3 inhabitants/km², one of the lowest in the world), Mongolia is not designated as a "low forest cover" country on the basis of its ratio of forested area per capita, which is 4.06 ha/capita (the global average ratio is 0.54 ha/capita). The perception that Mongolia has little in the way of forests can be countered by the fact that Mongolia has around the same area of closed forest as Germany, which is generally perceived as being a forested country. Forests are mainly located in the north-central parts of Mongolia, forming a transition zone between the Great Siberian boreal forest and the Central Asian steppe desert. Forests in the northern part of the country represent the southern edge of the boreal forest. The forested areas of Mongolia can be divided into two types: northern coniferous and deciduous forests and southern saxaul forests. The northern boreal forests comprise 84.7 per cent of the total forested area. Since 2015, the forest area as a proportion of total land area has remained stable at 9.1 per cent (SDG indicator 15.1.1 of SDG target 15.1 – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss).

The most common tree species are Siberian larch (*Larix sibirica*), Siberian pine (*Pinus sibirica*), Scots pine (*Pinus sylvestris*), Siberian spruce (*Picea obovata*), Siberian fir (*Abies sibirica*) and a smaller, broad-leaved component composed of birch (*Betula platyphylla*), aspen (*Populus tremula*) and poplar (*Populus diversifolia*). The southern saxaul forests cover 15.3 per cent of the country's forested land and consist primarily of saxaul (*Haloxylon ammodendron*) and other species such as tamarix (*Tamarix spp.*) and Caragana. The saxaul vegetation is a unique feature of Mongolia's semi-desert and desert ecosystems and has important ecological, cultural and economic functions. These forests protect the land against erosion and desertification. Also, they provide fodder for livestock and fuelwood. Mongolian forests consist of more than 140 tree and shrub species. Siberian larch is the dominant species in terms of both area (62.5 per cent) and volume (78.6 per cent). The above-ground biomass in forest is stable at 54.9 tons per hectare (SDG indicator 15.2.1). The average age of coniferous trees is 133 years and of deciduous trees, 46 years. In terms of forest age structure, the 2017 Multi-Purpose National Forest Inventory (MPNFI) showed that a major part of the Mongolian boreal forest is overmature, with 74.07 per cent of forest stands classified as mature or overmature, 14.16 per cent classified as submature, 11.29 per cent classified as middle aged and 0.48 per cent classified as young. As for the saxaul forest, 34.95 per cent is overmature, 51.82 per cent is mature, 11.55 per cent is reaching maturity, 1.28 per cent is middle aged and 0.4 per cent is young. Consequently, forests are not only less productive but also more prone to fires and pest attacks and are less resilient to climate change.

Other wooded lands

The forest land area which is not covered by forests or is unstocked forest area is 5.63 million ha. These unstocked forests are areas that have been deforested due to various disturbances, such as forestry and/or non-forestry operations, overgrazing, repeated fires and attacks by insects and diseases. These areas are expected to be regenerated and are being earmarked to be targeted by activities under the One billion Trees Initiative, originally known as the One billion Trees National Movement (OBTNM) (see Box 13.1). Non-forest wooded lands include high mountain sub-alpine tundra vegetation, mountain slopes, rocky areas, meadows and tree nurseries.

Box 13.1: One billion Trees National Movement

Following the announcement of the “One billion Tree National Movement” by the President at the 76th session of the United Nations General Assembly on 22 September 2021, (Presidential Decree No. 58), Mongolia launched the OBTNM, a nationwide afforestation and forest restoration campaign with the aims of combating desertification, land degradation and climate change while contributing to global commitments under the Paris Agreement. Spearheaded by the Government, the Movement seeks to plant one billion trees by 2030, with a focus on degraded and deforested lands, urban green spaces and agricultural zones.

Objectives include enhancing carbon sequestration, restoring forest ecosystems, mitigating soil erosion and improving local livelihoods through sustainable forestry practices. OBTNM also emphasizes the integration of modern technologies, such as drone-based seed planting and satellite monitoring, to increase efficiency and track progress. To support the Movement, Government Resolution (No. 333) established a National Committee for Climate Change and Desertification to oversee the preparation and implementation of the OBTNM. This committee consists of members of the Central Government, of *Aimag* Governments and city governors. Implementation is structured into three phases: foundation building (2021–2024), focusing on capacity development and infrastructure investment; intensive planting (2025–2027), which will see a scaling-up of planting activities; and maintenance and monitoring (2028–2030), ensuring the survival and sustainability of planted trees.

Efforts are supported by public-private partnerships, international cooperation and community engagement to ensure broad participation and funding. As of 2023, over 120 million trees have been planted, with preliminary assessments highlighting the importance of species selection, irrigation systems and grazing control (primarily fencing) to enhance survival rates. OBTNM is seen as a flagship programme for Mongolia’s climate and environmental policy, aligning with the country’s Vision 2050 Long-term Development Policy and its commitments to achieving the Sustainable Development Goals (SDGs).

A major feature of the OBTNM is the involvement and commitments made by the private sector: mining companies have pledged to facilitate the planting of most of the trees (600 million) and commercial banks are playing a significant role in raising and coordinating the OBTNM’s financing and grant allocation via the innovative billion Tree Fund. There are also links between the tourism industry and OBTNM activities that could be increased and built upon, including partnering with airlines and tourism operators to involve tourists in tree-planting pledges and activities. Offering the increasing number of tourists the opportunity to directly participate and/or financially support (through ‘adopting’ individual trees) in planting can create a personal connection to Mongolia’s reforestation goals and raise the international profile of the OBTNM. Despite its ambitious scope, challenges remain, including limited water resources, capacity constraints in seedling production, the need for a critical mass of civic mobilization (interest and action) and robust monitoring systems. Nonetheless, the OBTNM represents a significant signal by Mongolia to the international community that it is attempting to reverse environmental degradation and foster a greener, more sustainable Mongolia.

Regarding the OBTNM’s stated objectives:

- Carbon sequestration: if implemented well, with acceptable tree survival rates, there will be some carbon sequestration benefits. Whether these will ever be able ‘monetized’ via international carbon markets as hoped/anticipated is unclear. If via the Voluntary Carbon Market there will be issues regarding additionality, tenure/exclusion rights and slow tree growth which will be challenging to surmount. Bilateral contracts under Paris Agreement Article 6 may be a less challenging monetization method.
- Restoring forest ecosystems: this will require improved site selection than has been done to date.
- Mitigating soil erosion: this will be more of a benefit in Gobi *aimags*, where it is also politically more valuable if it can reduce large sandstorms. In Northern boreal forests, it is beneficial mainly in gullies and riverine sites.
- Improving local livelihoods: to date it seems as if this is intended to materialize via nursery and planting contracts given to existing Professional Forestry Enterprises. These tend to be short term and to date have not benefited forest user groups, which is unfortunate and a missed opportunity. In the medium and longer terms it is unclear how the vulnerable slow growing trees planted via OBTNM will substantially contribute to local livelihoods.

Biodiversity and ecosystems in forest areas

The Law on Forest and 1994 Law on Special Protected Areas (SPAs) classify the forest resource in two categories, based on the protection and utilization types and ecological and economic values: 1) Protection Forest zones; and 2) Utilization Forest zones (which are designated areas of forest that are primarily managed and utilized for economic and practical purposes). Protection forest zones comprise of sub-tundra forests, forests in special protected areas, and those designated for training and research, green belts, prohibited forest strips, saxaul and oasis forests, groves and bush stand of up to 100 hectares of area, and forests on slopes with gradients greater than 30 degrees. About 3,887,390 hectares or 20.4 per cent of Mongolia’s forest land is under special State protection to conserve biological diversity. Of this, 2,263,712 hectares are strictly protected areas, 1,419,638 hectares are natural parks, 158,855 hectares are natural reserves, and 45,185 hectares are classified as monuments.

Furthermore, forests around water bodies such as rivers and lakes, or around cities, towns, roads and railways, are protected. Any activity other than construction of roads and bridges, electrical and telecommunication lines, forest maintenance work and use of NWFPs is not allowed in a protected forest zone. According to the 2020 FAO Global Forest Resources Assessment, for the period 2015–2020, about 21 per cent of forest areas are within legally established protected areas (SDG indicator 15.2.1).

Soil in forest areas

Forest soils are diverse, reflecting the country's range of climatic, geological and topographical conditions. Predominant soil types in forested areas include podzols and cambisols, which support a variety of native flora and fauna. Recent assessments indicate that forest soils in the northern regions exhibit high organic matter content and stable pH levels, contributing to robust tree growth and biodiversity. However, soils in very mountainous areas are more vulnerable to erosion due to steep slopes and limited vegetation cover. Soils in Mongolia's forests play a significant role in carbon sequestration, significantly contributing to the country's efforts to mitigate climate change.

Non-wood forest products

NWFPs play a significant role in SFM, contributing to both the economy and rural livelihoods. NWFP collection has an estimated total value of almost 16.5 billion tugriks (US\$12.18 million) annually, benefiting around half of the rural population in areas with boreal forests. Mongolia's forests are home to over 600 species of medicinal herbs, 1,000 species of nutritional herbs and 200 species of herbs used for food, highlighting the rich biodiversity and potential of NWFPs in the country. However, the forest sector faces challenges, including inadequate funding and the need for sustainable management practices to ensure the long-term availability of these resources. NWFPs include Siberian pine nuts (see Box 13.2), mushrooms, medicinal and aromatic herbs and berries, and are very important for local people for their consumption and for income generation. One of the priorities of the Government is to develop the value chains of NWFPs, with the cedar nut value chain (see Box 13.2) at the top of this list but harvesting of the locally valuable cedar nuts prior to the designated harvesting period has resulted in significant damage to cedar trees. This activity has degraded cedar forest stocks and negatively impacted growth resources. NWFPs also include wild animal furs, deer antlers for medicinal purposes and game meat (see Table 13.1).

Type of forest management including ownership

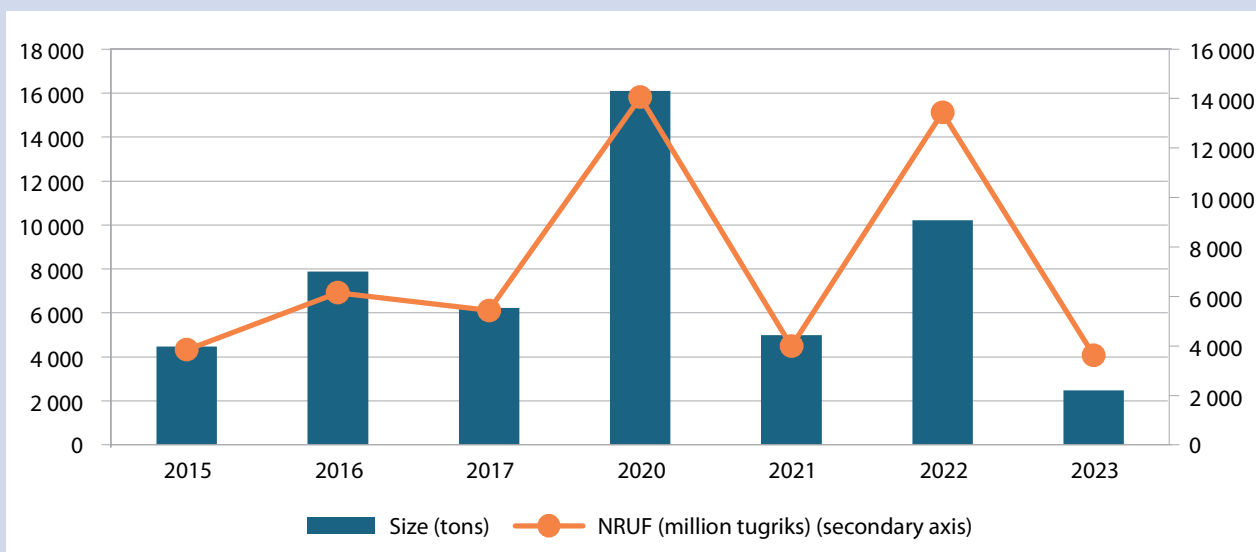
According to the Constitution of Mongolia, forest resources are State property and are under the sole control of the people. The Law on Forest states that individual citizens, forest user groups (FUGs), enterprises and other organizations can own forests that they deliberately plant on their own land, following the procedures established by law. Furthermore, the Law on Forest outlines the ownership of forest reserves. Specifically, it allows for portions of the forest land to be owned and utilized by forest communities, enterprises and organizations based on proposals from citizen representative meetings at the *soum* and district levels. These agreements specify the duration, conditions and terms of use. Additionally, it mandates that entities assigned designated forest sections must implement protective measures in accordance with their forest management plans (FMPs), ensure sustainable use of trees and natural resources as outlined in the law, maintain and clean (remove non-standing deadwood) the forest and undertake restoration efforts. Forest management practices are based on individual, bespoke, area-based FMPs, but their data status is rather poor, because of inaccurate delineation of large compartments based on dated Taxation Inventory methodology for both utilization and protection forests. Another weakness is that due to local political decision-making, scientifically derived annual allowable cut figures are not followed. Women are involved in non-wood FUGs. However, the sector's overall employment patterns lack comprehensive sex-disaggregated data. Gender disparities in forestry are intertwined with rural poverty and lower female representation in decision-making roles.⁵⁹⁹

Box 13.2: Siberian pine value chain sustainability challenges

The Siberian pine (*Pinus sibirica*) nut value chain in Mongolia faces critical sustainability challenges that threaten both the ecological balance and the livelihoods of local communities. Overharvesting of pine nuts is a significant concern, as it disrupts forest regeneration and reduces the availability of seeds for wildlife. This issue is exacerbated by a lack of effective monitoring and enforcement mechanisms to regulate harvesting practices. Climate change further intensifies these challenges, as rising temperatures and shifting precipitation patterns increase the vulnerability of Siberian pine forests to pests, diseases and forest fires. These threats not only reduce the productivity of pine nut trees but also compromise the overall health of forest ecosystems.

Additionally, the value chain is characterized by inefficiencies and inequalities. Many rural communities involved in nut collection lack access to fair markets, forcing them to sell their harvests at low prices to intermediaries. This limits the economic benefits of the resource and discourages sustainable practices. Weak infrastructure, such as poor transportation and processing facilities, further constrains the development of a resilient value chain. Figure 13.1 shows the amount of pine nuts harvested and prepared and income from the local budget.

⁵⁹⁹ GIZ (2018).

Figure 13.1: Amount of pine nuts harvested and prepared in tons and income from the local budget, million tugriks

Source: National Forest Agency, 2024

As of September 2024, these sustainability issues have not been addressed. Sustainable harvesting practices are not promoted, community-based forest management is not strengthened, and investment in value-added processing and equitable market access is not carried out, which would help to address these sustainability issues. Policies aimed at enhancing climate resilience and conserving Siberian pine forests are critical to ensuring the long-term viability of the pine nut industry in Mongolia.

Source: National Forest Agency, 2024.

Table 13.1: NWFPs by type and use

Type	Forest product	Purpose of use
Botanical NWFPs	Hay Pine nuts, pine mushrooms Food plants (fruits, berries, herbs, bulbs, vegetables) Medicinal plants Aromatic plants	Livestock fodder Subsistence and commercial consumption Subsistence Commercial Religious traditions (incense)
Faunal NWFPs	Furs (sable, martin, wolf, fox and lynx) Deer antlers Marmot oil Wild meat	Commercial Medicinal purposes, export to China and Republic of Korea Medicinal purposes Subsistence

Mongolia's forest management system is control-based, but control is only focusing on conducted measures and how much timber is harvested. There is no control on what has been left for growing, even though those trees will build the future forests of Mongolia. There has not been any effective launching of a SFM approach to forest management, and it is usually interpreted that, by following or implementing approved FMPs, sustainability is guaranteed even if an SFM approach does not drive the creation of FMPs for both utilization and protection forests. There is also, especially recently via the OBTNM, an over-emphasis on tree planting to the detriment of the level of effort and resource allocation for the sustainable management, including utilization, of existing forests. The only (pro)active forest management activity which aims to improve future forests currently being supported and implemented is thinning (see Box 13.3).

Photo 13.1: Poor tree health due to poor site selection, over-large planting material and sporadic watering by hand/hose in a professional forest enterprise plantation in a boreal forest zone *aimag*



Photo 13.2: Good tree health using well-sized and 'hardened' planting material, integrated irrigation system and innovative moisture retention technology in a private/tourism enterprise's plantation in a Gobi *aimag*



Until 1990, forest utilization developed rapidly and expansively, and the forest sector was contributing 6 per cent to GDP. Following the collapse of the socialist system in the 1990s, State-owned wood processing factories have been privatized into small-scale sawmill entities. However, these enterprises soon ceased operations, due to the lack of investment and trained professional workers. Since then, the main management objective of the State has shifted from utilization to conservation.

This policy was also in line with the Government objective to include 30 per cent of the territory under a protected area system, which is now also well-aligned with the global 30x30 initiative formalized at the 15th meeting of the Conference of the Parties to the Convention on Biological Diversity in 2021. The new conservation-driven strategy resulted in reducing the Annual Allowable Cut, which created the situation that a significant proportion of harvesting to meet local and national demand for timber and firewood became *de facto* illegal logging. When attempting to enforce the prohibition of pre-existing (often low-level) forest utilization, the Government soon realized that the State-driven, top-down law enforcement system to control this unpermitted harvesting was ineffective, due to the lack of State finance to support sufficient staff and equipment and the persistent local demand for firewood and other forest products.

Consequently, and mainly to tackle this problem, the Government's response was to engage local communities in forest management, primarily in forest conservation and rehabilitation work. This was based on the approach/understanding that forest-dependent communities that directly benefit from forest resources for their livelihoods and their needs for timber, fuelwood and NWFPs would be the most interested in managing forest resources sustainably and preventing outsiders from using them illegally. This approach required a reform of the forest legislation to allow local communities to obtain long-term forest tenure rights.

Box 13.3: Forest thinning

According to the Law on Forest, forest thinning is categorized into four types: 1) light provision (for conifer trees up to 20 years old), 2) space adjustment (21–40 years), 3) stem and crown formation (41–60 years), and 4) intermediary (61–120 years). Light provision and space adjustment thinning are typically conducted in extremely dense single-species or mixed forests. These two types are considered precommercial since they do not generate income; therefore, the government covers the costs incurred for these activities (in 2023 raised from 45 US\$/ha to 120 US\$/ha).

Thinning operations not only enhance tree growth but also improve forest health, reduce pest-damage and fire risk and strengthen the forest's capacity for water regulation, soil protection and overall ecosystem stability. However, these precommercial and commercial thinning are being conducted on a very limited scale, with some local political decision-makers not allowing them to be implemented, despite their clear legal status and positive SFM and additional local and national environmental and economic benefits.

The 1998 revision of the 1995 Law on Forest (no longer valid) provided for the right of individuals, community groups, economic entities and organizations to enter into concession agreements to protect, sustainably use and rehabilitate forest land. Following this change in the policy and legislation, local people started to create FUGs. These efforts have been rather successful, and Mongolia now has approximately 1,200 registered FUGs comprising nearly 25,000 members, with women representing 57 per cent of the membership. Registered SMEs engaged in forest sector business and industry are called by the name Professional Forestry Enterprise (PFE); as of January 2020, there were 512 licensed PFEs operating in nine *aimags* and the capital city.⁶⁰⁰

FUGs manage around 2.3 million hectares of forested land, accounting for about 12 per cent of Mongolia's total forest area. 106 PFEs hold leases for approximately 601,700 hectares of forest. Communities manage 25 per cent of Mongolia's forests, while the government administers 71 per cent and private entities manage the remaining four per cent. Along with FUGs, PFEs are a key stakeholder in forest management and value addition in Mongolia. One of the key conclusions that emerged from a comprehensive 2020 PFE survey, is that more than 80 per cent of PFEs consider the conditions in Mongolia to be negative for forestry related business, due to the Government's protection policy over the last 20–30 years.

During this period, and as noted in the First EPR, silviculture in Mongolia became primarily focused on deadwood collection and tree planting. In 2018, following successful trial-plots and training pilots by a FAO/GEF project,⁶⁰¹ new forest stand thinning standards were introduced. Some Forest Unit staff, PFEs and FUG members received training on these standards, and tenders were subsequently awarded for thinning operations. Recommendation 13.2 (b) of the First EPR of Mongolia recommended the then Ministry of Environment and Tourism to monitor the work of licensed professional forestry organizations and ensure that licences are issued/renewed to qualified organizations only. The recommendation was partially implemented and remains valid.

Forest User Groups

One of the key stakeholders in the forestry sector are the local herders, who have utilized and protected natural resources by joining together and organizing forest and pasture management activities. Since 2007, local people were encouraged to unite and organize themselves as FUGs, which have a legal mandate to help in forest cleaning (the removal of non-standing dead material), reforestation, supporting natural regeneration and activities preventing forest fire and conducting pest control.

An FUG develops an FMP, which is approved by the local citizen representative *khural*. The group reports annually on the implementation of its plan. Since 2015, it is a legal requirement that professional foresters (whether private or government) should assist FUGs to prepare their FMP. For this service, FUGs have to pay substantial fees, which, in some cases, they cannot afford. While they provide work for forest protection, they lack financing for implementation of their management plan, and appropriate incentives to contribute to forest protection. The concession rights are granted to FUGs by *soum* or district citizen representative *khurals*. The concession contract is concluded for an initial period of one year, for the purpose of ensuring adequate preparations, and is subsequently extended every 10 years, for a total period of up to 60 years. However, the security of right holders and legitimacy of contracts are unclear. Only mining concessions enjoy real tenure security. The Law on Forest and other corresponding/relevant laws do not clearly prevent overlapping rights from being granted over a contracted forest area. This sometimes results in situations in which new concessions have been awarded to outsiders over forest areas that are already under the management of FUGs on a contractual basis.

Since FUGs have begun to operate, the number of forest fires has been significantly reduced in the areas managed by them. Some FUGs are keen to initiate additional forest management activities, and a few have managed to get permission (due to favourable and by-the-book local political and administrative support) to develop and establish forest product

⁶⁰⁰ GLZ (n.d.).

⁶⁰¹ FAO (2020).

(e.g., birch charcoal) enterprises and, tendering for pre-commercial thinning contracts and receiving government grants for doing so. Within a relatively short period, FUG-based forest management has proved itself to be very effective, and it has created a sense of ownership among local communities. However, group members have more obligations on forest protection than they have benefits, and fickle local politics continues to be a major challenge in some *aimags*. In addition, having the status of FUG does not provide the right to access the financial market. Therefore, the potential of user-group-based forestry in respect of SFM for economic and ecological benefits is not being fully realized.

There has been a continuous debate regarding the realistic empowerment of FUGs: FUGs are seen to have hardly any official power on resource extraction by other users on their area. It is subject to localized discussions on how and how far FUG may be, in some cases, granted opportunities to do more forest management, including thinning and logging activities or if this remains only subject to PFEs. FUG definition is pursuant to concepts defined in the Civil Code and the Law on Environmental Protection. Therefore, the scope of forest management implementation would be different compared to PFEs. Recommendation 13.3 (a) of the First EPR of Mongolia recommended formalizing the status of forest user groups to provide them with the legal rights to use forest resources sustainably. This recommendation was not implemented and remains valid.

Photo 13.3: FUG members: pre-commercial thinning planning



Photo credit: Andrew Inglis

Photo 13.4: FUG members: removal



Photo credit: Andrew Inglis

However, with regard to timber harvest, some groups lobby to provide FUGs with basically very similar rights as PFEs have. FUG members can anytime establish an NGO or even a PFE and with this enhance their status and management rights. One approach to strengthen FUGs would be to provide FMP performance-based incentives, such as reduction of NWFP permit fees for members or direct payments to the FUG funds for successful protection of area and forest sites. Money could also come from other sectors (e.g. mining) as FUG forests fulfil many ecosystem functions or from revenues from the natural resource use. Recommendation 13.3 (b) of the First EPR of Mongolia recommended ensuring that forests under the management of forest user groups are not affected by mining or petroleum licences. This recommendation was not implemented and remains valid.

Logging and illegal logging, afforestation, reforestation, productivity

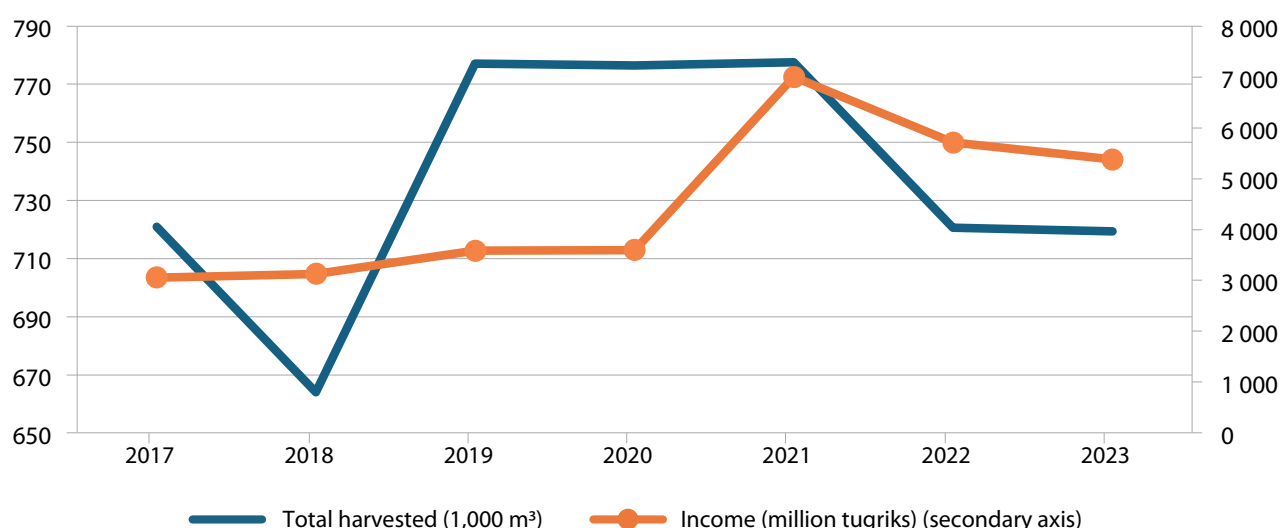
Logging

The commercial use of forests in Mongolia via logging started in the 1960s as a result of the country's overall industrialization process. Wood processing industries were established to produce construction materials and domestic products such as *gers*, furniture and saddles. Timber products were also exported to China. From the 1960s to the 1990s, the forestry industry

was an important sector in the country's centrally planned economy and contributed to 6 per cent of the GDP. In the early 1990s, all wood harvesting and processing enterprises were privatized. However, privatized enterprises could not operate fully due to the lack of investment, lack of trained professionals, poor management skills and poor-quality standards of products for both domestic and international markets, and, consequently, some of them went into bankruptcy and closed down soon after privatization. As a result, the annual timber harvest fell from 1.8 million m³ in the 1980s to about 620,000 m³ in 2002.

Another factor in the decline of logging was a government policy to reduce the annual allowable cut as part of its change to a focus on conservation. For this, some of the forests were classified as protected area and the commercial use of forests has significantly declined during the past two decades. According to the NSO, between 1980 and 2003, in total, 29.2 million m³ of timber were harvested. Between 1980 and 2016, the total harvested timber amounted to 38.496 million m³, an average of 1.040 million m³ per year. However, this average cannot be generalized as the trend in timber harvest was different between the decades 1980–1990 and 1991–2000. The average annual timber harvest between 1980 and 1990 was 1.924 million m³. However, starting from the early 1990s, the volume of harvested timber has fallen significantly, due to the Government policy to reduce timber harvesting as a response to forest degradation. The average volume of harvested timber in the decade 1991–2000 was 0.701 million m³, from 2001 to 2016, the average was 0.665 million m³ and from 2017 to 2023 the average was 0.737 million m³ (see Figure 13.2).

Figure 13.2: Total harvested wood and value, 2017–2023



Source: National Forest Agency, 2024

The resulting timber supply situation is sub-optimal. Local PFEs do not have any guarantee with regard to annual levels of timber via logging permits, and this has a huge knock-on effect on the wood processing and added value sector. Only two companies feel confident that they will get sufficient albeit highly priced (due to scarcity not quality) Mongolian timber, when there are around 10–20 other companies who have to rely on tax-free imports of wooden boards from Europe, the Russian Federation and China, because of inconsistent political decision-making processes. Local Forest Units, under local political and line management control, have no real power to professionally adhere to national forest policy, oversee gazetted regulations nor implement FMPs. The wood supply activities most likely to be allowed/permitted are the collection and harvesting of dead wood, which are of limited silvicultural and high-end wood product industrial (and therefore green-job-creation) value.

Illegal logging

Illegal logging is reported to be endemic with regard to contemporary forest resource management in Mongolia. Laws not being applied and dysfunctional permit allocation processes due to local-level favouritism and nepotism cause the most visible forms of illegal logging, but the biggest driver of *de facto* illegal logging is the non-use of scientific (e.g. MPNFI-derived) annual allowable cut (AAC) figures by local political decision makers, as currently local government entities, not the National Forest Agency (NFA), are responsible for setting AAC determinations (and issuing forest use permits/licences based on them). With the reduction of permitted annual harvests, rural and urban people suffer a shortage of firewood, which constitutes about 75 per cent of the total wood harvest. In 2023, 719,300 m³ of wood was harvested: 181,200 m³ or 25.2 per cent was wood for material purposes by industries and household use, and 538,100 m³ or 74.8 per cent was for firewood (see Figure 13.2). Firewood is the only source of fuel for heating and cooking in many parts of Mongolia, due

to the absence of electricity and unavailability of coal. In addition, timber is used for construction of fences and houses. Besides their need for timber for subsistence, many people also sell timber occasionally to earn additional income. Some of these people form groups and sell timber in an organized way, with the result that illegal logging is the primary source of income for some of them. Some also possess certain forestry skills, as they are former workers of the wood processing industry.

Reforestation and afforestation

The practice of reforestation in Mongolia started in 1968 followed by its first tree-planting programme in the 1970s, laying the foundation for national initiatives to combat deforestation and land degradation. Since the early 2000s, these initiatives have expanded significantly, with various afforestation and forest restoration projects implemented across the country. These efforts have focused primarily on the restoration of boreal and saxaul forests and the establishment of windbreaks in agricultural areas dominated by wheat and barley cultivation. In the boreal forests of northern Mongolia, several challenges have been identified as key factors affecting the survival of planted trees. These include the use of neglected seedlings, unskilled planting practices, forest fires and damage caused by cattle grazing. In the arid southern regions, saxaul planting has faced additional water-related constraints. During the juvenile phase, saxaul trees require consistent irrigation to survive. Reforestation activities include tree planting in areas where logging operations have been carried out or areas affected by fires, the creation of forest strips, and supporting natural regeneration in the forests and tree nurseries for the preparation of seeds and seedlings for plantation. Reforestation with seeds and seedlings is conducted in spring and autumn using 2–3-year-old seedlings. However, inappropriate nursery practices have undermined some restoration efforts. For example, the use of containers that are too shallow has inhibited the taproot development of saxaul seedlings, resulting in high mortality rates shortly after planting. The experience of Mongolia's Green Belt programme has underscored the importance of prioritizing natural regeneration as a cost-effective and sustainable approach to forest restoration. Effective control of grazing and fire has been identified as a critical prerequisite for ensuring tree survival. While supplementary measures, such as maintaining fences and providing adequate water supply during the early years, have proven effective in increasing tree survival rates, these practices are often impractical for large-scale applications.

In 2021, the President of Mongolia launched the largest national reforestation and afforestation programme to date, namely the OBTNM. A contentious issue regarding the OBTNM is the claimed survival rates of the trees planted to date, as this is a key metric to assess whether there is value for money/investment compared to allocating additional resources for SFM in existing forests. One of the most notable previous successes in forest restoration is the Tujiin Nars project, which focused on the rehabilitation of approximately 3,500 hectares of boreal forest. The project demonstrated significant variation in Scots pine (*Pinus sylvestris*) survival rates, ranging from 37 per cent to 70–80 per cent depending on site-specific conditions. As was noted in the First EPR, claimed reforestation survival/success rates in Mongolia have historically been suspect, and the soft-quoted 70–90 per cent claimed by OBTNM participants and proponents seem rather high. A 2006 World Bank study assessed the success of 19 planting sites in the central and northern parts of the country and concluded that the mean survival rate was 12 per cent.⁶⁰² In addition to the harsh climate, there are several factors that affect the low survival rate of trees, such as cattle grazing, forest fire and the quality of plantation operation. The survival rate could be increased by increasing nurturing and maintenance, i.e. systemic watering after plantation, fencing planted areas and choosing only northern slopes and in gulleys and other landforms which will have/retain more moisture for planting.

Recommendation 13.4 of the First EPR of Mongolia recommended the then Ministry of Environment and Tourism to conduct a study on the impact of active forest management and use by forest user groups. This recommendation was not implemented and is still valid. Recommendation 13.6 (a) of the First EPR of Mongolia recommended the Government to conduct an analysis to evaluate the effectiveness of reforestation and afforestation efforts. No analysis was conducted: the recommendation was not implemented and remains valid.

13.2 PRESSURES FROM FORESTRY ACTIVITIES

Forests

As per the previous EPR, in Mongolia no studies have been conducted which detail the impact of forestry activities *per se* on forests, biodiversity, soils and the health and well-being of local communities. However, according to UN-REDD's preliminary assessment of the drivers of forest change in Mongolia, the most important drivers of forest degradation are forest fire, pest damage and grazing. Where logging has happened there is a tendency that the Professional Forest

⁶⁰² World Bank (2006).

Enterprises do not always appropriately manage to minimize the impacts of fire and subsequent pest damage, nor to restrict accessibility for grazing and additional timber extraction.

As of 2023, the forest areas report the following impacts: 1,645,385 hectares burned by forest fires, 102,196 hectares affected by harmful insects, 457 hectares destroyed by wind and snow, and 129,904 hectares of harvested wood. In total, 1,877,132 hectares have experienced degradation.

Forest fires

Forest fires have been responsible for sporadic forest devastation in Mongolia. Mongolia's boreal forests cover approximately 14.2 million hectares, with less than 13 per cent of this area affected by fires. Approximately 95 per cent of forest fires are human induced, either intentionally or unintentionally. Forests damaged by fire do not regenerate rapidly. After a fire, coniferous forests are replaced by pioneer species, such as birch and poplar, and by low quality coniferous forests. Forest fires occur mostly from March to mid-June, immediately after the snowmelt and when the forest litter is drying. Intensive solar radiation rapidly removes moisture from the topsoil and the forest floor becomes very dry and prone to fire. Over 90 per cent of spring wildfires in Mongolia are human induced and the result of carelessness or arson. Carelessness includes fires started by antler collectors who light fires to cope with the cold weather while collecting antlers in the early spring season, fires caused by the sparks from vehicle exhaust pipes in remote forests (though very rarely) and, more recently, with the increased promotion of domestic tourism and recreational activities, fires started by people hiking in the forests near urban settlements. In recent years, there has been a notable increase in incidents of arson. Arson is mostly motivated by the current regulatory system, which has put higher restrictions on wood harvesting and, in most cases, only allows the harvesting of dead trees. These restrictions have a perverse outcome, and fires are used in a criminal way to damage or kill trees with the intention of obtaining a permit to harvest them.

The peak number of forest fires occurred in 1997. The winter and spring seasons from 1996 to 1998 were extremely dry and snow fall were very limited in most areas of the country. For two consecutive years, in 1996 and 1997, Mongolia suffered from large-scale forest fires that devastated large parts of the country. In 1996, 2.3 million ha of forest areas were affected by forest fires and in 1997, 2.71 million ha. In 2017, the area affected by forest fires was 1,702,929 hectares. By 2023, this figure has decreased by 102,196 hectares, resulting in a total of 1,645,385 hectares burned. Annually, about 4.7 per cent of the forest budget is allocated to fire control measures which emphasize preventing and managing forest fires. International projects and partners (e.g. Green Belt Project and UNDP) assist with these, and from the Mongolian Government, the NEMA is a major player, providing warnings, advice and training at various levels, including FUGs.

Pests

The area degraded due to harmful insect damage has also seen improvement, declining from 115,962 hectares in 2017 to 102,196 hectares in 2023, a decrease of 13,766 hectares. Wildfires, along with other factors such as lack of active management/thinning, grazing damage, permafrost thawing and overall climatic conditions, weaken the trees and make them more susceptible to insect infestation. Pest outbreaks usually occur approximately every 10–12 years, with increasing intensity; however, in recent years, changing climatic conditions have contributed to a reduction in time between cyclic outbreaks. The main forest pests include Siberian caterpillar (*Dendrolimus sibiricus*), gypsy moth (*Lymantria dispar*) and Jacobson's spanworm (*Erannis jacobsoni*). Forest pests are not only destroying the trees, but they also cause health problems for the local populations, particularly children, who live close to trees, who experience allergic reactions. Continuous efforts have been applied by the Government to control pest outbreaks, but the vast areas, lack of trained personnel and facilities, financial constraints and poor and outdated equipment, coupled with inadequate coordination and management, make this very difficult to implement. Attempts to control the spread of insects are complex, due to the nature of the terrain and close proximity of some of the infested areas to local habitations. In the outskirts of urban areas, control measures must be tailored around settlements to avoid any spray drift. The high winds and extreme temperatures further complicate control strategies. In addition, the complex life cycle of forest pests makes them very difficult to control. To reduce and avoid the harmful effect of the use of chemical substances, the Government is making efforts to use environmentally friendly technologies, organic plant-based products and biological methods.

Economic pressures

Several economic activities have a negative impact on forests. Certain areas of forests are cleared for infrastructure development projects, including road construction and electricity and communication lines, though these are minimal. In recent years, with mining expansion and widespread artisanal mining, some areas of forest have been degraded.

It can be argued that the most significant impact is caused by grazing on the edges of and in forest areas, especially by animals browsing on regenerating vegetation. The number of domestic livestock has significantly increased since the privatization process in the 1990s: rising from 22.6 million head in 1986 to 61.5 million in 2016 and exceeded 70 million in 2023. This is a dramatic increase that certainly affects forest regeneration, as livestock browse on young saplings and seedlings. No study has yet been carried out that looks at the impact of livestock – in particular, certain types of livestock – on different types of forests. Hence, no statistics are available that would allow any conclusion to be drawn on the economic pressure of grazing on forests.

Biodiversity and ecosystems

Studies have documented declining populations of species dependent on forest ecosystems. For example, species like the Siberian musk deer and various bird species have experienced habitat loss due to logging. A 2020 biodiversity assessment highlighted that forest-dependent species comprise over 20 per cent of Mongolia's threatened species list. However, there are neither statistics nor study findings available to enable estimation of the extent of the impact on biodiversity and ecosystems directly related to forestry activities, as opposed to, for example, forest fires, grazing pressures and pest damage.

Soil

Logging operations, such as timber felling and skidding, can cause direct impact by reducing vegetation cover and, in many cases, create a precondition for soil erosion. However, as of September 2024, it is difficult to conclude what changes have occurred on soils as a result of forestry practices since 2017. Since forestry operations have been relatively small in scale, their impact will have been quite localized. As per the First EPR, data were not available to draw any conclusion.

Development and wellbeing of local communities

About 40 per cent of the population of Mongolia lives in rural areas. For those who live in forested areas, forests serve as an important source of livelihood and income, subsistence needs, energy supply and employment. Forests also provide opportunities for recreation and tourism. No studies have been done but comparing the natural capital (forest resources) and social capital (skilled and semi-skilled rural people) present in Mongolia with those of other countries with boreal forests, there are few adverse impacts from present pressures related to the development and well-being of local communities. Notably, an EU and Government of Germany funded GIZ Forestry Project (STREAM – Sustainable Resilient Ecosystem and Agriculture Management in Mongolia) ran a “Cutting is Caring” campaign and other initiatives aimed at helping to provide some balance against zero-forest-utilization narratives and lobbying.⁶⁰³ The campaign helped FUGs and rural citizens to implement active forest management practices, providing them with opportunities to be involved in improving Mongolia's forests beyond being ad hoc suppliers of tree planting material and labour for the OBTNM. Local actors, including FUGs and PFEs, have not been supported to fulfil their potential contributions to both SFM and increased development and well-being of rural communities in the north of Mongolia.

13.3 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

The 1995 Law on Forest provided a basic framework for protection and proper use of forests and promoted regeneration of Mongolia's forests. All forest resources are owned by the State, but the State may grant possession of any part of the forest to *aimag* (largest administrative unit), *soum* (smaller administrative unit within the *aimag*) and capital city administrations. Citizen representative *khurals* have the power to grant citizens, economic entities and organizations the right to use forests and NWFPs for certain periods, based on a lease, contract or licence.

The 2007 amendment to the 1995 Law on Forest provided a basis for decentralization of forest management to local governments, making *aimag* and *soum* governors responsible for forest management at the local levels and this is still the case. According to the Law on Forest, *Soum* governors and citizens' representative *khural* of *soums* issue permits for timber harvesting, use of NWFPs, tourism, hunting and other production, as well as for service-related activities. The Law also gives them the power to divert management of forests to public and private entities. It thus provides for granting forest tenure rights to PFEs and FUGs. Devolution of forest management to FUGs in particular is expected to improve the overall quality of many forests, by reducing instances of non-permitted harvesting and through improved forest management regulated

⁶⁰³ EU (n.d.).

by formal FMPs. It was anticipated that forest management activities such as systematic thinning (see Box 13.3) and forest cleaning would enable increased harvests and reduce forest fires and insect infestations.

In 2012, the revised Law on Forest was issued as part of a comprehensive revision of environmental legislation (see Chapter 1). This allowed the removal of inconsistencies and duplications with other laws. Also in 2012, the 1995 Law on Fees for the Harvesting of Timber and Fuelwood was integrated, along with several other laws regulating various user fees, into the 2012 Law on Payment for the Use of Natural Resources. The purpose of this Law was to regulate relations pertaining to the levying of fees for use of natural resources with citizens, business entities and organizations in relation to the collection and reporting of natural resources, and the amount of funds to be spent on environmental protection and restoration of natural resources from revenues from natural resource use fees. According to the Law, fees are imposed on all types of timber use, i.e. commercial timber and fuelwood and NWFPs. Furthermore, the Law defines that 85 per cent of income from fees for use of forest resources should be allocated for nature conservation and restoration activities.

The Law on Special Protected Areas specifies forestry-related activities in the different zones of SPAs. For instance, in the strictly protected areas, only forest maintenance and tending work is allowed in the limited zone. The 1995 Law on Environmental Protection was amended in 2005 to allow citizens to own trees that they have planted on land that is owned by them or under a possession agreement.

The objective of the 2009 Government Resolution No. 227 was to promote collaborative management of forest resources through allocating certain parts of the forest land to FUGs, economic entities and organizations, based on concession/possession agreements. The regulation on possession (annex to the Government Resolution) specifies procedures for an application for possession and the size of the forest land to be covered by the agreement.

Policy framework

The forestry sector has undergone significant policy-related transformation since the 1950s, reflecting shifts in national priorities, technological advancements and global environmental awareness. The initial phase of forestry policy development, commencing in the mid-20th century, was primarily production focused. The General Scheme of Mongolian Forest Utilization Management, developed in 1975 with support from the Union of Soviet Socialist Republics (USSR), emphasized utilizing forest resources to meet domestic demand and facilitate timber exports to the USSR. During this period, government-controlled forestry enterprises operated within strictly planned frameworks, establishing forestry villages to support their workforce. However, this era was characterized by limited consideration for sustainability or conservation, leading to widespread forest degradation. Consequently, a paradigm shift occurred in the 1990s, driven by growing international recognition of the environmental impacts of development. Influenced by the outcomes of the 1992 Rio Earth Summit, Mongolia adopted its 1997 State Policy on Ecology, signalling a commitment to integrating ecological principles into national development strategies. This led to the adoption of the 1998 National Forest Policy, which for the first time, balanced objectives across exploitation, conservation and social welfare. The 1998 policy was revised in 2001 to form the National Forest Programme. This revision marked a decisive shift toward conservation, prioritizing resource management, forest protection, reforestation and institutional reforms. Technical measures included reducing annual allowable cuts and expanding the designation of forest areas as SPAs. However, the institutional and social dimensions of forest management received comparatively less attention.

In 2015, the State Great *Khural* ratified the State Policy on Forests, establishing a comprehensive framework for the period up to 2030. This policy aligns forestry practices with Mongolia's broader green development goals, emphasizing conservation, sustainable use and restoration of forest resources. The 2015 policy introduced notable innovations, such as reducing logging permits, promoting wood substitutes and shifting timber production for industrial purposes to imported sources. Domestic wood needs were to be met through thinning, cleaning and selective cutting. A certification system for forest organizations, aligned with international standards, was mandated, along with mechanisms for payments for ecosystem services. As of September 2024, no national criteria and indicators of SFM were developed, and no certification system was introduced. The parts (b) and (c) of Recommendation 13.1 of the First EPR of Mongolia were not implemented and remain valid. This is confirmed by SDG indicator 15.2.1 on forest area certified under an independently verified certification scheme of the SDG target 15.2 (By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally). In 2023, no forest area was under an independently verified certification scheme.

As of September 2024, the Vision 2050 Long-term Development Policy outlines Mongolia's long-term development policy, which incorporates specific forest policies in support of its green development goals. Key aims and initiatives include:

- Implementation of measures for reforestation, afforestation (mainly improving seed and seedling quality) restoration and protection, which aim to prevent forest depletion, increase forest coverage to 9 per cent of Mongolia's total area and enhance carbon sequestration;
- Management and assessment of forest ecosystems, focusing on resource evaluation and overall health;
- Making settlements greener and increasing green job opportunities in rural areas;
- Increasing food security via agroforestry;
- Improving forest product value chains;
- Institutional reform.

As part of the New Recovery Policy (2021 Parliament Resolution No. 106), the OBTNM was launched. This OBTNM will establish a legal framework to engage citizens, enterprises and organizations in support of the billion Trees National Movement. A strategic plan for the implementation of the OBTNM was developed and put into action. Additionally, Mongolia ratified the Paris Agreement under UNFCCC in 2016. As a signatory, Mongolia is required to establish and implement national targets for reducing greenhouse gas emissions, including those associated with forests. In line with this commitment, Mongolia has revised its national goals, specifying measures to further reduce greenhouse gas emissions and address the negative impacts and risks associated with climate change. The Climate Change Adaptation Objectives emphasize the necessity of SFM and enhancing carbon sequestration by developing forest ecosystems that are resilient to climate change. The forest sector policy environment in Mongolia changed when the OBTNM was launched. This generated a number of policy directives to address issues related to seed procurement/preparation, increasing the capacity of nurseries to produce seedlings and establishing new organizations to implement OBTNM, with the Law on Forest being amended to establish NFA to take care of the overall coordination. OBTNM brought huge publicity to the forest sector, and local governments and companies are keen to be seen to be implementing the campaign. The downside is that national level forest officers have been preoccupied with OBTNM and have had less time to engage with SFM and forest sector reform.

Institutional framework

The institutions overseeing and implementing the management of forest resources in Mongolia have evolved over the past few decades, with various Government bodies taking responsibility at different stages. In 1972, the Ministry of Forestry and Wood Industry was established to oversee forestry management, including resource allocation, timber harvesting, reforestation and silviculture. The wood industry was a significant part of the economy, employing over 20,000 people, contributing 18 per cent of industrial production and 6 per cent of GDP. Forest offices were set up in all *aimags* and the capital, and timber enterprises were affiliated with the Ministry. A major shift occurred in 1987 when forest harvesting and wood processing were transferred to the Ministry of Industry and later, in 1992, to the Ministry of Trade, following a governmental restructuring. The responsibility for forest protection, reforestation and resource management was moved to the Department of Forests and Wildlife under the Ministry of Nature and Environmental Protection, which became a State Committee in 1990 and was reorganized into the Ministry of Nature and Environment in 1992.

From 1992 until 2004, forestry management was handled by various departments within the Ministry, either independently or alongside other natural resources issues. In 2004, the Nature, Forest and Water Resources Agency was established to focus on forest conservation, reforestation and the use of NWFPs. This marked a significant prioritization of forestry issues at the national level. However, due to budget constraints, the agency was dissolved in 2010, and forestry management was reintegrated into the Ministry structure. In 2017, the Forest Policy Coordination Department operated as one of the nine departments within the Ministry of Environment and Tourism, continuing its oversight of forest management, policy implementation and conservation efforts. The Forest Research and Development Centre (FRDC) was a national body that operated directly under the Ministry of Environment and Tourism and was responsible for forest inventory and research. As of September 2024, the lead entity is the Ministry of Environment and Climate Change and the main government institution (which has subsumed the FRDC) is NFA, which was re-established in 2022.

NFA is composed of four divisions (Forest Resources, Forest Research and two administration divisions) and has 38 staff. Its main responsibilities include the formulation and implementation of forest policy, programmes and legislation, coordination of the implementation work, provision of technical and methodological guidance and advisory services and development of proposals to improve forest management. More specifically, the Agency is in charge of coordination of the forest inventory and research, reforestation and afforestation, forest insect and pest control, combating illegal logging, forest maintenance, SFM, forest products and strengthening forest governance. There are several institutions managing and governing forest resources at the subnational level. The Ministry of Environment and Climate Change advises on the annual allowable cut based on the most recent forest resources inventory and subsequent inputs from geographic information systems (GIS), but the final decisions and the issue of permits and licences for forest use is the responsibility of *aimag* and *soum* governors.

Other institutions

NEMA plays a role in safeguarding Mongolia's forests, primarily through its efforts in wildfire prevention, management and response. It implements strategies to prevent forest and steppe fires, conducts public awareness campaigns and enforces regulations to mitigate human-induced fire incidents. In total, 3,200 emergency personnel (rescuers and firefighters) are deployed for firefighting, with training support from the NEMA. In the event of forest fires, the NEMA coordinates emergency response efforts, mobilizing resources and personnel to contain and extinguish fires, thereby minimizing environmental and economic damage. NEMA also contributes to the development and enforcement of policies related to disaster risk reduction, including those addressing forest fire management.

Universities and technical colleges play crucial roles, supplying research/knowledge and human resources to the forestry sector. The training of field technician personnel in the forestry sector is carried out at the level of Polytechnic colleges, Technical and Vocational Education and Training centres. Technical and Vocational Training Centres and Polytechnic Colleges operate in a total of 16 units at Ulaanbaatar and the rural areas such as Selenge, Bulgan, Zavkhan, Khentii, Umnogovi and Dundgovi *aimags*. They also provide forestation and carpentry courses. Professional forester or forestry engineer level personnel are undergraduates and postgraduates from the National University of Mongolia, the Mongolian University of Life Sciences and the International University of Ulaanbaatar. The Mongolian University of Science and Technology is mainly producing higher education personnel in wood processing subjects. For some of these courses there are up to 30 students per year, but for other courses 2 students per year. 80 per cent of students on forestry courses are female.

Coordination among institutions responsible for forest management at national and subnational levels

NFA provides technical and methodological guidance to forest units/bureaus in five *aimags*, out of twenty-one. These fall under the auspices of the Ministry of Environment and Climate Change but are also a day-to-day part of the environment departments of the *aimag* administrations and receive funding for their operational activities from the environmental fund of the *aimag* governor. This fund, known as the "Environmental Protection Fund", is generated from revenues from fees for use of natural resources. Following the 2000 Law on Reinvestment of Natural Resource Use Fees for the Protection of the Environment and the Restoration of Natural Resources (no longer valid) and in accordance with the amended 2012 Law on Payment for Use of Natural Resources and the 2014 Government Resolution No. 43 on regulation on revenue generation, expenditures and reporting on nature protection and rehabilitation measures, the part of fee revenues for using natural resources such as water and mineral water, timber and fuelwood harvesting, game resources and flora serves as a source of budgetary funding for protection of the environment and sustainable management of natural resources. The minimum amount to be spent on an annual basis is established by the Law. Fee revenue from timber and fuelwood harvesting should constitute a major portion of the total funding for environmental protection.

Forest units at the *aimag* level currently report both to the *aimag* governor and the Ministry of Environment and Climate Change. Inter-*soum* forest units were established following the 2012 Government Resolution No. 255; 46 inter-*soum* forest units are currently operating in 21 *aimags*. *Aimag* forest units provide technical guidance to the inter-*soum* forest units. However, inter-*soum* units report to the *soum* governor. Inter-*soum* forest units, of which 42 per cent of their staff are female, are responsible for monitoring the implementation of FMPs of FUGs and PFEs. According to Government Resolution No. 255 and its Annex on Approval of Norms, Standards and Location of Forested Areas under the Responsibility of Inter-*soum* Forest Units, some of the inter-*soum* units are responsible for more than 1 million ha of forest. SDG indicator 15.2.1 reported that about 100 per cent of forest areas have a long-term management plan. Assessments done by FAO and GIZ have revealed that the units are understaffed, and a large proportion of their staff do not possess the required qualifications or undertake regular capacity-building training. Furthermore, the units do not have the necessary equipment to carry out their everyday work. Recommendation 13.2 (a) of the First EPR of Mongolia, which recommended to strengthen operations of the inter-*soum* forest units through provision of equipment and training, was partially implemented and remains valid.

One example of a well-coordinated and implemented multiple (national, *aimag*, *soum*, *bahg*, local) level forest sector-related programme is the annual National Tree Planting Day, introduced in 2010 (Presidential Decree No. 63) to encourage every citizen to participate in tree planting.

Regulatory, economic, fiscal and information measures

Mongolia has implemented a series of regulatory frameworks regarding the sustainable management and conservation of its forest resources. To strengthen forest protection, there are Government guidelines and regulations designed to prevent forest fires and curtail overgrazing in forested areas. The establishment of FUGs has, in principle, further decentralized forest management, encouraging participatory forest management (PFM) and sustainable use practices. Economic instruments

play a crucial role in promoting SFM. The Government has introduced incentives for private sector investment in afforestation, including tax benefits and subsidies for businesses engaging in reforestation projects. Additionally, Mongolia has developed mechanisms to facilitate eco-tourism and NWFPs industries, generating income while ensuring minimal ecological impact.

The GDP of the forestry sector ranged for some time between 10 and 15 per cent of the national GDP, and at the end of the 1980s was about 4.7 per cent, and by 1998 it had declined to 0.25 per cent. It is currently around 1 per cent. Total revenue generated by the public sector, through forestry fees, charges and taxes, was about 51.3 billion tugriks (US\$25.6 million) in 2017. Around 11.2 billion tugriks (US\$5.6 million) accrued to local government entities, mostly from fees based on the Law on Payment for Use of Natural Resources. Under this, 85 per cent of timber cutting fees should be returned to *inter-soum* forest units, but local governments are not returning any money or only small amounts. The Government has also introduced forestry-related fees and fines as part of its fiscal measures. For instance, penalties for unpermitted harvesting and also uncontrolled grazing in restricted forest zones are able to be enforced to deter harmful activities and generate revenue for forest restoration, but the decisions to deploy them are also open to political bias.

The former Ministry of Environment and Tourism accrued 23.8 billion tugriks (US\$11.9 million) mostly from pine nuts export licenses. State and local tax offices accrued 16.0 billion tugriks (US\$8 million) from taxes paid by the private sector for forestry, wood processing and production. While revenues from pine nuts totalled 30.5 billion tugriks (US\$15.2 million) in 2017, or 59 per cent of total government forestry revenues, it should be noted that pine nuts are not available every year, hence it is not seen as a stable income source (see Box 13.2). However, the total amount of revenue collected from the fee for forest use is generally lower than the fee for NWFPs (mainly pine nuts). The value of imported wood and wood products experienced an increase in 2019 and 2020, followed by a decline in 2021 and 2022. This downturn can be primarily attributed to the economic impact of the COVID-19 pandemic and challenges within the cargo transportation sector. During the four-year period from 2019 to 2022, a total of 693 sets of ready-to-assemble prefabricated wooden buildings, 10.5 million m² of thin-layered panels, and 249 m³ of fuel wood were imported, amounting to a total value of US\$47.3 million. Additionally, importing enterprises benefited from customs duty exemptions totalling 4.9 billion tugriks.

Revenue-sharing schemes between local communities and the Government have been established, allowing communities to benefit financially from sustainable forest harvesting and eco-tourism activities. Carbon trading initiatives, under programmes such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation), Verra and Plan Vivo offer additional economic incentives by linking forest preservation to global carbon markets although there are substantial structural challenges (e.g. open access/non-exclusionary grazing tenure system) that will make this more difficult to monetize than is currently perceived by national stakeholders.

Information generation, dissemination, reporting and capacity-building are integral to Mongolia's forest management strategy and capability to implement SFM. There are three kinds of forest information that are collected:

- Random sample plot forest biometrics – under MPNFI;
- Stand level forest biometrics – under the Forest Taxation Inventories and;
- Forest activity data – under the Forest Information annual reporting.

As such, forest inventories are fundamental elements of forest information, monitoring and reporting systems. Mongolia's efforts to assess its forest resources began in the 1950s with the first comprehensive evaluations of forest area and characteristics. The first MPNFI (1956–1958) provided foundational data, including a detailed forest extension map and characteristics. The second MPNFI (1974–1975) built upon this, incorporating outcomes from the first Master Plan for Forest Utilization (1975–1990). Between 1976 and 1988, further assessments focused on potential timber resources for 16 wood-harvesting enterprises aligned with the Master Plan. Since the 1990s, subnational forest inventories have been conducted every 10 years at the *aimag* level, in accordance with the Law on Forest. These taxation inventories gather data on forest resources, including area, volume, quality, condition, tree dimensions, age, regeneration and logging. The collected data supports forest management planning.

Monitoring and reporting systems have been enhanced through the use of remote sensing and GIS. The Forest Monitoring Information System allows for real-time tracking of deforestation, forest degradation and fire incidents. Transparency and accountability are further strengthened by open-access platforms that provide stakeholders with data on forest conditions and government initiatives. Collaborations with academic institutions and international organizations contribute to the continuous development of forest management knowledge. Research and development activities focus on best practices in afforestation, forest fire management and biodiversity conservation, providing opportunities for policies and actions to be informed by scientific evidence. However, the MPNFI key findings are often not used by decision makers, especially at local levels.

With regard to using information for forests-related reporting, FUGs and PFEs are required to submit data on forest activities and changes each year to the Forest Units to be compliant with the Forest Information reporting forms. The Forest Units, forest rangers and environmental inspectors also provide data on forest activities for other forest areas. These figures are then aggregated at the *soum* level, so if there is any stand level information provided by the forest users it is not captured in any database. The Forest Information tables also include data categories that are not directly about the forest, but include steppe fires, and prosecution of illegal activities and some financial data.

At the national-international reporting interface, Mongolia submitted a forest resource assessment report to FAO in 2020 (previously 2005, 2010 and 2015) under the FAO's Global Forest Resource Assessment.

Another aspect of forest related information measures are public educational and awareness campaigns on the importance of forests, the risks of wildfires and the benefits of SFM practices, in particular that utilization can be a very positive thing and that forest thinning should be conducted regularly and that FUGs as well as PFEs are capable of doing these.

Notably, an EU and Government of Germany co-funded GIZ forestry project, ran a "Cutting is Caring" campaign and other campaigns aimed at politicians and media professionals. The GIZ project also collaborated with local institutions in Binder *soum* in Khenti *aimag* to create a Model Forest which can be visited by school and community groups. There are also educational programmes which targeted local communities emphasizing the role of forests in climate regulation and ecosystem services.

Forest Inventories

As of September 2024, MPNFI was conducted from 2014 to 2016 by the former FRDC in collaboration with universities, research institutions and international organizations with funding and technical assistance from GIZ. This inventory is termed multi-purpose due to its comprehensive scope, covering multiple forest characteristics and aligning with international reporting requirements, such as those for REDD+. MPNFI aimed to provide accurate, reliable data on forest resources, inform silvicultural practices and enhance forest planning procedures to support evidence-based policy development and determining annual allowable cuts. Using modern remote sensing surveys, the geographic extent and distribution of Mongolia's boreal forests were assessed. Field data from 4,211 sampling units, encompassing 251,890 trees and 166,830 regenerating trees, were collected. Tree biometric data such as species, size, age, condition along with other ecological parameters are measured, and plant material samples taken to estimate forest carbon content for emissions calculations. These provide statistically significant estimates for the detailed forest characteristics through extrapolation from the samples to the entire forest area to produce national statistics. MPNFI provides a very rich assessment of forests for strategic planning, and in particular it supports the greenhouse gas emission reporting process to UNFCCC. The data are held in a stand-alone database, although for a period of time it was accessible via the internet, it is now not operating.

MPNFI revealed that Mongolian boreal forests are largely overmature. Consequently, these forests are not only less productive but also more prone to fires and pest attacks and less resilient to climate change. The result is forest degradation and, ultimately, deforestation. The recognition of the need to prioritize the active forest management of mature and overmature stands in particular but all other aged stands as well, which would not only improve overall forest condition (e.g., via thinning) but also create green jobs and income in rural areas, is lacking. Recommendation 13.1 (a) of the First EPR of Mongolia suggested to revise forest-related policy was partially implemented and remains valid. Similarly, Recommendation 13.6 (b) of the First EPR of Mongolia recommended the Government to increase funding for more effective forest management with a consideration of the potential of forestry to support rural livelihoods and create green jobs. This recommendation was partially implemented and remains valid. Moreover, there is no concept on the rational use of residues from forest thinning and tending activities that could meet the costs of these operations and generate income to support local livelihoods. No campaign promoting biofuel production was carried out. A concept for supporting small-scale forest enterprises based on forest user groups to create green jobs, provide sustainable wood supply for domestic consumption, heating and cooking and to improve local livelihoods was never developed. Recommendation 13.5 (a), (b) and (c) of the First EPR of Mongolia were not implemented and remains valid.

Forest Taxation inventories were regularly undertaken under the direction of the former FRDC by engaging PFEs as a stand wise assessment of forest sub-compartments. It is spatially explicit with data held in a GIS containing sub-compartment outlines. Forest biometrics were estimated by means of visual inspections of stands, and no actual measurements were taken. Contracts were let each year by the former FRDC to undertake the survey, in which approximately one-tenth of the forest land is surveyed each year on a rolling basis. The former FRDC's responsibilities have since been transferred to NFA. The data are used to produce the annual forest report, which is updated each year with the data from the portion of forest that is actually surveyed and data for the other areas carried forward from their previous respective surveys. The data are also intended to be used by the forest unit officers for completing Forest Information forms that also require figures for

total forest area and timber volumes to be included along with the change data. The maps and data are made available in hard copy and used for creating FMPs by PFEs and FUGs and Forest Units, however, the digital data from the database holding this inventory is not available outside NFA.

13.4 ASSESSMENT AND RECOMMENDATIONS

Assessment

As of September 2024, forest policy, legislation and institutional structures and mandates are not aligned hindering an effective SFM approach and outcomes. Since 2017, Mongolia has maintained a *de facto* mixed legal, policy and institutional framework for forest resource management, part of which continues to reflect the 2015 State Policy on Forests. The other stream seeks to implement a SFM approach based on the findings from MPNFI (2014–2016) and other scientific studies. MPNFI revealed that without SFM intervention Mongolian boreal forests are increasingly vulnerable to fires and pest outbreaks, and less resilient to climate change. This will lead to forest degradation and, ultimately, deforestation.

The lack of tending and thinning in Mongolia's natural boreal forests has prevented the development of healthy forest stands and reduced both growth potential and climate resilience. There is no clear concept nor technical guidelines on the rational use of residues from forest thinning and tending activities, resources that could offset or mitigate the costs of these operations while generating income to support local livelihoods. More active management of forest stands, particularly through thinning, would not only improve overall forest condition but also create green jobs and income opportunities in rural areas.

There are clear gaps in addressing the deteriorating state of forest and the growing domestic demand for timber and fuelwood, highlighting the need for more active forest management strategies. There is no promotional campaign among policy makers, the media and the public on sustainable forest management and its benefits such as improving growing conditions in forests and strengthening the resilience of forests and biodiversity. Actively managed forests are among the most effective tools to mitigate fire and pest risks and combating climate change.

One challenge in transitioning from the 2015 State Policy on Forests to the more ambitious frameworks outlined in MPNFI and the Vision 2050 Long-term Development Policy is concern over sending mixed signals to the international community. There is a perception that focusing on pure conservation attracts less criticism and greater financial support from donors compared to activities under SFM, even though SFM inherently includes conservation. The launch of OBTNM has further highlighted this divide.

With afforestation and reforestation now central to the Government's forestry agenda, significant funding has been allocated to large scale tree-planting. While OBTNM has introduced new technologies and attracted wider participation, challenges persist, including the overestimation of tree survival rates. Mongolia's harsh climate, coupled with livestock grazing, forest fires and limitations in plantation maintenance, continue to impact the survival of both planted and naturally regenerated trees. In contrast, support for SFM initiatives has been comparatively limited. Although the goals of the tree-planting initiatives are commendable, their success rates—both internationally and historically in Mongolia—have been inconsistent. Moreover, these initiatives are rarely subject to systematic evaluation or effectively integrated into long-term, SFM-based policy frameworks. Another challenge for OBTNM is the reliance on large (primarily mining) companies to carry out, while civic participation tends to be limited to specific events, such as national tree-planting days.

FUGs, as key institutions, remain underutilized within the OBTNM framework. Despite their potential to mobilize community participation and contribute to the programme's success, FUGs continue to have a low profile, limited support and poorly defined rights. Even where FUGs have contributed to the OBTNM activities, their efforts have not always been fully recognized. This represents a missed opportunity, as FUGs, along with a strengthened NFA, have significant potential to help the government transition from the 2015 State Policy on Forests to the Vision 2050 Long-term Development Policy. Mongolia, though the work of FUGs, has made progress in promoting what is internationally known as participatory forest management (PFM), which emphasizes the role of forest-dependent communities in sustainable forest management, reflecting their reliance on forests for timber, fuelwood and NWFPs. Despite progress, challenges identified in the First EPR persist:

- FUGs remain primarily involved in protective roles rather than active resource management roles;
- The lack of legal status and secure tenure for FUGs undermines motivation and participation;
- Without clear livelihood benefits, long-term engagement of FUG (and PFE) in forest management remains uncertain.

In addition to the ongoing challenges and unrealized potential of PFM, the re-established NFA faces significant obstacles in fulfilling its mandate. These challenges arise from a lack of clear line management authority over *aimag* forest bureaus and inter-*soum* forest units, complicating the implementation of national forest policy.

While the re-establishment of NFA is a positive step, its current institutional set-up, where *aimag* and *soum* forestry officials are managed only through dotted-line reporting, does not support the effective implementation of contemporary forest policy or science-based management decisions at the local level. Furthermore, the limited incorporation of scientific evidence and professional expertise in decision-making processes often results in SFM measures not being effectively implemented or prioritized at the local level. There is still no information on the extent to which forest management by FUGs and PFEs has affected deforestation, forest degradation, NWFPs management, wildlife and plant resource conservation, and carbon sequestration. Such information is critical for advancing community-based forest management and measuring progress towards the goals of Vision 2050.

Another factor contributing to the misalignment is that responsibility for the wood processing industry remains under the purview of the Ministry of Food, Agriculture and Light Industry, which further weakens the NFA's ability to comprehensively oversee and coordinate forest management. Therefore, NFA is cannot fully achieve its objectives or ensure the effective implementation of SFM practices nationwide.

The challenges facing PFM and NFA constitute major constraints to achieving the Vision 2050 Long-term Development Policy goals related to the rural green economy. These include the promotion of green public and private procurement, the creation of new green jobs through links with off-grid energy solutions, construction and other wood-related value chains.

To strengthen political and public support for SFM, existing initiatives such as Model Forests could serve as demonstration areas. These areas would illustrate how SFM principles can be applied effectively under real forest conditions, demonstrating to decision-makers and stakeholders that SFM not only promotes long-term forest health and resilience but also supports Mongolia's efforts to combat deforestation and forest degradation while contributing to global climate change mitigation.

The integration and alignment of regulatory, economic, fiscal, institutional and informational measures into a coherent and contemporary policy framework are critical to realizing the full potential of Mongolia's forest management potential. While OBTNM can serve as a cornerstone for aligning Mongolia's forestry actions with international commitments, there is a risk of missed opportunities to prepare and support the forest sector for long-term sustainability. In this context, NFA, which is making commendable efforts in implementing OBTNM, can enhance its impact by ensuring that tree-planting efforts are scientifically guided, ecologically sound and integrated into a broader, participatory national strategy for sustainable forest management. Such an approach would help maintain a balanced focus on Mongolia's unique environmental priorities while safeguarding the long-term sustainability and contributing to both global and national environmental goals.

Recommendations

The majority of the First EPR recommendations are unimplemented and still relevant, and as such they form the basis of several of the following recommendations.

Sustainable forest management

Recommendation 13.1:

The Government should:

- (a) *Ensure coherence of all relevant legislation on forests, in the light of the findings of the latest Multi-Purpose National Forest Inventory and subsequent scientific and resource assessments, to strengthen sustainable forest management, including urban trees and forests;*
- (b) *Develop national criteria and indicators for sustainable forest management;*
- (c) *Develop a system of national certification for sustainable forest management in line with international certification systems;*
- (d) *Make better use of forest data for evidence-based forest management.*

Forestry institutions

Recommendation 13.2:

The Ministry of Environment and Climate Change should negotiate safeguards and backstops with relevant stakeholders to standardize aimag and soum decisions on sustainable annual allowable cut levels and forest use permit allocation processes.

Participatory forest management

Recommendation 13.3:

The Government should:

- (a) Strengthen forest co-management based on international good practices;
- (b) Enforce the Law on Prohibition of Mineral Exploration and Mining at Headwaters of Rivers, Protected Zones of Water Reservoirs and Forest Fund Areas to ensure that Forest Fund Areas are not affected by mining, nor by petroleum exploration or extraction.

Information for future decision-making

Recommendation 13.4:

The Ministry of Environment and Climate Change should:

- (a) Undertake a comprehensive study to assess the effects of forest management on mitigating deforestation and forest degradation and the resulting carbon sequestration and biodiversity benefits, and the socioeconomic and ecological effects and cost-efficiency of reforestation and afforestation initiatives;
- (b) Ensure that forest management is aligned with the objectives of Vision 2050 Long-term Development Policy while considering the study's findings;
- (c) Complete the second cycle and continue implementing the Multi-Purpose National Forest Inventory on a regular basis, aiming to cover trees in the whole country.

Biofuel production and local livelihoods

Recommendation 13.5:

The Government should support small-scale forest enterprises based on forest user groups to create green jobs, provide sustainable wood supply, including the use of wood residues and the products of tending and thinning, and improve local livelihoods and forests.

Prioritization of funding in the forest sector

Recommendation 13.6:

The Government should:

- (a) Increase funding for effective sustainable forest management;
- (b) Evaluate the costs of damage caused by fire and pest outbreaks under active sustainable forest management regimes.

Improving forest product value chains

Recommendation 13.7:

The Government should:

- (a) Strengthen the capacity of the National Forestry Agency to regulate, monitor and support enterprises across the forest product value chain;
- (b) Commission an appraisal of existing financial challenges facing enterprises of all sizes engaged in forest product value chains, including the efficacy of targeted incentives and forest product import and export taxes;
- (c) Improve infrastructure to facilitate access to markets for forest products, including transport networks, storage facilities and digital platforms;
- (d) Support enterprises to obtain access to forest product certification processes;
- (e) Increase the economic viability of non-wood forest products value chains and ensure they are forest positive.

CHAPTER 14

LAND MANAGEMENT

14.1 DESCRIPTION OF THE CURRENT SITUATION

According to the classification of the unified land territory, 69.7 per cent of the territory of Mongolia is agricultural land, 20.6 per cent is land for special needs, 8.1 per cent is land with forest resources, 0.7 per cent is urban areas, 0.5 per cent is land under roads and networks and 0.4 per cent is land with water resources and as of 2023 (see Table 14.1).

Table 14.1: Unified land territory, 2017–2023, 1,000 ha

	2017	2018	2019	2020	2021	2022	2023
Total, of which	156 411.6	156 411.6	156 411.6	156 411.6	156 411.6	156 411.6	156 411.6
Agricultural land	114 843.5	114 809.2	114 736.7	114 041.8	113 980.	113 567.1	109 036.2
Land of cities, villages and other settlements	840.1	859.7	906.8	917.6	956.2	1 005.26	1 167.7
Land under roads and networks	471.7	474.3	474.8	474.8	477.2	836.0	816.8
Land with forest resources	14 341.2	14 341.4	14 337.0	14 255.9	14 256.7	14 260.28	12 591.3
Land with water resources	686.1	686.1	685.8	660.9	660.9	660.9	561.6
Land for special needs	25 228.9	25 240.9	25 270.5	26 060.6	26 080.7	26 082.04	32 237.8

Source: NSO (2024).

Vegetation zones

Mongolia has six main natural zones: four latitudinal vegetation zones running from north to south (forest-steppe, steppe, semidesert and desert) and two altitudinal belts (high mountain and mountain taiga belts). Higher-mountain areas host bands of coniferous forests (taiga), and even higher, alpine zones can be found (see Table 14.2). The steppe, consisting of vast grasslands, dominates the landscape, covering three-fourths of the country's territory. Mongolia contains 16 ecosystem types, which have been consolidated into four ecoregions, namely the Daurian steppe, Khangai, Central Asian Gobi Desert and the Altai-Sayan.

Table 14.2: Natural regions

		Area		Monthly mean temperature °C		
Natural zones	Regions	km ²	per cent	Min.	Max.	Vegetation period
High mountain belt	Altai and Eastern Sayan	56 394.0	3.6	-21.1	14.5	1 June – 31 August
Mountain taiga belt (North)	North of the country	70 492.5	4.5	-27.8	14.3	10 June – 25 August
Forest Steppe zone	Khangai region	238 108.0	15.2	-22.2	17.6	20 May – 15 September
Steppe zone	Central and Eastern Plateau	535 743.0	34.2	-21.2	15.9	20 May – 20 September
Semi-desert Gobi zone	Gobi region	366 561.0	23.4	-20.1	20.5	10 May – 25 September
Desert zone	Gobi (South)	299 201.5	19.1	-14.9	23.8	25 April – 10 October
Total		1 566 500.0	100			

Source: Yembuu (2021).

Soils

The predominant soil types are chestnut and dark chestnut soils (kastanozioms) found in plains and intermountain valleys at altitudes between 750 and 1,400 meters. Chestnut soils cover around 40 per cent of the country, with salty soils covering 3 per cent. These soils are generally fertile and typical of a continental climate, but significant salinization occurs in desert and semidesert areas. In cultivated regions, clay mineral and organic soils dominate, with a pH of around 6.0–7.0 and a relatively high calcium content. The fertile topsoil (A-horizon) typically does not exceed 30 cm in depth, containing an average of 2.02 per cent organic matter, and only 1 per cent in cropland.⁶⁰⁴ These shallow soils have low moisture retention capacity and are prone to erosion.

Permafrost

In northern and central Mongolia, permafrost is widespread; in 2015, 29 per cent of the land's area was permafrost,⁶⁰⁵ and it serves as a critical underground water reserve in this arid country. Permafrost plays an essential role in maintaining the ecological balance of the region. However, recent increases in temperature have caused permafrost to melt and shrink in thickness. The coverage decline is estimated to be 22 per cent by 2035. This thawing is believed to contribute to the degradation and desertification of grassland vegetation.

Categories of land and their use

According to the Law on Land, "Unified Land Territory" is classified into six categories based on general use and needs: agricultural land, land in cities, villages and other settlements, land for roads and infrastructure, land with forest resources, land with water resources and land for special purposes.⁶⁰⁶ In 2023, agricultural land represented 85.72 per cent and the remaining categories occupied 14.28 per cent (see Table 14.1).

Urban development

As of December 2023, the population was estimated at 3,504 million inhabitants, with 983,485 households (3.6 people per household). The population density is 2.2 persons per km², making it one of the least densely populated countries. The population has doubled in the past 40 years. In 2023, 70.8 per cent (2.48 million) of the total population lived in urban areas, and young people under 30 make up 57 per cent of the total population. As of 1 January 2024, the population of Ulaanbaatar is 1,734,848. The urban population in the rest of Mongolia resides in Erdenet, Darkhan, Choibalsan and in medium to small-sized *aimag* centres. Urbanization and modernization have had a heavy impact on nomadic traditions in Mongolia, and many urban Mongolians still live in *gers*.

Settlement in contemporary Mongolia is characterized by regional contrasts: the population is concentrated in the better-watered northern basins of the Orkhon and Selenge rivers, in the north-central region of the country, which contains the richest pasturelands, the main crop area, most industrial plants, and the best transportation infrastructure. There, densities of population may reach four people per km². The land is more intensively used and thus more degraded than other zones. Some desert areas are uninhabited.

Inequalities exist between rural and urban populations. Rural residents have less access to education, health care, safe drinking water, information, basic services and income-generating activities. Poverty is more present in the rural areas: 35.6 per cent of the rural population and 23.0 per cent of the urban population live below the national poverty line in 2022. It is estimated that 27.1 per cent of the total population lives below the poverty line.

One of the major urban issues facing Mongolia is the flow of herder populations moving into urban centres in *ger* districts, particularly in Ulaanbaatar. The growth of the mining sector has brought foreign investment, contributing to an increasing urban population and an increased demand for improved housing stock.

⁶⁰⁴ Ministry of Food, Agriculture and Light Industry, 2024.

⁶⁰⁵ Mongolia (2018).

⁶⁰⁶ ECE (2018); ALAMGC (2023).

Photo 14.1: Ulaanbaatar's urban sprawl

Photo credit: Alix Millet/stock.adobe.com.

Electrical power

Electrical power is generated almost entirely by coal-fired thermal stations, which, in addition to providing power, also supply hot water for residential and commercial heating. The main towns of northern Mongolia are linked by a national power grid, but settlements in remote areas still depend on local diesel-fuelled generators. In the countryside many herding families have begun producing electricity with solar panels or wind turbines for domestic use.

Agricultural practices

The agriculture, forestry, fishing and hunting sector, which is heavily focused on animal husbandry (72.3 per cent of the land are pastures (2021)) plays a critical role in the economy. In 2023, it accounted for 9.8 per cent of the country's GDP,⁶⁰⁷ with 80–85 per cent of that figure derived from livestock production. Agriculture represents 20–25 per cent of export goods (cashmere wool, beef and mutton) and employs 30 per cent of the workforce. In 2022, 200,000 Mongolian households or 300,000 persons were engaged in nomadic or semi-nomadic livestock breeding.

The agricultural sector can be divided into four main sub-sectors:

1. Extensive sector, which includes the traditional semi-nomadic pastoral system where camels, horses, cattle (yaks), sheep and goats graze together.
2. Mechanized large-scale crop production, which focuses on cereals and fodder crops.
3. Intensive farming, which includes the production of potatoes and vegetables, using both mechanized and more traditional methods, and relies largely on greenhouses.
4. Intensive livestock farming, which involves housed dairy cattle, pigs and poultry.

As of October 2024, Mongolia is fully self-sufficient in wheat and animal husbandry. Between 2019 and 2023, self-sufficiency in vegetables, including potatoes, increased from 60 per cent to 80 per cent. The poultry sector has also grown over the past five years, and domestic egg production now meets the country's needs.⁶⁰⁸ In 2022, Mongolia produced 500,000 tons of milk, and 270,000 tons of meat, including beef, mutton, goat meat and camel meat. The production of animal meat and the export of raw materials, such as wool, hides and leather, are also significant factors influencing livestock numbers in Mongolia. Mongolia struggles to export its agricultural goods effectively. Meat exports are limited by low technological capacity, a lack of meat processing facilities and sanitary barriers.

⁶⁰⁷ NSO (2024).

⁶⁰⁸ Ministry of Food, Agriculture and Light Industry, 2024.

Crops

The acreage expanded significantly between 1960 and 1980 through the reclamation of virgin lands and the mechanization of farming operations. Cropland is primarily concentrated in the wetter northern and central regions of Mongolia, especially in the broad lower valleys of the Orkhon, Selenge, Tul, Kherlen and Tes Rivers. These agricultural fields are typically located along riverbanks or in the backs of mountain valleys, where the fertile soil layer is thicker and can accumulate moisture.

Agricultural land decreased from 114.8 million hectares in 2019 to 109.0 million hectares in 2023. The sown area also increased, from 526,049 hectares in 2019 to 645,761 hectares in 2023, a total increase of 119,712 hectares. In 2023, the total area of grain crops (including wheat, barley, oats and other cereals) was approximately 363,061 hectares. The total fallow area is estimated to be around 214,700 hectares. Fallow land is commonly used in crop rotations to allow the soil to accumulate water and nutrients for future crops. The practice of cultivating grasslands for silage within the rotation has been introduced and promoted. Approximately 200,000 hectares of agricultural land are abandoned (226,000 hectares in 2023⁶⁰⁹). The reasons for land abandonment include insufficient rainfall, floods, wind erosion and according to regional disparities.

Due to long, cold winters and a short growing season, only one crop can be grown annually. In 2022, 80 per cent of the cropland was dedicated to spring cereals, mainly spring wheat, but also some spring barley, oats, spring rye, buckwheat and sunflower.⁶¹⁰ The remaining area was planted with potatoes (5–7 per cent) and vegetables such as cabbage and carrots. Fodder crops made up 10–12 per cent of the total sown area. Yields are generally low (on average 1.2 to 1.5 t/ha for wheat; 10–12 t/ha for potato) and fluctuate significantly from year to year due to variations in precipitation.

Farming structures

The minimum size for a large crop production company is typically 30–50 hectares, but some companies operate on land sizes of up to 20,000 hectares. There are also 6 to 7 very large vegetable-growing companies in the country, which often act as retailers for smaller farms or individual producers. In terms of animal farming, a large farm is considered to have 25 cows or more. These livestock farms are generally located in crop-producing regions and near major urban centres. While very large companies tend to cultivate their own fodder, the majority of farmers purchase fodder from external suppliers.

Livestock

Traditional livestock herding is based on sheep, goats, cattle, horses and camels. The cattle breeds are well-adapted to the harsh climate and are highly resilient to poor feeding and food shortages. The number of livestock saw a significant rise after Mongolia transitioned to a market economy, but this growth was interrupted by the *dzuds* in 1999–2002, 2010 and 2022 (see Chapter 15). In the years between these events, livestock numbers rebounded quickly, reaching new highs.⁶¹¹ One of the key drivers of this expansion, has been the high market value of cashmere, which has been in strong demand in the Chinese market. Cashmere became a major source of income for herders. Goats have consistently increased since 1990 and now make up 41 per cent of total livestock. Growth in the sector has primarily been driven by an increase in livestock numbers rather than improvements in productivity: productivity remains low due to a variety of factors, including poor animal health and breeding systems, inadequate pasture management and insufficient access to fodder and water. From 1990 to 2016, the carcass weight of small ruminants declined by 23.9 per cent. Between 2004 and 2024, the live weight of cattle dropped by 30 kg, and, between 2010 and 2015, the milk yield per cow decreased by 20 per cent.

The absence of policies or market-based mechanisms to regulate livestock numbers, coupled with a lack of awareness about rangeland degradation, has led to uncontrolled growth in animal numbers. This has caused rangeland degradation and a reduction in livestock productivity. The increased vulnerability to droughts and *dzuds* has resulted in large-scale livestock losses, threatening herder livelihoods and negatively impacting both the country's GDP and food security (see Chapter 15). It is estimated that 70 per cent of pasturelands are now degraded to some extent, primarily due to overgrazing.⁶¹² Increasing temperatures, combined with high stocking rates, increase the risk of rangeland degradation, particularly in the central and northern regions.

⁶⁰⁹ Ministry of Environment and Tourism (2024).

⁶¹⁰ NSO (2024).

⁶¹¹ Ministry of Environment and Tourism (2017a).

⁶¹² ALAMGC (2023). NSO (2024).

Pasture management

Mongolia is home to some of the world's last intact grasslands, which constitute 2.5 per cent of the planet's total grassland area. In 2022, pastures covered 109.5 million hectares, making up almost 96.4 per cent of the country's agricultural land. Traditionally, livestock grazing was practiced in a semi-nomadic manner, with herders frequently moving to different pastures to allow for natural regeneration. Winter (October–November) and spring (February–April) camps were generally fixed, with structures such as pens, barns and haystacks set up in the same locations each year. Summer (May–July) and autumn (August–September) grazing periods were more flexible, based on the condition of the grasslands each year. This pastoral system was typically organized in clusters of two to three families (*khot ail*), with tasks divided among the family members.

With the shift to a market economy, herders were increasingly required to manage their own efforts for selling their products, and the distance to markets became a key factor. As a result, many herders moved closer to Ulaanbaatar and other urban centres, engaging in more sedentary grazing. Due to inflation and economic pressures, herders began to view livestock as a form of cash reserve. Today, permanent grazing is often practiced near villages and artificial wells built during the Mongolian People's Republic. According to the National Land Management Plan (2004–2023), the condition of pastures deteriorated within 10 km of all *soum* centres, with grasslands becoming pulverized or semi-pulverized within 5 km. The low regeneration rates of grasslands exacerbate the impacts of overgrazing, overstocking and climate-related losses. To maintain a balanced carrying capacity, pastures should support around 74.3 million livestock units (converted to sheep units⁶¹³) across 118.66 million hectares. In 2023, the total livestock population was 64.7 million head, exceeding the carrying capacity by more than 50 million animals. While the Law on Pasture is still pending, several other measures have been implemented.

Pasture assessment

NAMEM and ALAMGC developed a unified standard for assessing soil and land cover health, as part of the Green Gold Project.⁶¹⁴ This National Database is modelled on the Inventory, Monitoring and Assessment Database of the United States of America, adapted to the country's conditions. Recommendations 12.2 (d) and 12.5 of the First EPR have been implemented. The inventory measures the existing variability in rangeland vegetation, classifies sites according to climate, landform and soil types, establishes reference conditions, identifies causes of ecosystem transformation and proposes management strategies. Core indicators include plant height, foliar cover, species composition, basal gaps of perennial plants and biomass. Plant communities are classified according to their degradation level, ranging from Class I (requiring 1–3 growing seasons for recovery) to Class V (indicating true desertification). Carrying capacities for each ecological pasture type, assuming a harvest intensity of 30 per cent of biomass, can then be calculated and compared to current stocking rates. The Green Gold Project has tested the use of ecological site descriptions within a resilience-based management framework in five different *soums* representing diverse ecological zones. Sustainable rangeland management has been mainstreamed across 7 *aimags*, covering 40 per cent of the country. In 2024, NAMEM performed the survey for the whole country.

According to 2014 data, 65 per cent of rangeland sites were found to be altered relative to their ecological potential (reference condition) based on the soils and climate zones. Of these, 40 per cent would require more than 3 years to recover with altered management, while 7 per cent showed highly persistent degradation or desertification. This suggests that with improved grazing management, recovery could occur within 10 years. In the context of overstocking, livestock numbers in some *soums* remain clearly below the carrying capacity. Stocking rates have been calculated for each *soum*, classifying areas where carrying capacities are respected, where they are exceeded by 1–3 times, 3–5 times, or more (in the central and western parts of the country), and where areas are under grazed (in the eastern regions, extreme north and Gobi).⁶¹⁵ About 39.5 per cent of the pastures are not fully loaded.⁶¹⁶

Pasture users' groups

A pasture users' group (PUG) is an institutional entity responsible for collective planning and management of grasslands, fodder cultivation, storage and other common activities. Under the Law on Land, contracts with PUGs can define grassland management practices and set the carrying capacity of the pasture. The group is generally held accountable for its management, making it essential that the PUG is granted exclusive rights to the pasture. Within a PUG, individual

⁶¹³ 1 sheep = 1 head, 1 yak = 6 sheep, 1 camel = 5 sheep, 1 horse = 7 sheep, 1 goat = 0.9 sheep.

⁶¹⁴ Ministry of Food, Agriculture and Light Industry (2018).

⁶¹⁵ ALAMGC (2023).

⁶¹⁶ Ministry of Environment and Climate Change, 2024.

households may have herds of varying sizes, and their contributions to overgrazing differ, making destocking rates a crucial factor.

Since 2006, a network of over 1,300 PUGs has been established across Mongolia. Approximately 840 local agreements have been signed, where authorities and herder communities jointly agree on livestock numbers, grazing areas and rest periods for the pastures.

In 2015, the National Federation of Pasture Users Groups of Herders was founded. By 2021, over 92,000 nomadic families across the country had entered contractual commitments for sustainable rangeland management. The Federation now has 81,600 members, including 80,000 herder households, 1,445 PUGs, 156 *soum*-level Associations of PUGs and 18 *aimag*-level Federations of PUGs.

Management matters

As of October 2024, the management framework used by the ALAMGC is outlined in the *Soum* Annual Land Management Planning manual, which involves PUGs. It has been reported that this tool is not being used effectively. Herders are insufficiently involved, annual reports are not submitted on time and the information is not utilized for planning, making it difficult to implement recommendations. The plan does not contain specific management goals tailored to the ecological types of pasture areas, particularly with regard to degraded zones and the type of management required for restoration. Monitoring efforts do not focus on expectations about pasture use and health, using simplified indicators that align with herders' understanding and incorporating the preferences of all stakeholders.

State subsidies support herders' incomes through various initiatives: wool in 2011, meat in 2013, hides and skins in 2024, and milk in 2020. However, these subsidies do not include criteria related to sustainable pasture use. While there is no specific budget allocation for performance-based payments tied to improved grassland management within the National Livestock Programme, there are funding lines dedicated to investments in livestock productivity and marketing. Livestock policies and programmes not only fail to address pasture conservation objectives, but in some cases, have even contributed to pasture degradation (e.g., the subsidized cashmere sales in 2020⁶¹⁷).

The legal framework governing pasture ownership is weak and lacks an effective accountability mechanism. Traditional knowledge on sustainable pasture use is not being applied. Pasture inspections are challenging; herders are difficult to locate, animals cannot easily be moved, and many herders are elderly and poor, making it hard for them to pay fines. In the spring, cropland is fenced and livestock are just driven to the pastures.

Wealthy herders with more than 1,000 animals make up less than 1 per cent of the herding population and tend to have more diversified herds. Poor herders with fewer than 50 animals represent 37 per cent of the herders, while the very poor, with fewer than 10 animals, make up 11 per cent of the herding population and primarily keep cashmere goats.⁶¹⁸ In 1990, 56 per cent of herders were under 35 years old, but by 2020, that figure had dropped to 26 per cent.⁶¹⁹

Irrigation

Irrigated land amounts to 70,000 hectares, with 20,000 hectares equipped with sprinkler or drip irrigation systems. While salinization of irrigated soils is not a major issue, salinity does occur on degraded soils. The Ministry of Food, Agriculture and Light Industry owns most of the irrigation infrastructure, which includes approximately 380 irrigation schemes, and provides ongoing maintenance support. However, the use of irrigation has declined due to high production costs and the significant energy requirements of irrigated crop production. The existing irrigation infrastructure is considered inefficient in terms of water use, outdated and poorly maintained. The Ministry of Food, Agriculture and Light Industry estimates that 400,000 hectares of land, located near water sources, could potentially be irrigated. If this land were developed, water consumption for crop irrigation would likely double by 2030 and triple by 2040. Cropland is also a major source of CO₂ emissions.

Use of chemicals and manure

Mongolia is entirely dependent on imports for its fertilizers and pesticides, making these inputs relatively expensive. Since 2006, a list of authorized products is regularly updated and approved by the State Inspection Agency and the Research

⁶¹⁷ Schneider Group (2020).

⁶¹⁸ Konagaya (2013).

⁶¹⁹ Mongolian Academy of Agricultural Sciences, 2024.

Institute for Plant Protection, under the control of the Ministry of Food, Agriculture and Light Industry, the Ministry of Health and the Ministry of Environment and Climate Change.

According to FAO, fertilizer use has decreased since 2017 to reach 0 kg/ha in 2022 with a peak in 2018 of 31.80 kg/ha. However, animal manure from large livestock farms is often discarded in landfills, while small farmers typically use it as fuel. Low crop yields are partly attributed to insufficient fertilizer application. Fertilizers can be easily blown away by wind, though there are no available data on the extent of this issue.

Transport

In 2023, the network of roads and highways spans a total length of 111,916 km, with 9.2 per cent (approximately 10,307 km) of these roads being paved.⁶²⁰ The very low population density means that reaching more remote areas often requires covering disproportionately long distances. On the international stage, Mongolia is part of the Belt and Road Initiative, aiming to enhance connectivity and bridge major economies, thereby increasing its access to Asian and Eurasian markets.⁶²¹

Most roads in Mongolia are wheel-rutted tracks across pastureland. The uncontrolled proliferation of these natural roads, particularly in arid regions, has worsened regional land degradation and desertification of grazing areas. The wheel-rutted roads tend to expand across vast stretches of pasture, often to avoid mud after rain or to make way for vehicles coming from the opposite direction. Mining-related transportation is likely the primary contributor to this issue. Most of the coal is transported by large trucks to the Chinese border at Gashuun-Suhayt in Khanbogd *soum*. The road has spread widely, and the frequent movement of heavy trucks has caused significant deterioration of the surrounding pastureland. As part of the Tavan-Tolgoi Project, the construction of a railway along this route is projected to alleviate the pressure on the roads (see Chapter 13). Off-road riding with quads and motorbikes has also become a popular tourist activity in Mongolia, attracting visitors from around the world. Additionally, many herders now use motorbikes to move their flocks.

Efforts are being made to assess the extent of the damage caused by these roads, though no comprehensive data are available at the national level.⁶²² In collaboration with mining companies, the Ministry of Environment and Climate Change is experimenting with a product called lignosulphonate, which creates a hard surface and helps reduce road dust.⁶²³

Mining and quarrying

As of October 2024, approximately 20 per cent of the total land area is covered by mining and exploration licenses.⁶²⁴ Only around 30 per cent of total mineral resources have been fully mapped and surveyed.⁶²⁵ Most mining activities involve surface mining, which excavates pasturelands. Exploration projects, road construction and geological studies, impact the landscape by stripping soil, creating dirt piles and digging trenches, leading to technical soil degradation. Large heavy machinery creates branch roads alongside paved roads in rural areas, raising dust and polluting the environment (see Table 14.3). The current legal framework for mining is considered more lenient than in other countries. For instance, the upper limit for one exploration license is set at 400,000 hectares, compared to just 350 hectares in Japan.

The exact figure of degraded pastureland due to mining and quarrying is difficult to pinpoint with precision, but various reports and studies suggest that mining and extraction activities have caused the degradation of an estimated over 3 million hectares of pastureland. Mining activities, including coal and uranium extraction, have severely impacted Mongolia's fragile grassland ecosystems, contaminating water supplies and threatening traditional grazing practices essential for the livelihoods of nomadic and semi-nomadic herders. These challenges are particularly acute in regions known for producing cashmere wool and lamb meat. Civil society organizations and residents, supported by initiatives, have leveraged legal frameworks to advocate for better enforcement of environmental protections. These efforts have led to the revocation of licenses for non-compliant companies and the renegotiation of agreements to fund local development priorities, demonstrating communities' active role in ensuring environmental justice.⁶²⁶

⁶²⁰ NSO (2024).

⁶²¹ Mendee (2020).

⁶²² Wang (2024).

⁶²³ Sharmila (2021).

⁶²⁴ NSO (2020).

⁶²⁵ Mongolian National Mining Association (2021).

⁶²⁶ Moses (2019).

Table 14.3: Land damaged by activities, 2023, ha

	<i>Area</i>
Mining with responsible owner	21 758
Abandoned after use by licensed owner	4 470
Small mining	1 077
Artisanal mining	1 635
Road construction	1 850
Total	30 790

Source: Ministry of Environment and Climate Change, 2024.

Note: Abandoned with no responsible owner=7,182 ha.

The informal small-scale placer gold-mining industry has grown to include approximately 30,000 people, providing a social safety net. Artisanal mining often involves the illegal use of mercury and cyanide, resulting in soil contamination in goldfields across central Mongolia. Artisanal mining involves both men and women, but illegal mining is more frequently associated with young, unemployed men. Family-based artisanal mining often results in equitable income sharing, though only 20–30 per cent of artisanal miners are women and due to family responsibilities, women work shorter days, earning less. The expansion of mining activities has exacerbated gender-based violence. Reports link mining-related population influxes to increased domestic violence, prostitution and alcohol-related offenses, particularly in mining towns.⁶²⁷ Social issues such as family breakups, health problems including sexually transmitted diseases, and general community insecurity have also been observed. Additionally, traditional cultural norms and outdated laws restrict women from certain mining activities, limiting their career progression. Barriers include workplace discrimination, lack of family-friendly policies and minimal representation in leadership roles.⁶²⁸

Coal and metal mining threatens grassland ecosystems. Models applied in the region show that dust and toxic elements (typically arsenic, selenium, lead, cadmium and mercury) can be deposited over extensive areas (over 10,000 km²) from mining sites, especially in open-pit mines, which are common in Mongolia. Pollutants can be transported by prevailing winter winds and deposited on the windward slopes of elevated areas in the downwind direction. The local topography plays a significant role in the dispersion of pollutants, complicating the assessment of contaminated areas.⁶²⁹ Heavy metal contamination in grasslands can accumulate through the food chain, starting from soil uptake by grazing animals, posing risks to both human health and ecosystems.

According to the Law on Minerals and related regulations, mining companies are required to restore their mining sites. However, many companies, particularly those engaged in placer gold mining, fail to meet these obligations. At best, they fill in the holes left by mining without undertaking proper vegetative restoration. However, alluvial gold deposits are the most likely to be rehabilitated and well-managed. Only about 5 per cent of the mining areas affected by extraction have been refilled or rehabilitated.⁶³⁰ The Law stipulates that mining companies must compensate local land users and cover relocation costs. Government agencies responsible for overseeing mining lack both the capacity and coordination needed to process license requests efficiently and enforce mining regulations consistently. Communities impacted by mining receive little to no compensation.

Soil degradation

The levels of soil degradation—encompassing contamination, topsoil erosion and the loss of humus—along with desertification, are regulated under the *Law on Soil Protection and Prevention of Desertification*. The central administrative body is responsible for approving the types of soil contaminants and their permissible levels. The relevant standards include MNS 5850-2018 for heavy metals and MNS 6147-2010 for pesticides. Desertification is measured using the “aridity index”, which is calculated based on long-term precipitation and evapotranspiration data (over a 30-year period).

⁶²⁷ Daley (2018).

⁶²⁸ Cane (2015).

⁶²⁹ Qin (2023).

⁶³⁰ Ministry of Environment and Tourism (2022).

Central Mongolia is most affected by soil degradation and pollution, primarily due to human activities such as overgrazing and mining. The 700,000 km² of arid land (i.e., Gobi Desert) is particularly vulnerable to soil degradation.

Soil degradation assessment

The assessment of agricultural land damage is based on indicators such as wind and water erosion, fertility loss, pest damage, soil contamination and chemical pollution.⁶³¹ These factors account for 93.6 per cent of the total damaged land in the country. A total of 81,450.2 hectares of agricultural land have been affected, representing 1.68 per cent of the country's total damaged area. The degradation of arable land has become a major concern, with approximately 90 per cent of the total damaged area—around 9,571.1 hectares—being agricultural⁶³² (see Table 14.4). Around 283,280 hectares of cultivated land are considered irreversibly degraded. The *aimags* most affected include Selenge, Umnogov, Gobi-Altai and Central.

The assessment of grassland damage uses indicators such as degradation, wind and water erosion, sand coverage, rodent and pest infestation, desertification and damage from mineral and oil extraction (see Table 14.4).⁶³³ Urban and settlement damage primarily results from pollution caused by household waste and sand migration. A total of 10,520.8 hectares of urban land has been affected, which constitutes 0.2 per cent of the country's total damaged land.

Table 14.4: Damages to farmland and pasture by type, 2022, ha

	ha	Per cent
Agricultural land		
Rodents and pests	53 129.3	60.3
Reduced fertility	23 006.0	26.1
Contaminated	75 42.1	8.6
Wind erosion	3838.4	4.4
Water erosion	619.8	0.7
Total	88 135.6	
Pastures		
Rodents and pests	2 664 411.0	56.9
Abandoned	1 160 881.0	24.8
Damaged	603 426.0	12.9
Sand migration	140 490.3	3.0
Wind and water erosion	111 917.0	2.4
Mining	375.0	0.0
Total	4 681 500.3	

Source: Ministry of Environment and Climate Change, 2024.

Soil pollution

In sampling points within *aimag* centres, heavy metal contamination does not pose a significant issue (see Table 14.5). In some *aimags*, some substance concentrations are above the standard MNS 5850:2019 (see Table 14.6). Fields, pastures, mining sites and industrial hotspots are not regularly analysed. As of June 2025, no study has been carried out on the depletion of soil nutrients from agricultural practices. Mining companies conduct their own inspections through private contractors, and these results are typically not shared. The Mining Inspectorate assumes that monitoring pollutants around mining sites falls under the responsibility of the Environmental Inspectorate, now part of the Ministry of Environment

⁶³¹ ALAMGC (2023).

⁶³² Ibid.

⁶³³ Ibid.

and Climate Change (see Chapter 2). Environmental management plans for mining operations include monitoring, but information is often limited. The farmland contaminated with chemical substances in 2022 amounted to 7,542.11 hectares.⁶³⁴

Table 14.5: Annual average concentrations of heavy metals in soils of Ulaanbaatar, 2016–2023, mg/kg

	2016	2017	2018	2019	2020	2021	2022	2023	Upper limit
Cadmium (Cd)	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4	3
Lead (Pb)	22.0	27.0	27.0	22.0	24.0	22.0	22.0	29.0	100
Mercury (Hg)	0.4	0.2	0.1	0.2	0.3	0.2	0.2	0.1	2
Chromium (Cr)	11.0	16.0	22.0	15.0	15.0	12.0	15.0	13.0	150
Zinc (Zn)	209.0	277.0	214.0	198.0	183.0	185.0	159.0	158.0	300
Strontium (Sr)	616.0	619.0	560.0	489.0	519.0	464.0	368.0	351.0	800
Cobalt (Co)	27.1	32.8	27.0	26.1	24.3	25.3	28.2		50
Copper (Cu)	27.9	25.1	26.2	28.2	28.1	26.0	21.6	27.6	100

Source: NAMEM, 2024.

Note: Upper limit set by the standard MNS 5850:2019.

Table 14.6: Aimags where the limits set by the standard MNS5850:2019 have been exceeded, element

Aimag									
Govi-Almai		Pb				Cr	Ni		
Umnugovi	As							Sr	
Uvurkhangai	As			Cu		Cr		Sr	V
Khovd	As	Pb	Zn						
Uvs	As	Pb	Zn			Cr			V
Sukhbaatar	As		Zn		Mo	Cr			
Ulaanbaatar	As	Pb	Zn			Cr			
Bulgan					Mo			Sr	
Dornod		Pb							
Govisumber	As	Pb	Zn	Cu					
Darkhan-Uul	As				Mo				
Dornogobi	As								V
Tuv	As								

Source: NAMEM, 2024.

Notes: As – arsenic, Pb – lead, Zn – zinc, Cu – copper, Mo – molybdenum, Cr – chromium, Ni – nickel, Sr – strontium, V – vanadium.

In cases where localized contamination occurs, such as the chrome pollution from a wool and leather processing factory on the outskirts of Ulaanbaatar, the contaminated soil is often removed and deposited in landfills. This method is not applicable to large-scale mining operations in rural areas.

Dust storms

Wind erosion is a significant contributor to land degradation and desertification in Mongolia, affecting 90 per cent of the land to varying degrees. Wind erosion accelerates evapotranspiration and damages young plants through abrasion, as well as crops through lodging. Dust storms are particularly common in areas where human activity has disturbed the surface of the steppes. The sand, being heavier, often falls back in the same areas, exacerbating soil degradation. To combat dust movement, various barriers (wood, metal, plastic, rice stalks) are used, and trees and shrubs are planted and watered.

⁶³⁴ Ibid.

Wind erosion

Wind erosion is particularly severe in the Great Lakes Depression and the southern parts of Mongolia, where more than 100 tons per hectare of soil are lost annually. Studies by the Mongolian Soil Science Society estimate that 35 to 50 tons per hectare of soil have been eroded by wind over the past 30 years.⁶³⁵

Water erosion

Water erosion is less widespread but more concentrated in certain regions, such as the Great Lakes Depression, the Mongolian Altai Mountains and Gurvansaikhan Mountain. Soil erosion by water in these areas is estimated at more than 0.09 tons per hectare per year. According to the 2018 *Atlas of World Desertification*,⁶³⁶ most areas of Mongolia experience less than 1 ton per hectare per year of water erosion, indicating that water erosion is relatively less of a concern compared to wind erosion.

Desertification

Overgrazing intensifies the effects of climate change by degrading vegetation cover, depleting species diversity, compacting soils and altering soil microbial activities (see Table 14.7). Approximately 70 per cent of the grasslands are affected by desertification. These changes result in reduced biomass production, increased populations of pasture insects and rodents, and drying up of rivers, lakes and ponds.

Table 14.7: Areas affected by desertification, 2010–2020, percentage

	<i>Aridity index</i>	2010	2015	2020
Not affected		22.0	23.2	23.1
Weak desertification	0.1	35.3	24.1	31.5
Medium desertification	0.2	25.9	29.8	22.1
Strong desertification	0.3	16.6	22.9	23.3

Source: Ministry of Environment and Climate Change, 2024.

Note: Classes strong and very strongly have been put together.

Desertification is particularly prevalent in the 41.3 per cent of the territory that is susceptible to the process due to natural conditions. The extremely arid desert zone covers 8.5 per cent of the country, while the arid and semi-arid zones make up 44.7 per cent and 90 per cent, respectively. Since 2010, desertification has stabilized at around 77.8 per cent, with minor fluctuations (76.9 per cent in 2015 and 2020).⁶³⁷

Between 2010 and 2020, desertification in the central and northern parts of the country progressed due to mining, quarrying, industrial development and infrastructure projects. In contrast, desertification has stabilized or regressed in the western and eastern regions. In the south-east, desertification due to wind erosion remains stable, but it is increasing in the Altai Mountains due to overgrazing.

Reclamation and rehabilitation

Between 2020 and 2023, a total of 30,790 hectares of land damaged by mining and quarrying have been registered. Of this, 12,117 hectares have been refilled, and 3,032 hectares have been replanted with local species. Rehabilitation can be carried out by NGOs contracted by the responsible company, under the guidance of the relevant authorities. For instance, as part of an agreement signed in 2022 between the Ministry of Environment and Climate Change, the governor of Selenge *aimag* and Oyu Tolgoi LLC, 798.2 hectares of land damaged by illegal mining activities in Yalba Valley were rehabilitated. In the period 2021–2024, a rehabilitation programme with the State-Owned Enterprise Erdenet Industry rehabilitated 1,676 hectares of land.

⁶³⁵ Batkhishig (2015).

⁶³⁶ Cherlet (2018).

⁶³⁷ Ministry of Environment and Climate Change, 2024.

Land monitoring

The ALAMGC operates under the Law on Land and is responsible for monitoring the Unified Land Fund. Each year, staff in every *soum* track 5,166 land points, covering 109,767,341 ha,⁶³⁸ with the process completed through annual photo-monitoring since 2015. A report is produced every year, and the data have been accessible online since 2020 on its website. The data entered include updates to the cadastre, as well as information on soil texture, fertility and coverage. Additionally, the database contains data on soil pollution from heavy metals and pesticides, water and wind erosion, as produced by NAMEM. The market price of land by category is surveyed. But property rights are registered with the State Registration Office under the Ministry of Justice. In 2024, an integrated electronic Unified Land Fund Management System was introduced, which will provide a unified platform for all government agencies. This system will help eliminate illegal land use, identify areas in need of rehabilitation and ensure better land management practices. The system will also secure the implementation of measures related to land planning, cadastre registration, monitoring, taxation and payments. Auctions are possible online.

Data on built-up areas are not included in the Unified Land Fund and are monitored by the Ministry of Urban Development, Construction and Housing as part of the development plans.

Soils in crop land

Each agricultural company is required to submit soil analysis results every five years, in accordance with State standards. The analyses are conducted by private accredited laboratories at the companies' expense, with the Ministry of Food, Agriculture and Light Industry funding only specific actions. The collected data are compiled at the national level by the ALAMGC.

In 2022, a total of 940 inspections were conducted, primarily in the *aimags* of Bulgan, Central and Selenge. These inspections revealed 22,194 violations, of which 14.3 per cent were due to land being unused for over two years. Other violations included expired land ownership and usage rights.⁶³⁹

Environmental monitoring

NAMEM is responsible for observing the condition of pastures. At seven major meteorological stations, observations are made on soil moisture, soil quality, grazing grounds, the grazing behaviour of selected and earmarked animals, and variations in their body weight. In each *soum*, the carrying capacity of pastures is estimated at the peak of vegetation growth. At the *bagh* level, rangeland is evaluated visually at over 1,500 sites annually, with soil analysis conducted every five years to assess soil erodibility. A total of 25 different soil types have been identified. *Aimags* engineers oversee the data collection and input it into the National Rangeland Monitoring Data System.

Since 2002, records of rodents and grasshoppers have been collected at 318 stations. Reports on the state of rangelands were published in 2015, 2018 and 2020, with the next report expected in 2025, based on data from 2024. A desertification map covering the period from 2010 to 2020 was also published in 2020. The Ministry of Food, Agriculture and Light Industry is a primary user of this information and monitors livestock conditions.

The NAMEM Environmental Monitoring Division operates 22 laboratories (see Chapter 4). Soil samples are collected from around 400 sites in the *aimag* centres and sent for analysis of heavy metals (using the applicable standard: MNS5850-2018) and pesticides (using the applicable standard: MNS6147-2010) to a specialized laboratory. These analyses are conducted annually in Ulaanbaatar and every two years in the rest of the country. Microbiological soil pollution in cities is also monitored due to its potential health risks. Sampling in Ulaanbaatar has become increasingly challenging because of continuous construction and urban development.

As of October 2024, Mongolia has the capacity to continue monitoring its rangelands and develop spatially explicit management recommendations, known as ecological site descriptions, to assess rangeland health. The mapping of the entire country according to land categories at a scale of 1:100,000 has been completed. A digital soil data map was created at a scale of 1:500,000 in 2013. More detailed soil surveys are conducted as part of projects related to mining and road construction activities. Land and soil monitoring is carried out using up-to-date tools, producing data, maps and reports.

⁶³⁸ ALAMGC (2023).

⁶³⁹ Ibid.

14.2 LAND ADMINISTRATION

The country is divided administratively into 21 *aimags* and 331 *soums* and the *khot* (municipality) of Ulaanbaatar, which has an independent administrative status. The *aimags* are headed by governors, appointed by the Prime Minister, and local *khurals* by chairmen, elected in local government elections, held every four years. The *aimags* are subdivided into *soums* (districts) and *baghs* (subdistricts), and Ulaanbaatar consists of nine *düüreg* (urban districts) and 808 *khoroos* (neighbourhoods). The provincial-level government structure is repeated at these lower levels. The governors and assembly chairmen of the *aimags* and Ulaanbaatar are relatively powerful, with their own administrations and budgets. Since the 1990s, *khot ails* (groups of households) have served as forums for coordinating common seasonal pasture use. Multiple *khot ails* form community groups, which have lived in close proximity for generations. These groups often have an acknowledged leader who plays an important role in resolving disputes over land and resources.

The category of land in cities, villages and other settlements includes areas for future building, mining sites and waste disposal. It also encompasses urban infrastructure for public use, such as streets and other common areas.

Agricultural land includes pastures, water points in pasturelands, wells and salt licks. Additionally, land with forest and water resources, roads and networks, public lands in urban settlements, and public spaces in cities and villages are State-owned, used for common purposes and subject to government regulations.

Pastureland is managed under a common tenure system, which allows undivided land to be used jointly by residents of the community where it is located. Winter campsite contracts are granted for 60 years based on the fact that herders have already established themselves at these sites. *Soum* governors have the authority to regulate pasture use and allocate possession for winter campsites, though the process varies from *soum* to *soum*. There are no official plans to allocate pastures to individual households or groups of herders. The Law on Land takes measures to prevent grazing on winter and spring pastures during summer and fall to avoid overgrazing. It considers traditional land use practices, pasture capacity and regional specifics, allowing for collective use of pastureland under agreements with the *soum* citizens representatives' *khural* and the *soum* governor. Specific penalties for out-of-season trespassing are not mentioned in the relevant legal provisions. The dismantling of herding collectives in 1992, along with the removal of formal regulatory institutions for pasture allocation, left a gap that weakened customary systems, making it difficult to manage pastureland effectively. Legislation has since sought to address these challenges through co-management at the local level. The Law on Environmental Protection and the Law on Forest both enable decision-making that involves land users, herders and other stakeholders, such as PUGs and forest user groups.

Mongolia also has a category of land for special needs (20.8 per cent of the territory in 2022), which includes protected areas (see Chapter 13), land for national purposes (such as defence), and inter-*aimag* reserve rangeland (691,414 ha) and hayfields for Government fodder reserves (110,940 ha).⁶⁴⁰ According to the Law on Land, the land for special needs cannot be possessed nor can any activity be permitted. It is up to the local authority to change the status of the land, but in respect to the country's needs. Local governments have the authority to designate land under state special protection, while the central Government can acquire land from citizens, entities and organizations for special purposes. According to the Law on Land, a *soum* or *aimag khural* can protect land by declaring it as, land for special needs, including reserve pastureland or common hayfields for fodder reserves. For example, Zaamar *soum* designated 190,000 hectares (out of a total of 280,000 hectares) as protected pastureland, excluding areas already licensed for exploration or mining. In Uyanga *soum*, a valley in the Buruuljuut River basin was declared a land for special needs in 2002, but this measure was reversed by the *aimag* assembly in 2006. According to the 2023 amendment of the Law on Land, the category of land for special needs will be expanded to 30 per cent of the territory.

Pastureland decreased by 433,300 hectares between 2021 and 2022,⁶⁴¹ while cropland increased by 13,700 hectares. The areas occupied by towns, villages and other settlements continued to grow, as did land used for roads and infrastructure. Land covered by forests and water resources, as well as land designated for special purposes, remained unchanged. The decline in pastureland is primarily due to urban expansion, infrastructure development, mining and the extension of agricultural and land for special needs.⁶⁴²

The 2023 amendment of the Law on Land introduces special economic zones in the capital city and detailed regulations on limiting land possession, ownership and usage rights to protect the public interest (servitudes). These regulations allow the state to carry out government activities on private land, such as research, disaster prevention measures, the construction

⁶⁴⁰ Ibid.

⁶⁴¹ Ibid.

⁶⁴² Ministry of Environment and Tourism (2017a).

of public roads and maintaining public access to pathways. Servitudes will be registered in the Land Database System, and compensation for these rights will be determined according to procedures approved by the ALAMGC, in accordance with the Civil Code.

Local territorial planning

Land allocation is done at the level of the *soum* or the city of Ulaanbaatar. It is proposed by the authority on the basis of requests and approved by the relevant assembly. The *soum* is responsible for enforcing the Law on Land, including land management, the allocation of land use permits, and the cadastre and territorial planning within the *soum*. Each *soum* has its own general development plan that includes designated building zones. Land that is possessed is acquired permanently, allowing the possessor to build as they wish. For land in use, reapplication is required every 15 years; no construction is allowed, and fences are only permitted during the growing season. Companies applying to purchase land are issued permits approved by the *soum khural*, which are renewable every 20 years. Applications for land use can be submitted digitally, while land possession applications require a written file. Offenders are prosecuted under the Law on Land. Farming land is demarcated according to requests, and permits can be revoked if the land remains unused for two years. Permits are validated by the *soum khural*. Reports indicate that there is insufficient land to meet all applications. Changes in land use or ownership must be reported online to higher administrative levels and, ultimately, to the ALAMGC. Each *aimag* has a master plan that includes various projects.⁶⁴³

Local rangers, appointed and trained by the Ministry of Environment and Climate Change, conduct field inspections at the *soum* level and report findings to the environmental inspector of the *aimag*. In some areas, these roles are unfilled due to limited human resources. The Department of Desertification Research at the Institute of Geography and Geoecology, part of the Mongolian Academy of Sciences, conducts ongoing scientific research on desertification and land degradation.

Property

With the Law on Allocation of Land to Mongolian Citizens for Ownership, each household was entitled to receive free of charge a plot of a maximum of 0.07 ha for housing and a further 0.1 ha for private gardening (fruits and vegetables). In *aimag* centres it was 0.35 ha and *soum* centres 0.5 ha for housing. Citizens could also acquire up to 100 ha for grain growing and up to 5 ha for vegetable and potato growing. In the countryside, private land for agricultural purposes was in plots of 3,000 ha. The 2002 Law on Land eliminated the shorter lease-terms previously required for farming land, allowing long-term licenses for possession of urban and peri-urban land, household plots, winter herder camps, and arable land to be transferred through sale or auction or used as collateral. In 2022, 83 per cent of the land and immovable property price data pertained to family land, while 4.7 per cent was for commercial land, 9.3 per cent for agricultural land and 3 per cent for industrial land.⁶⁴⁴

Possession or use disputes between a state agency and a private individual or entity are settled by the governor of the higher level. Possession or use disputes between private individuals and entities are settled by the local governor.

When a state agency determines that public need requires exclusive use of particular private property, due compensation and payment must be tendered to the owner. Upon approval, the local governor will contract with the landowner to vacate the land; residential landowners can only be displaced between 15 May and 15 September of any year. The State must pay the compensation within 60 days of signing the agreement. Disputes regarding land-takings are decided by the court.

Unclear zoning, access and demarcation have led to disputes, mainly in the *ger* district of Ulaanbaatar. Disputes over rights to winter grazing areas are common and have, at times, resulted in violence. In 2022, there were 8,420 disputes, 74 per cent of which were related to land ownership.⁶⁴⁵ Areas of potential future conflict include competing claims to water and pasture use, agricultural land distribution, the expansion of protected areas to further include customary grazing areas, and conflict over property rights in areas undergoing mining exploration and mineral extraction.

The Law on Land guarantees equal treatment of men and women but lacks explicit gender-specific provisions. The Law on Promoting Gender Equality mandates that all state bodies ensure equal access to land for men and women. Despite this, government regulations have not proactively supported women's land rights. During the first wave of land privatization, 46 per cent of rural property titles were registered solely to male household heads, with only 16 per cent registered to women. Joint ownership accounted for 30 per cent of titles. Women's limited access to land titles impacts their economic

⁶⁴³ ALAMGC (2023).

⁶⁴⁴ Ibid.

⁶⁴⁵ Ibid.

security, particularly in cases of domestic violence or family separation. Spousal consent is required for transactions involving matrimonial property, but no legal provision exists for joint ownership in unmarried partnerships. This gap leaves women in cohabiting relationships without property rights, a growing concern due to the rise of such partnerships in Mongolia.⁶⁴⁶ Pastoralist households often split during the winter months due to the need for children's education.⁶⁴⁷ With limited boarding school facilities, many women move with children to *soum* centres while men stay behind to tend the herds. This seasonal migration impacts household structures and rural work patterns, reinforcing traditional gender roles where men handle outdoor tasks like herding and haymaking, while women manage household chores and childcare.⁶⁴⁸ According to the NSO, in 2020, herder households accounted for 19.9 per cent of all households, while 26.6 per cent owned livestock, illustrating the continued significance of livestock-based livelihoods for both men and women in the country.⁶⁴⁹ Female-headed households often struggle to negotiate access to pastures and haymaking areas in a system dominated by male decision-makers.⁶⁵⁰ The cashmere industry offers a positive contrast, providing stable employment for women. Women make up 55 per cent of full-time employees in the cashmere value chain, receiving 57 per cent of wages, contributing to the economic resilience of herding communities.⁶⁵¹

Ger areas

The Government is addressing the issue of *ger* management. Recommendation 12.1 (e) and (d) of the First EPR of Mongolia are partially implemented and ongoing. Plots are designated for new official *gers* (Mongolian traditional dwellings) by the municipalities, with minimal infrastructure provided, such as electricity and wells. The standard for one community (a fenced area of 22 hectares) is a maximum of 1,000 people, but the population often exceeds 10,000. Animals are only permitted in certain *gers* on the outskirts of the city. Residents who opt to use renewable energy, install dry toilets and implement other sustainable practices can benefit from reduced land taxes and facilitated loans. Land fees can be doubled if the sanitary facility does not meet the standards. *Gers* can also be found in *aimag* centres. Inhabitants of older, informal *gers*—built during a time when no laws or regulations were in place—became owners and can remain on their plots with the permission of local authorities. These residents were given the option to move into rental apartments or to stay in their *gers*. Around 25 per cent of the population lives in Ulaanbaatar's peri-urban *ger* areas, where limited access to infrastructure results in poor sanitation, water contamination and associated health risks. The cold and arid climate makes current sanitation solutions difficult, as water is frozen for months and decomposition is slow.

More and more people, especially young families, are moving into large apartment buildings. They rent their flats and often seek to be allocated a plot of land outside the city for a garden home, while as of September 2024, 20.6 per cent of the population owns their flat. Property can only be granted on equipped plots (1,000 m²), and the demand exceeds the available supply. The master plans aim to either upgrade existing *gers* for those who wish to remain or allow for the development of new *gers* on the outskirts of the city. These new *gers* often compete with requests for garden homes.

Policies

Urban planning addresses issues such as decentralization, housing and the development of *ger* districts. Additionally, the governors of the districts and of Ulaanbaatar have the authority to grant land ownership based on the general development of the city, as outlined in the city's master or annual land management plans. They also have the power to revoke land ownership or use rights and to make changes to the size, intended use, or location of land plots.

The Government aims to reduce the size of the *ger* areas. The State Housing Corporation is implementing a policy of buying land from households in the *gers* at prices higher than the market rate to facilitate the construction of new residential districts. Sellers are given the option to move into an apartment with rental costs covered by the Government or to receive compensation and find alternative housing, which could potentially be another *ger*. The Government is forming joint ventures with foreign private companies and donors to build affordable housing, which will be managed by the State Housing Corporation. In Ulaanbaatar, plans are in place to develop 47 new neighbourhoods. There is also a new policy aimed at upgrading existing apartment buildings and private homes, supported by lower-interest loans, following an assessment of the properties.

⁶⁴⁶ Daley (2018).

⁶⁴⁷ Ahearn (2018a).

⁶⁴⁸ Daley (2018).

⁶⁴⁹ ADB (2022a).

⁶⁵⁰ Daley (2018).

⁶⁵¹ Morton (2024).

The Government is working to decentralize the population from Ulaanbaatar and promote regional development in cities and *aimag* centres across six regions. Young families who establish themselves outside the capital are eligible for reduced loan rates, from 8 per cent to 6 per cent. Civil servants and teachers willing to relocate to the countryside are offered loans at a much lower rate of 3 per cent. This initiative has already been approved by the Ministry of Finance and the Central Bank of Mongolia.

The construction of the metro system in Ulaanbaatar was officially launched in May 2024. The master plan includes the development of ring roads, tunnels and bridges at key intersections of major roads. Since the land is state-owned, it simplifies the implementation of these projects. Construction is limited to just 3–5 months a year due to the harsh climate, which slows down progress.

Ulaanbaatar is facing challenges in implementing its current master plan (2013–2020), which has a projection extending to 2030. Despite its ambitious goals, only 29 per cent of the plan has been realized in 2024. A new development plan for 2020–2040, aligned with the SDGs, has been submitted but has not yet been approved as of October 2024. It is expected to be approved in 2025. In the meantime, construction and development activities continue across the city.

Ulaanbaatar has experienced steady population growth since the 1990s, primarily due to migration from rural areas to the outskirts of the city.⁶⁵² The capital has struggled to keep up with this rapid population growth in terms of urban planning, service provision and environmental protection. Ulaanbaatar's main challenges include severe traffic congestion, air pollution during the winter months and the conditions of the *ger* communities, particularly those with open latrines. Traffic congestion has reached an intolerable level, severely affecting daily activities and the overall quality of life for its residents. As of June 2025, there is no coordination between housing development and traffic planning. Building permits are often ignored. Real estate companies have been constructing apartment buildings and selling them to private individuals. Ideally, the necessary infrastructure should be installed before allowing private companies to begin construction in new housing areas, and there is no budget for such measures. A notable exception is the future subcentre of Selbe, located near the river: 70–80 per cent of the land (158 ha) is State-owned, and infrastructure has been developed in advance. Until the amendment to the Law on Land in December 2023, landowners had the freedom to build whatever they wanted, wherever they wanted, as there were no enforceable building regulations. Despite efforts to reduce the size of the *ger* communities, they continue to grow. People moving into apartment buildings often sell their *ger* to newcomers, maintaining the population of the *ger* areas, which currently consists of around 200,000 households. The overflow of latrines during heavy rains leads to cases of dysentery, which requires urgent action from the authorities to address and manage effectively.

Photo 14.2: Olgii city in autumn, near Altai Mountain



Photo credit: Marc Pelissier/stock.adobe.com.

⁶⁵² United Nations Mongolia (2018).

14.3 PRESSURES FROM LAND DEGRADATION

According to the then Ministry of Environment and Tourism, the proportion of land that is degraded over total land area increased from 13.54 per cent in the period 2000–2015 to 23.42 per cent in the period 2016–2019 (SDG indicators 15.3.1 of the target 15.3 (By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world)). However, according to the SDG Dashboard, the proportion of land that is degraded over total land area decreased from 6.12 per cent in 2015 to 0 per cent in 2021, increased to 4.01 per cent in 2021 and then decreased to 0 per cent in 2022. However, Mongolia does not collect data for the three land degradation neutrality indicators: productivity, land cover and soil organic carbon. Recommendation 12.4 of the First EPR of Mongolia has not been implemented.

Pasture ecosystem

Mongolia is home to one of the world's largest, most biodiverse, yet ecologically fragile grassland ecosystems. The Mongolian steppe is one of the last remaining intact steppe ecosystems globally, having co-evolved with traditional nomadic pastoralism for centuries. The Mongolian plateau supports over 2,600 plant species, with around 600 of these classified as pasture species. The vast expanses of pastureland are covered with various fodder plants. On higher mountain slopes, the taiga transitions into the alpine zone, where thin grasses and occasional flowers grow. In the west, the Great Lakes intermontane depression and the southern Gobi region feature semideserts, gradually transitioning into areas of true desert. Steppe vegetation is typically found in intermontane basins, wide river valleys and the southern flanks of mountains. Drought-tolerant saxaul trees are typical, and groves of elms and poplars are found near springs and other underground water sources.

Remote sensing studies indicate widespread pasture degradation in Mongolia. Field studies conducted over 20 years of warming and increased stocking rates reveal a more nuanced picture. While total herbaceous biomass and foliar cover remained stable in desert-steppe and steppe areas, or even increased in mountain-steppe regions, species richness declined significantly over time. This shift favoured more grazing-tolerant, less palatable species. These findings suggest that the level of degradation is reversible, but it requires targeted management. In areas with high grazing density, species composition differed from regions with moderate or low grazing pressure. These heavily grazed areas did not recover after five years of grazing removal, indicating that a biotic threshold had been crossed. Measurements using the Normalized Difference Vegetation Index showed that pastures could recover after *dzud* events, though the recovery was minimal and not statistically significant. Under-grazed areas, usually located far from nomadic residences, tended to support taller species but with lower biodiversity. Interestingly, low to moderate grazing pressure can enhance plant biodiversity, as grazing reduces inter-specific competition. Fire, too, can positively influence species richness. The highest biodiversity, with up to 30 species, was observed in areas of medium-height grass.

Mountain-steppe ecosystems appear to be more vulnerable than steppe or desert-steppe systems. In annual grasslands in dry areas, rangeland dynamics suggest that in regions with low annual precipitation and high variability, such as the Gobi, vegetation is primarily driven by rainfall rather than grazing: they show resilience to overgrazing. In contrast, areas with higher and more consistent precipitation, grazing plays a more significant role in shaping plant community structure, favouring the development of grazing-tolerant species. The riparian zones in dry lands (2.5 million hectares⁶⁵³) face significant pressures from land use, climate change and livestock access. Livestock impact riparian vegetation through physical damage—rubbing, trampling, browsing and soil compaction—which leads to increased runoff and reduced water availability for plants. This has resulted in a significant decline in plant species richness and pasture productivity in the Selenge Basin over the last few decades. Additionally, soil infiltration has decreased. Riparian zones are increasingly under pressure from mining and industrial development in Mongolia. Floodplain meadows, which make up about 5 per cent⁶⁵⁴ of total pastureland,⁶⁵⁵ are intensively used for both grazing and hay production. These meadows regenerate constantly throughout the growing season, making them vital for pasture productivity. It is essential to implement sustainable grazing management practices in these drier regions to maintain the health and function of these natural floodplains.

The adverse impact of gold mining on rivers is more significant than other negative effects of the mining industry. Most placer gold is found in alluvial soils, and most of the gold mining takes place in river basins. The water used in mining is often dispersed and evaporates quickly in the dry climate. Machinery, such as dredges, digs up riverbeds, causing water to flow underground, which ultimately leads to the disappearance of rivers and lakes. In the case of the Ongi River and Lake

⁶⁵³ Ministry of Environment and Tourism's 2019 report on water resources.

⁶⁵⁴ Lkhaakhuu (2023).

⁶⁵⁵ Water Agency 2020 report.

Ulaan, which has vanished, mining activities were estimated to have contributed to 16 per cent of the process. Mining in the upper reaches of the Orkhon River has also damaged the environment, destroying forests along the river and altering the riverbeds.⁶⁵⁶ Both mining companies using heavy machinery and informal miners—who burn cattle dung—are responsible for destroying or melting the permafrost layer to access gold-bearing deposits. Mining activities consumed 95.4 million cubic meters of water in 2022, accounting for 17 per cent of the country's total water consumption. This figure is expected to increase by 2.3 times by 2030.⁶⁵⁷

14.4 IMPACT FROM AND ADAPTATION TO CLIMATE CHANGE

Over 80 per cent of the country's territory is classified as highly susceptible to climate extremes. In the past 83 years, the annual average temperature in Mongolia has increased by 2.46°C—2 to 3 times faster than the global average of 0.6 to 0.7°C.⁶⁵⁸ Extreme temperature records have been set, including 44.0°C in 1999 and -55.3°C in 2016. Annual precipitation has experienced a slight increase of 10 mm over recent years. The intensity and frequency of extreme weather events, such as thunderstorms and heavy snowfall, have risen. Over the past 30 years, the average annual snow depth has declined in northern mountain areas, while it has increased in the eastern and southern regions. Severe *dzuds* have been increasingly common in recent years (see Chapter 15). There has also been an increase in droughts, hot days and dust storms. The timing of snowmelt has advanced by about one month, and future projections suggest a reduction in snow accumulation zones. Warming trends are most pronounced in high mountain areas and valleys, but less so in the Gobi Desert. The HadCM3 model showed that the forest steppe is likely to turn into a steppe, and the steppe zone is likely to be pushed by the semi-desert zone by 2080. In floodplains, precipitation has decreased in June but increased in August, with stronger winds in the summer months. Convective rain has become the dominant climatic driver of floodplain Normalized Difference Vegetation Index degradation.

Mongolia does not have a strategy that combines the conservation and restoration of degraded pastures with marketable carbon credits, which could simultaneously improve the financial well-being of herders. The lack of sustainable grazing practices in extensive grazing systems does not allow for carbon sequestration that far exceeds the methane and nitrous oxide emissions from livestock. While grasslands can serve as a major carbon sink, incentives for this sector are not in place. A key challenge is persuading herders to rely on carbon payments as a source of income, rather than depending solely on livestock sales.

Monitoring grazing activities is an essential step in this process, complementing existing land management and monitoring systems. While implementing these measures will incur costs (for technical support, services to herders and monitoring), it aligns with the broader national policy on land and pasture management, which is supported by the state. These measures could receive financial backing through international programmes and may be eligible for funding in pilot projects.

The Mongolian Society for Range Management is working to raise carbon revenue through collaboration with the Plan Vivo Foundation and the University of Leicester. The goal is to sequester 100,000 tons CO₂e annually across 77,000 hectares of pasture. The project faces challenges related to unclear pasture property rights, which have delayed its implementation and created uncertainty for organizations and companies interested in participating in the carbon market.

14.5 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

The 2002 Law on Land is the basic legislation to regulate land management, possession and usage, emphasizing sustainable practices, legal compliance and environmental protection. It details the roles and responsibilities of various government bodies, the process for obtaining and maintaining land possession certificates, and the regulations for land use, including rehabilitation, pastureland management and urban land allocation. It covers also dispute resolution, penalties for violations and the conditions under which land possession rights can be terminated or transferred. As of November 2004, forestland, pastureland, water basins and special needs/protected areas cannot not be privately owned. Mongolian citizens can own plots of land for family residential and/or commercial purposes.

Three categories of land tenure are defined in Mongolia:

⁶⁵⁶ Suzuki (2012).

⁶⁵⁷ Ministry of Environment and Climate Change, 2024.

⁶⁵⁸ Mongolia (2023a).

- Land ownership: Ownership rights are limited to Mongolian citizens and include the right to manage and sell the land. Mongolian citizens can own plots of land for family residential and/or commercial purposes.
- Land possession: Licenses for possession of land are granted to Mongolian citizens for periods of 15–60 years with an option to renew for up to 40 years. The right of possession includes the right to manage the land and build on it. A right of possession can be transferred by inheritance or by consent of the legal body that originally granted the possession rights but cannot be sold.
- Land use: A right of land use provides for the right to make use of a particular land feature, with no right to alienate (transfer of ownership) the land. On agricultural land no building is permitted and only fences during the growing season. Land-use contracts are granted for terms of five years with one extension. If the land granted is not used within 2 years, it reverts to State disposal. Foreign entities can obtain use-rights but cannot use the land for agriculture or livestock.

If land in use or possession is not fenced or marked for prohibiting entering, any person may enter or cross the land, but without causing damage to the land and with the permission of the owner or possessor. This measure ensures access to grazing grounds to other herders in case of need (*otor*). As pastureland should be accessible to all, if there is a shortage of fodder in the neighbouring *soum*, herders from outside may come and graze their animals.

The 2002 Law on Allocation of Land to Mongolian Citizens for Ownership outlines the legal framework for land ownership and usage by citizens in Mongolia, detailing the processes and authorities involved in land allocation, ownership rights and State intervention. It emphasizes the protection of citizens' land rights while allowing for state needs, such as national defence, to take precedence under specific conditions. The law also specifies the roles of various governmental bodies in monitoring and ensuring compliance with the Law on Lands, and it sets out the rights and duties of citizens, including prohibitions on transferring land to foreign nationals. It provides that landowners can transfer to others for use or possession their land with the relevant *soum* governor's consent.

The Law on the Acquisition of Land for Special Needs gives the *aimag* and *soum* governments primary responsibility for implementation of the Law on Land and the central government to reserve land for special needs. Application for use or possession is made to the *soum* governor's office and approved by the local *khural* or *khoroо*. The governor of the *soums*, *aimags* and of Ulaanbaatar are entitled to grant land ownership per the general development of the city, general or annual land management plan of the capital city as well as invalidate land possession or use rights, and make changes to the size, intended use and location of land plots.

The 2020 Law on Administrative and Territorial Units and Their Governance outlines the governance structure, powers and responsibilities of local administrative, including *aimags*, *soums*, districts and the capital city. It details the roles of local governors and *khurals*, emphasizing environmental protection, infrastructure development, socio-cultural services, law enforcement, and governance procedures. Local governors have several responsibilities regarding land management, including:

- Approving a comprehensive programme for sustainable utilization of land, improving soil fertility and implementing measures for environmental protection;
- Developing a proposal to take areas of the administrative unit territory under special protection and submitting it to *khural* for approval;
- Monitoring activities related to land possession, granting utilizable land, mineral prospecting, exploration, exploitation; and extraction activities as specified in laws and regulations.

These responsibilities highlight the governors' role in ensuring sustainable land use and environmental conservation within their administrative units.

A set of laws regulates various aspects of territorial planning and property such as the 1996 Law on State and Local Property and the 2020 Law on Development Policy Planning and Management. Other laws and policies sought to address the neglect of urban areas: the 1999 Law on Housing, the 1999 Law on Housing Privatization, the 1999 National Housing Strategy, the 1999 Law on Condominium, the 2003 Law on Regionalized Development Management and Coordination and the 2023 Law on Reducing Traffic Congestion and Rehabilitating Ger Districts in Ulaanbaatar.

The Law on Environmental Protection outlines the roles and responsibilities of local government officials, state inspectors and citizens in managing natural resources and ensuring ecological safety. The law's provisions on soil protection and land management include setting maximum limits on the use of soil and land resources; monitoring the use and protection of hayfields, farmlands, pastures and water sources; assessing and compensating for soil damage and pollution; and

overseeing the implementation of environmental protection legislation, as well as decisions made by local governing bodies related to soil and land management.

The Law on Land Fees governs the fees for the use of state-owned land by citizens, businesses and organizations. It aims to manage land fee relationships and ensure fair compensation while promoting responsible land management. The key factors considered in setting land fee rates in Mongolia include the:

- Type of land, such as pastureland, land for cultivation and haymaking, and land in cities, villages and other settled places;
- Fair value of the land, which is used as a basis for determining the rate and percentage of land fees;
- Purpose of land use, location, environmental impact, and the need to protect the green zone;
- Land value and its utilization purpose, which are considered for each agricultural land zone and land rate of city, village and other settled places.

Land fees collected have more than doubled since 2018, rising from 51.6 billion tugriks to 117.9 billion tugriks in 2022.⁶⁵⁹

The Law on Cadastre Maps and Land Cadastre outlines the regulations for land management, registration and cadastral mapping. It mandates annual reporting on changes in the Unified Land Fund, requires all land to be registered in a state database, and involves professional organizations in conducting cadastral surveys to assess land quality and economic value. It details the responsibilities of the central state administrative body in overseeing these activities, aiming to ensure accurate and systematic management of land resources. The cadastral scales are set at 1:2,000 for fields, 1:25,000 for meadows and 1:50,000 for pastures, forests, reservoirs and geological and mining areas.

The Law on Minerals provides the regulatory framework governing mineral resources. A mining license holder must comply with the obligations regarding environmental protection, which include providing information on measures taken to protect the environment, to use new machinery and technology and to propose amendments to the environmental impact assessment and environmental management plan concerning possible adverse impacts due to expansion of mining operations and enhancement of production capacity. The management must include preventive measures that avoid and minimize mining operations impacts. The plan must also identify preventive measures to protect air and water, humans, animals and plants from the adverse impacts of mining operations.

According to the 2009 Law on Prohibition of Mineral Exploration and Mining at Headwaters of Rivers, Protected Zones of Water Reservoirs and Forest Fund Areas, mining activities are prohibited in the mentioned areas and the local and governmental authorities set their boundaries (a minimum of 200 m from the banks of a surface water, according to the Law on Water). Licenses issued before this law will be cancelled and the companies involved should restore the sites within two years and be compensated. Restoration is supervised by the local administrations who can delegate the supervision to an NGO. The law does not apply to the Strategic Mineral Deposits (15 sites).

The 2014 Law on Common Minerals provides the legal framework governing the exploration and mining of gravel, sand, brick clay, trap, pebble. An environmental protection plan must ensure that pollution levels do not exceed accepted limits and include reclamation measures such as backfilling, levelling and cultivation for future public use. License holders must submit revised environmental protection plans and environmental impact assessments for approval when applying for license extensions.

The 1988 Law on Subsoil outlines the regulations governing the use and protection of subsoil resources regarding the use of gravel and minerals the protection of the first soil layer. It includes conducting ecological assessments and environmental impact assessments by relevant professional organizations; taking actions to eliminate negative impacts on the environment, covering the deposit and the excavated ground, or otherwise rehabilitating them, and rehabilitating the soil; avoiding pollution of the subsoil when storing oil, gases, materials, burying poisonous substances, other substances, industrial waste, etc. It details the requirements for geological surveys and mining operations, and the penalties for violations.

The 2012 Law on Soil Protection and Prevention of Desertification defines key terms and establishes criteria for assessing soil degradation and desertification, categorizing both into weak, medium and strong degrees. The Law specifies measures for soil protection, grants powers to government authorities for implementation and monitoring, and outlines rights and obligations for citizens and legal entities. It also provides incentives for activities that improve soil health, mandates studies on soil conditions, and details compensation and liabilities for damages. It is addressed

⁶⁵⁹ ALAMGC (2023).

to cropland, pasture (rotation schedules) and urban areas. Legal entities engaged in mining and quarrying are to restore the soil degraded during the operation in line with the standards for biological requirements. A draft amendment to the Law is in ministerial consultation. If adopted, this amendment is expected to improve and regulate intersectoral coordination. Therefore, on the one hand, while preserving traditional heritage, farmers and herders will be encouraged to treat their pastures and agricultural lands responsibly and use them properly, as well as mining and other business owners will be required to prevent soil degradation during their business activities, restore used land and eliminate the damage caused by them, improve their responsibilities, and improve their internal control system, and, on the other hand, improve the state registration, control, management, financing and accountability system, and coordinate and regulate inter-sectoral cooperation. Recommendations 12.1 (c) and 12.2 (a), (b) and (c) have not been implemented and remain valid.

The 2016 Law on Crop Production outlines regulations regarding crop farming, focusing on sustainable agricultural practices, soil protection and the integration of crop farming with livestock production. They detail the rights and obligations of crop producers, including the need for soil protection, crop rotation and compliance with agricultural guidelines. The law emphasizes the importance of maintaining soil fertility with measures such as forest strips, straw mulch, cultivation of leguminous plants in rotation, and ensuring that land is actively used for farming. The necessary measures if prohibited diseases, harmful insects, rodents, or weeds are found in the crop farming land must be taken. Violations of these regulations can result in penalties, including the revocation of land rights if the farming land is left unused for two years.

The 2020 Law on Livestock Tax regulates the issues related to tax imposition on the number of livestock, its payment to the budget and reporting. The tax rate for goats is 1.5 times that of sheep, even though the two species are equivalent in size. The revenues from these taxes must be used for measures to protect pastures. This taxation rate is considered too low to effectively discourage herders from keeping excessive numbers of animals.

Since 1994, a draft law on pasture has been presented to the Great *Kural* five or six times but has yet to be passed. The draft law includes provisions on the boundaries, locations, size and carrying capacity of four-season pastures, which are determined at the level of PUGs and confirmed by the *soum* meeting, with a contract signed by the *soum* governor. The law is based on the Law on Land, which governs seasonal grazing, pastures for animal husbandry and reserve pastures. Rangeland agreements under this law would outline the herders' responsibilities regarding the established stocking capacity and ensure that the rangeland is used exclusively by those who sign the agreement, with provisions for granting reciprocal access rights. Grazing fees would also be introduced. The land-based legislation was not revised to bring it in line with the 2016 Law on Crop Production. Recommendation 12.1 (a) and (b) of the First EPR has not been implemented. As part of the draft law, the Mongolian Society for Range Management advocates for the privatization of pastureland, proposing it be fenced and assigned private ownership or long-term possession rights. This would enable herders to make the necessary investments with the assurance of long-term returns. This proposal is not about abandoning nomadic pastoralism but rather stabilizing it and transitioning toward market-based livestock farming, which could improve the livelihoods of professional herders. The Society argues that collective pasture use often leads to conflicts between herders, whereas private ownership would provide a fair distribution of grazing rights based on land area and carrying capacity and would also increase individual responsibility for proper land use, with punitive measures directed at those who fail to manage it responsibly. Fixed land boundaries would allow herders to lease grazing rights to others.

Laws mentioned above accompany the land reform. A draft law on land reform was prepared and as of June 2025, not yet adopted.

Policy framework

The Action Programme of the Government for 2016–2020 outlined a comprehensive set of plans and policies aimed at improving various sectors in the country, in alignment with the 2016 Sustainable Development Vision 2030. The specific measures related to soil protection include increasing crop yields through enhanced soil fertility; preventing erosion and degradation of agricultural land, while gradually introducing zero-tillage technology; reducing soil pollution in cities and other urban areas; carrying out the rehabilitation of areas degraded by mining exploration and exploitation and bringing the processes of mine rehabilitation and closure up to international standards. Soil pollution caused by mining and industrial activities is not addressed in detail. The measures outlined in the Vision 2050 Long-term Development Policy,⁶⁶⁰ the Action Programme of the Government for 2020–2024, and specific programmes to reduce GHG emissions include several initiatives for the livestock and crop production sectors. In the livestock sector, the focus is on respecting carrying capacity, increasing livestock productivity, boosting processed

⁶⁶⁰ Mongolia (2020).

goods and livestock exports, and implementing a health system for livestock to facilitate export opportunities. In crop production, key strategies include adopting minimum tillage practices, phasing out ploughing, fencing agricultural land, planting forest strips and using straw mulch to cover fields.

The 2015 State Document Policy on Food and Agriculture No. 4 outlines strategies to enhance the food and agriculture sector, with a focus on supporting domestic production and establishing specific goals for growth. It emphasizes sustainable practices and improving the agricultural economy to strengthen national security, boost competitiveness and ensure access to nutritious food through increased productivity and food safety. For crop production, the programme includes measures such as bringing abandoned land into use in the western and eastern regions, integrating agricultural production with intensive animal husbandry and adopting soil cultivation techniques to protect agricultural land from wind and water erosion. Other actions include increasing crop rotations, reducing fallow, selecting machinery that avoids soil compaction, improving irrigation systems, expanding the irrigated agricultural area and introducing advanced drip and subsoil irrigation technologies. Regarding pastures, the programme focuses on improving pastureland organization, as well as increasing grazing areas and reserve pastures. It also includes creating economic incentives to adjust herd size, type and structure to optimize pasture use, protection and restoration. Other measures involve controlling rodents and insects that harm pastures, improving water supply through ponds and reservoirs, and supporting herders and communities in adopting renewable energy solutions.

The 2019 National Programme for Soil Protection and Land Degradation Reduction is the key policy document for soil protection. It outlines a five-year programme (2019–2023) focused on improving soil research, protection and restoration. Key activities include enhancing local soil research laboratories, training professionals and studying the impacts of soil pollution on health. The programme aims to restore 30 per cent of contaminated soil, reduce urban soil pollution and strengthen the legal framework for soil protection. It emphasizes sustainable agricultural practices, inter-sectoral coordination and public-private partnerships, with funding from State budgets, international organizations and private investments. Specific objectives include: placing 50 per cent of degraded, barren land contaminated by chemical, biological and other toxic substances under local special protection, and rehabilitating and recirculating up to 20 per cent of this land; restoring 30 per cent of contaminated and degraded soil, including 100,000 hectares of pastures, by fencing them off and planting perennial vegetation; removing 30,798.8 hectares of eroded land from cultivation, rehabilitating it with perennials and converting it into pastureland. For crop production, the programme aims to reduce the share of fallow and in the crop rotation system: support planting perennial and other crops, increase the use of fertilizers by 90,000 tons; offer land fee discounts to land users who successfully improve soil fertility; propose a ban on non-agricultural uses of the most fertile soils. In urban areas, the programme plans to redevelop and connect 30,000 households in the ger districts of Ulaanbaatar to infrastructure; reduce morbidity linked to soil pollution in cities by 20 per cent.

The 2020 Ulaanbaatar Master Plan is a broad vision to make the city more sustainable and aims at addressing the urban development and planning needs of Ulaanbaatar. It aims at accommodating Ulaanbaatar's growing population. It includes development of new satellite towns and city zones to reduce congestion in the city centre with the creation of industrial zones and business hubs to attract investment and improve job opportunities in surrounding areas of Ulaanbaatar; policies to provide affordable housing solutions for the growing population, particularly for low- and middle-income families; improvement of the ger districts by providing access to basic services such as electricity, water and sanitation; expansion of public transportation systems to reduce traffic congestion; construction of new roads and bridges, and enhancing green spaces.

The National Livestock Programme for the period 2010–2021 aimed to improve animal productivity and product quality while reducing the overall livestock population. To strengthen the livestock sector, the programme focused on increasing meat production for both domestic consumption and export. It introduced economic incentives to respect carrying capacity, with funds allocated for pasture restoration. One key outcome was the establishment of a three-person office in each *soum* to provide support in areas such as breeding, veterinary services, local product processing and pasture management. Mongolia allocates 1 per cent of the State budget to the livestock sector. By 2030, the Ministry of Food, Agriculture and Light Industry aims to reduce the number of goats by 1.9 per cent annually, encouraging their replacement with cows.

The OBTNM introduced measures aimed at combating desertification (see Chapter 1).

Institutional framework

The Standing Committee on Environment, Food and Agriculture is a key legislative body responsible for overseeing and addressing issues related to the environment, food security, agriculture and rural development, and for shaping and overseeing the policies, laws and initiatives that contribute to the country's sustainable development and environmental

management. It oversees the activities of the Ministry of Environment and Climate Change and the Ministry of Food, Agriculture and Light Industry, such as the implementation of key programmes and projects related to agriculture, animal husbandry, and environmental sustainability and addressing issues related to deforestation, desertification, soil degradation, biodiversity loss and air, water and soil pollution.

The National Committee on Land Reform consists of ministers and heads of relevant agencies and departments and is responsible for providing unified management and ensuring the implementation of land reform-related resolutions in all issues regarding land relations such as to conduct land use inventory on Mongolian territory.

The Ministry of Food, Agriculture and Light Industry is responsible for overseeing and managing various aspects related to agriculture. Its primary tasks include:

- Formulating and implementing national policies aimed at the development of agriculture, ensuring food security and promoting sustainable farming practices;
- Providing financial, technical and advisory support to farmers, herders and agricultural enterprises and facilitate market access;
- Overseeing the management of livestock and ensuring sustainable practices promoting growth in the sector and managing a veterinary service;
- Promoting sustainable crop production, including the development of appropriate farming technologies, soil conservation and water management practices;
- Encouraging the development of rural areas by improving infrastructure, providing training to rural communities and supporting local agriculture-based industries;
- Monitoring and ensuring food safety, including both domestic consumption and exports;
- Promoting agricultural exports;
- Addressing the impact of environmental degradation on agricultural productivity.

The Ministry of Environment and Climate Change is responsible for soil protection and the fight against desertification and coordinates with other ministries in charge of activities that have an impact on the territory, in particular the Ministry of Food, Agriculture and Light Industry, the Ministry of Mines and the authorities responsible for land use planning and infrastructure at all levels of decision-making. It develops soil protection and rehabilitation actions.

The Ministry of Urban Development, Construction and Housing oversees the application of the Law on Land and a set of laws and regulations related to the matter. The Ministry oversees urban development, housing, construction and utility sectors in Mongolia. The Ministry manages and directs the operation of the State Housing Corporation and Centre for Construction Development. The mission of the Ministry is to create a healthy, safe and comfortable living environment for the population by increasing the policy, planning and effectiveness of urban development, construction, construction materials industry, housing, engineering infrastructure and public utility sectors.

The Mineral Resources and Petroleum Authority implements the Law on Minerals, Law on Petroleum, Law on Petroleum Product, Law on Land, government activity programmes and Ministry of Mining and Heavy Industry's directives. The Geological and Mining Inspection Agency, a division of the State Specialized Inspection Agency, regulates the mining industry. The Government has shifted from being the predominant owner and operator of mines to being a manager and regulator. The shift in government roles has been accompanied by the establishment of environmental protection and impact assessment laws governing the mining industry. Soil and pasture conditions are monitored by NAMEM and ALAMGC.

Governmental measures

The Ministry of Food, Agriculture and Light Industry is promoting the use of sheds for cattle, where they can be fed cultivated crops instead of grazing, at least during part of the year and encourages a focus on quality rather than quantity, advocating for alternative products to cashmere wool (e.g., baby camel wool and yak down). The Government subsidizes these initiatives and works to improve market access through support for cooperatives and linkages to processing companies. The Centre for Policy Research has shown that reducing the stocking rate by 8 per cent can lead to a 10 per cent increase in herders' income, as the remaining animals are more productive, with no investment at all.

2022 Resolution No. 36 of the State Great Khural on certain measures to be taken to ensure food supply and security

Within the framework of this Resolution, a set of policy measures were implemented aimed at improving the system of production and raw materials by solving the financial problems of domestic food producers, livestock and farmers, improving the legal environment and providing citizens with healthy, accessible, sustainable and secure food. To improve the legal

environment, among other, the Law on Plant Health and Plant Protection, the Law on State Control and Inspection, and the Law on Food Safety Assurance have been enacted, and other legislation necessary to improve the legal environment in the food and agriculture sector is being enacted. Thanks to streamlined management and implementation measures, the number of exporting organizations increased. For example, to increase meat and meat products exports, one of the main food exports, the export process has been simplified by lifting export restrictions, increasing the number of agricultural units authorized to export, and introducing the One Window electronic system. A total of 1.26 trillion tugriks of soft loans were provided in 3,160 disbursements to 2,577 individuals in the food, agriculture and livestock sectors. About 160.5 billion tugriks were spent to finance the interest rate concessions on these soft loans. As the financial situation of the legal entities that received the loan improved, the number of employees in these sectors increased by more than 2,300 compared to the base year, tax payments increased by 60 per cent, total sales increased by 31 per cent, net profit by 32 per cent and tax payments by 46 per cent, respectively.

The domestic production of dairy products reached 69,000 tons in 2023 and 87,000 tons in 2024, an increase of 33 per cent from the 2022 baseline, and the domestic supply level increased from 52 per cent in 2022 to 58 per cent in 2024. For meat products, the domestic production reached 47,712 tons in 2024, an increase of 248 per cent from the 2022 baseline. The supply level of meat products was 74 per cent in 2022, which increased to 85 per cent in 2024. However, the domestic supply level of total meat products and the production and raw milk production volume both decreased in 2024 due to the decrease in the number of livestock. Chicken production increased by 33 per cent and pork production by 2 per cent, respectively, but the decrease in the domestic supply level indicates that imports exceeded domestic production. Egg production reached 12,000 tons in 2024, an increase of 1 per cent from the 2022 figure. Potato and vegetable production reached 511,000 tons in 2024, an increase of 39 per cent from 2022. Greenhouse vegetable production reached 26,000 tons in 2024, an increase of 15 per cent from 2022. Vegetable oil production reached 501 tons in 2024, an increase of 27 per cent from 2022. Tea production reached 543 tons in 2024, an increase of 8 per cent from 2022. Edible salt production reached 21 tons in 2024, an increase of 17 per cent from 2022.

2024 Resolution of the State Great Khural No. 63 on certain measures to support the processing of raw materials of animal origin (White Gold National Campaign)

The aim of the White Gold National Campaign is to develop the production of raw materials of livestock origin in a nature-friendly manner, to improve the level of processing of raw materials, increase the production and export of value-added products, create favourable conditions for industrial entrepreneurship by gradually establishing production and technology parks suitable for regional characteristics and nomadic livestock with a supply chain, and by improving the legal environment for the industrial sector. The White Gold National Campaign will last until the end of 2028 and expected results are:

- For manufacturers:
 - Increase the level of cashmere processing from the current 20 per cent to 40 per cent, increase production from 1.5 trillion tugriks to 2.3 trillion tugriks, and export from US\$398 million to US\$690 million, creating over three thousand new jobs.
 - Increase the level of wool processing from the current 25 per cent to 55 per cent, increase production from 240 billion tugriks to 670 billion tugriks, and export from US\$52 million to US\$119 million, creating about 2,200 new jobs.
 - Increase the level of leather and hide processing from the current 30 per cent to 50 per cent, increase sales from 57.8 billion tugriks to 90 billion tugriks, and export from US\$9.6 million to US\$22.4 million, creating over 3,000 new jobs, and a total of over 8,000 jobs.
- For herders:
 - Improve animal health and increase livestock productivity will increase income.
 - Make steady income by producing 10,000 tons of cashmere, 30,000 tons of wool, yak fur, camel wool, and 20 million hides and skins annually.
- For the macro economy:
 - Increase exports of leather, wool and cashmere industry from US\$507.8 million to US\$817.8 million.
 - Increase jobs in the industry by 13,000 – 14,280 jobs in the industry in 2024.
 - Increase production from 375.5 billion tugriks to 940.3 billion tugriks.

“Atar-4” Sustainable Agriculture Development Campaign

The aim of the “Atar-4” Campaign (Government Decree No. 47 of 2025) is to create an efficient combination of agriculture and livestock by introducing advanced cultivation technologies, developing new and profitable crops suitable for soil and climatic characteristics, increasing feed production and developing food and agriculture as a key economic sector. The Campaign will last until 2028 within the framework of the Government Action Programme for the period 2024–2028. It will lead to tangible economic growth aimed at making full use of the available resources of the agricultural sector, increasing the competitiveness of the production of cost-effective products, and ensuring a stable supply of food and raw materials to the population. The full implementation of the Campaign requires 120 billion tugriks of funding annually, and 52.8 billion tugriks have been allocated to the state budget in 2025.

Current status of industrial and technological parks

The 2009 Law on the Legal Status of Industrial and Technological Parks was revised in 2022 and regulates relations related to the establishment of industrial and technological parks, their management and the establishment of the legal basis for the organization of unit operations. Policies, including the 2020 Vision 2050 and 2021 New Revival Policy, include the goals of developing processing industries, including livestock-based raw material processing industries, in an environmentally friendly manner, improving the level of raw material processing, increasing the production and export of value-added products, and establishing an agricultural production and technological park along with a supply chain in stages. In this context, the List of production sectors, areas of activity, product types and park locations for light and food industry production and technology parks is being developed and approved by the Government. Light and food industry production and technology parks are planned to be established in the central region as the Central Region Food and Light Industry Production and Technology Complex in Darkhan-Uul *aimag*, in the western region as the New Khovd Industrial Park in Khovd *aimag*, in the capital as the Emeelt Eco Industrial Park, in the Gobi region as the Livestock Science, Technology and Production Eco Park in Govisumber *aimag*, and in the eastern region as the Eastern Region Production and Technology Park in Dornod *aimag*, and construction work is underway with the participation of the public and private sectors.⁶⁶¹

National Spatial Data Infrastructure

In 2004, the former General Department of Land Management, Geodesy and Cartography started the development of the National Spatial Data Infrastructure (NSDI). An NSDI is a framework of technologies, policies, standards and human resources that enables the efficient acquisition, processing, storage, distribution and utilization of geospatial data at a national level. It is expected to facilitate the management, sharing and use of geospatial. In this context, spatial data means above, below, water, air, or a specific space on the surface of the earth objects created by natural and human activity in space; a set of data that describes the position, boundaries and characteristics of a phenomenon. Spatial data infrastructure means the creation of spatial data, for the purpose of processing, preserving, protecting, distributing and using a wide range of policies and legislation to govern cooperation, standards, techniques, technology and human resources. Nevertheless, a geoportal is publicly accessible.⁶⁶² It includes 18 datasets.

Standards supporting the implementation of the NSDI were approved.⁶⁶³ The concept of the draft law on spatial data infrastructure was approved on 28 November 2018. The Strategy for Supporting Digital Transformation and Innovation in Mongolia with Spatial Data for the period 2020–2025 was adopted.⁶⁶⁴

As of June 2025, 13 laws governing the creation and use of spatial databases in Mongolia have clear regulations on 44 databases in duplicate, however, there is no legal regulation related to the coordination between the funds, the creation of an integrated data and information system for spatial representation, and the integration of spatial data. Therefore, each ministry, agency, organization and project unit has been building a spatial database /geographical database/ at different levels and in different ways. As of June 2025, the Law on National Spatial Data Infrastructure has not been approved, nor has the National Spatial Data Infrastructure been established.

⁶⁶¹ Mongolian Industrial and Technology Parks Association (n.d). Available at <https://mipa.mn/enlightindustrialpark>.

⁶⁶² <https://nsdi.gov.mn/>.

⁶⁶³ ALAMGC (n.d).

⁶⁶⁴ Ministry of Construction and Urban Development (2019).

Standards and guidelines are used for soil protection and rehabilitation

The following standards and guidelines are used for soil protection and rehabilitation:

- MNS 5918:2023 – Environment: Vegetation of Degraded Land – General technical requirements
- MNS 5917:2008 – Environment: Rehabilitation of Land Damaged by Mining Activities – General technical requirements
- MNS 5916:2008 – Environment: Fertile Soil Removal and Storage during Earthworks
- MNS 5915:2008 – Environment: Classification by Mining Activity
- MNS 5914:2008 – Environment: Restoration of Degraded Land – Terms and Definitions
- Land Management Monitoring Guidelines (2012)
- Regulatory Document: “Soil Economic-Ecological Assessment” (2010).

Projects to support land rehabilitation

Through the Vegetable Production and Irrigated Agriculture Project,⁶⁶⁵ the Ministry of Food, Agriculture and Light Industry has launched a programme to support small vegetable producers with assistance from ADB. The programme offers growers access to low-interest loans and incentives for using fertilizers. The project’s objective is to expand irrigated land to 120,000 hectares by 2030, by rehabilitating five irrigation schemes in the following locations: Khongor and Orkhon *soums* in Darkhan-Uul *aimag*, Mandal *soum* in Selenge *aimag*, Ulaangom *soum* in Uvs *aimag* and Kherlen *soum* in Dornod *aimag*. The five projects approved in 2023 are currently undergoing an Environmental Impact Assessment process.

The Sustainable Resilient Ecosystem and Agricultural Management in Mongolia Project (2021–2024), financed by the EU (€4,550,000), aims to enhance agricultural landscape management to boost productivity and promote agro-ecological and sustainable forest management practices.⁶⁶⁶ It is being implemented in three *soums* of Selenge *aimag* and three *soums* of Khentii *aimag*. The project includes improving livestock health and feeding for 51,000 sheep and goats, planting 71 hectares of windbreaks, establishing a model forest (100 hectares) and cultivating 16,000 nursery trees.

The Promoting Dryland Sustainable Landscapes and Biodiversity Conservation in the Eastern Steppe of Mongolia project, co-financed by WWF-US (US\$247,707) and FAO (US\$240,957), aims to reverse and prevent dryland ecosystem degradation and biodiversity loss.⁶⁶⁷ In 2023, the project established sustainable wool and cashmere production processed locally and promoted eco-friendly businesses through semi-intensive cattle farming. It also encouraged no-tillage farming, fencing and the cultivation of drought-resistant wheat among young farmers (covering 3,475 hectares) and supported the production of fodder. Additionally, 59,000 willow seedlings were planted to protect the riparian forests along the Kherlen River. The project worked on improving *soum* management plans by resting 84,000 hectares of pasture and promoting sustainable usage of 2,055,795 hectares, alongside enhanced field monitoring.

The Ulaanbaatar Green Affordable Housing Project (US\$20 million loan signed in June 2023) is co-financed by a €4.6 million capital grant from GCF and is expected to finance the design and construction of up to 712 low-carbon and climate-resilient housing units and associated infrastructure on a vacant four-hectare plot of land in Songinokhairkhan district of Ulaanbaatar. Buildings will be designed and built to achieve compliance with an internationally recognized green building scheme and will be 20 per cent more efficient than national standards. Construction works are expected to start in 2025.

The Managing Soil Pollution in Ger Areas through Improved On-site Sanitation Project⁶⁶⁸ financed by the Japan Fund for Prosperous and Resilient Asia and the Pacific (US\$2.80 million) aimed to improve sanitation by enhancing household waste management, composting and promoting on-site (decentralized) sanitation systems. The project served as a model for broader adoption, complementing infrastructure in urban areas. Piloting ecological sanitation systems, like urine diversion and composting, can provide sustainable, cost-effective solutions while creating income opportunities. This approach can reduce the environmental impact of pit latrines and promote better hygiene.

Projects aimed at introducing sustainable land management with international funding focus on the steppe areas at the northern edge of the Gobi Desert and the Altai region. Notable domestic and foreign-funded projects include the Green

⁶⁶⁵ ADB (2018a).

⁶⁶⁶ Ministry of Environment and Tourism (2024).

⁶⁶⁷ WWF-US, FAO (n.d.).

⁶⁶⁸ ADB (n.d. a).

Wall (2007–2026), the Desertification Mitigation Project (2007–2012) and the Sustainable Landscape and Biodiversity Conservation of Eastern Mongolian Drylands (2021–2026). Recommendation 12.3 (b) of the First EPR of Mongolia on building capacity and benefiting from learning and transfer of advanced knowledge and practical technologies of sustainable land management is implemented and ongoing.

14.6 ASSESSMENT AND RECOMMENDATIONS

Assessment

As of October 2024, land use planning is neither properly organized nor effectively implemented, despite existing legislative provisions. This has resulted in poor coordination between transport, housing and other activities. However, there is potential and ample space to create neighbourhoods with well-organized public transport, green spaces and essential services, while respecting the wish of some Mongolians to continue living in *gers*. *Ger* inhabitants consume significantly less water than modern households living in apartments with running water, which benefits the environment and helps conserve scarce water resources.

The agriculture sector has the capacity to ensure self-sufficiency, at least for basic foodstuffs, which should be available at affordable prices for all consumers. The sector also holds significant potential for growth and livelihood opportunities. However, yields are low and sustainable agriculture practices are not applied. Despite the guidelines set out in the Law on Crop Production and governmental programmes, crop farms, intensive livestock companies and herders operate separately, with no integration or exchange between these types of farming. The integration of livestock and crop farming remains limited. Cattle herders and crop farmers function as separate entities and lack practical cooperation. Animals often graze freely on crop fields after harvesting, sometimes without the consent of the land users. Additionally, large cattle companies typically dispose of their manure in landfills rather than providing it to crop farmers. Animal dung is not used as a valuable organic fertilizer that promotes soil activity, enhances soil fertility and increases organic matter.

Coherence between the activities of the Ministry of Food, Agriculture and Light Industry and those promoted by the Ministry of Environment and Climate Change is limited. Local demonstration farms have not been established where animals graze pasture and are also barn-fed with farm crops. Barn feeding is an alternative to grazing that allows pastures to recover. Diversification of crop rotation and the introduction of forage crops with legumes are not demonstrated. Farming areas can be redesigned, and windbreaks can be planted.

Overgrazing is a critical and urgent environmental issue, with pastures rapidly degrading due to excessive livestock numbers. If not managed, in the long term the entire country faces the risk of becoming a barren, windswept desert. Traditional livestock farming, which relies on the movement of herds to sustainably managed pasture resources, will no longer be feasible or will be restricted. The key challenge is the lack of legal accountability for herders regarding the condition of the pastures they use. Traditional, community-based practices are not integrated with modern rangeland management techniques and new technologies. Many herders are now elderly, and young generations are moving to urban areas. Younger herders already tend to adapt livestock to the pasture, rather than selecting the appropriate pasture for their livestock. Herders have also limited access to healthcare, ICT and education compared to what is available in urban areas.

Based on experience, enacting a law on pastures takes time. Alternative measures have not been implemented to encourage sustainable pastoral practices such as high taxes on certain animal types, public auctions and show markets with neutral taxation overseen by an inspector from the Ministry of Food, Agriculture and Light Industry, in *soums* and *aimags*. The earmarking of all animals to track herd movement and livestock load on pastures is not mandatory (“digital agriculture”). Applicants for agricultural or pastureland use permits do not receive training in sound farming practices, nor ongoing re-training as necessary. No herder can use pastureland without compulsory training. Senior herders could receive social allowances on the condition that they do not resume goat breeding.

The mining industry is expected to continue developing, playing a major role in the country’s GDP and exports. However, this development is not compatible with the country’s fragile ecosystem, nor with the preservation of grazing grounds, which are the foundation of livestock farming. Mining activities and the opening of new mines are a concern not only for the affected herders but also for the wider population. Mining impacts landscape, soil, water and local communities. Effective measures include early monitoring of air, soil and water quality, proper treatment of displaced soil layers and systematic reclamation efforts. Providing comprehensive information to the affected communities and the broader Mongolian population about mining activities and soil pollution monitoring results can help alleviate concerns. Grazing

and certain crops are not forbidden in areas where soil pollutant levels exceed established standards. Monitoring of mining activities and industrial hotspots is not regularly implemented to enable appropriate measures to be taken.

Urban transport issues, particularly in Ulaanbaatar, remain unaddressed. Coordination between transport planning and the development of new urban areas is ineffective. Public transport routes, modes and stops are not clearly defined in building permits. Real estate developers do not contribute financially to the construction of transport infrastructure for their projects. Modern buildings provide urban amenities, such as running water and sewage disposal, to meet the needs of the growing population. Some *ger* residents may prefer to continue living in a *ger*. In case they must be relocated due to real estate developments, they are not given the option to retain their traditional way of living in an upgraded *ger*.

The Law on Land has undergone continuous modifications to adapt to rapidly evolving land use patterns. The responsibilities of users, possessors and owners are not defined with guarantees of long-term use. Authorities are not implementing measures to protect soil and vegetation. Land users do not benefit from measures protecting them and the population from harmful effects of soil pollution. The status of permanently protected areas and those that may be modified based on decisions taken in the *soum* management plan, has not been clarified.

Recommendations

Cattle and crop integration

Recommendation 14.1:

The Ministry of Food, Agriculture and Light Industry should:

- (a) *Promote the integration of crop farming and animal husbandry by establishing integrated model farms;*
- (b) *Propose an amendment to the Law on Crop Production to require larger livestock companies to spread animal dung on farmland.*

Ensuring policy coherence

Recommendation 14.2:

The Ministry of Food, Agriculture and Light Industry, in cooperation with the Ministry of Environment and Climate Change, should establish rules ensuring that any support, service or subsidy is distributed only if environmental requirements for agricultural practices are met.

Recommendation 14.3:

The Government should implement land management action plans at the aimag level to protect lands from deterioration and improper use, combat degradation processes and reclaim damaged lands, while also considering the provision of economic benefits to land users and specifying sources of financing.

Sustainable pasture management

Recommendation 14.4:

The Government should:

- (a) *Strengthen the legal framework on pastures management to balance socioeconomic and ecological aspects;*
- (b) *Develop a nationwide long-term research programme concerning the ecology of rangeland, with the objective to monitor the state and changes in grassland ecosystems and provide updated information, and mobilize adequate resources for its implementation;*
- (c) *Support research centres to develop science-based proposals to prevent the degradation of pastures and other lands, including utilizing new drought-tolerant and salt-tolerant plant species on pastures, while also considering the anticipated effects of climate change;*
- (d) *Establish compulsory training on sustainable pasture management for all herders under the age of 35.*

Soil management

Recommendation 14.5:

The Government should develop a law to protect soil quality.

Recommendation 14.6:

The Ministry of Environment and Climate Change should:

- (a) Increase the capacity of the National Agency for Meteorology and Environmental Monitoring to extend soil analyses in mining regions and around polluting industries;*
- (b) Provide a legal basis to specify the permitted uses of polluted soil and rehabilitation possibilities.*

Urban planning

Recommendation 14.7:

The Government should ensure the planning, implementation and financing of public transportation for new building areas.

Law on Land

Recommendation 14.8:

The Government should amend the Law on Land to:

- (a) Include long-term leases for herders and pasture user groups;*
- (b) Classify pastures in need of recovery as land for special needs;*
- (c) Classify polluted areas with a grazing ban as land for special needs;*
- (d) Classify the best crop land as land for special needs.*

National spatial data infrastructure

Recommendation 14.9:

The Government should:

- (a) Approve the Law on the National Spatial Data Infrastructure;*
- (b) Establish the national spatial data infrastructure.*

CHAPTER 15

DZUD MANAGEMENT

15.1 SITUATION OVERVIEW

The 2015 Government Resolution No. 286 introduced an official definition of *Dzud* as follows “A *dzud* condition is characterized by deterioration of the weather conditions in winter and spring leading to shortage of pasture and water for livestock, suffering massive die-off. By its intensity, *dzud* is categorized as a *dzud* situation and near-*dzud* situation.”⁶⁶⁹ *Dzud* manifests in various ways, each influenced by specific environmental conditions. The term *dzud* is often associated with the word *zutrah* in Mongolian language, which has a meaning like “deterioration of life condition by some reason, mostly due to external factors, while not excluding a self-inducing reason like, own mismanagement dealing with emerging challenges and lack of preparedness.”

Dzud refers to a severe climatic phenomenon in Mongolia characterized by a combination of harsh winter conditions, including deep snow, extreme cold and limited access to pasture, which leads to massive livestock mortality. *Dzud* events are highly influenced by both seasonal and geographical factors, and their occurrence is often linked to pre-existing drought conditions in the summer, which weaken livestock and degrade pasture, making animals more vulnerable to winter extremes. *Dzud* occurrence is influenced by climate variability, including temperature fluctuations, precipitation levels and snow depth. *Dzud* predominantly affects rural and semi-arid regions of Mongolia. *Dzud* usually occurs during the winter months, from November to March, with some variations depending on local conditions

Occurrence of *dzud* conditions is estimated by *soums*, based on meteorological data, *dzud* is classified as a “*dzud* condition” and a “near *dzud* condition” according to depth and density of snow and as well as the cold temperature within the area. *Dzud* conditions occur when snow density is higher than 0.25 g/cm³ in any area; weather temperature is 3°C or colder than the multi-year average; average snow depth is 25 cm or more in mountain or forest-steppe zone, or 22 cm or more in the steppe zone, or 12 cm or more in the desert area. Within the *dzud* condition, it is classified into different categories of *dzud*. Near *dzud* conditions occur when snow density is between 0.20–0.24 g/cm³ in any area; average snow depth is 16 cm or more in the mountain or forest-steppe zone, or 11 cm or more in the steppe zone, or 5 cm or more in the desert area. Near *dzud* condition has two classifications, including near white *dzud* condition and near black *dzud* condition. NAMEM plays a crucial role in publishing *dzud* and near *dzud* conditions for all stakeholders.

White *Dzud* (*Tsagaan Dzud*) occurs when heavy snowfall covers the pasture, making it difficult or impossible for animals to graze. A less severe form, known as White Semi-*Dzud*, presents similar challenges but under less extreme conditions. For this type, pasture snow density ranges between 0.20 to 0.24 g/cm³ across all natural zones. Snow depth is another crucial factor: in high mountain and forest steppe areas, it must exceed 16 cm; in steppe zones, more than 11 cm; and in the Gobi Desert region, over 5 cm. Another form, Black *Dzud* (*Khar Dzud*), takes place when there is little or no snowfall, but extreme cold causes the ground to freeze, and the cold weather prevents livestock from accessing pasture. Iron *Dzud* (*Tumur Dzud*) occurs when snow or ice hardens on the ground, forming a solid, impenetrable layer that blocks animals from grazing. Storm *Dzud* results from severe winter storms, which disorient animals, causing them to get lost or trapped in deep snow, often leading to significant livestock losses. Drought-related *Dzud* is linked to insufficient pasture and hay reserves due to summer drought, which leaves animals vulnerable to winter conditions due to inadequate fattening and lack of the grazing resources.⁶⁷⁰ These criteria guide the Government to assess *dzud* severity, allowing for timely disaster response and support for herders and their livestock.

Drought and *dzud* are long lasting climate events that cause high damage to the social life and economic sectors of the country. Extensive research has been conducted on both phenomena, with various researchers establishing specific criteria for defining drought and *dzud* within their study frameworks.

Dzuds are among the most destructive hazards in Mongolia, leading to both direct and indirect human losses. While the immediate death toll from *dzuds* is often relatively low, these events severely affect herders and rural populations by killing livestock, which leads to economic hardship, food insecurity and, in some cases, displacement. In severe *dzuds*, affected persons can number in the hundreds of thousands, though fatalities and missing persons are generally fewer due to strong community networks and early warning systems.

⁶⁶⁹ United Nations Mongolia (2016).

⁶⁷⁰ Leary (2012).

Rural infrastructure, including roads, power lines and communication systems, has also been severely damaged by *dzuds* and droughts, making it difficult for remote communities to access emergency assistance and support. Disruptions to essential services are also common. Extreme weather often causes power outages in both rural and urban areas, impacting heating and electricity supplies during harsh winters. Healthcare services, particularly in rural regions, are also challenged, as disasters prevent medical personnel from reaching those in need and delay the delivery of crucial medical supplies. Additionally, schools are frequently affected by infrastructure damage and closures due to severe weather, further disrupting daily life in affected regions.

During these years, Mongolia experienced significant damage from natural disasters caused by *Dzud*, and the extent of this damage is reflected in the following reports. The World Bank estimated that the 1999–2002 series of *dzud* years resulted in the loss of 413.8 billion tugriks to the economy (US\$369 million). Past *dzuds* have demonstrated the negative correlation between livestock losses and agricultural GDP and have resulted in significant movement of herder populations from rural to urban areas in search of alternative livelihoods.⁶⁷¹

The economic losses from the *dzud* of 2009–2010 alone reached 4 per cent of the yearly GDP, and from the total losses that occurred between 1996–2013, almost 40 per cent was caused by said event. The *dzud* also affected 220,000 households in fifteen *aimags* and resulted in a monetary loss of US\$ 192 million.⁶⁷²

The leading climate change researchers have determined the *dzud* index considering the weather conditions of the summer and winter seasons. This study used the *dzud* index to assess the long-term changes.⁶⁷³ A new *dzud* index is also being developed. The *Dzud* Index is a scientific indicator, designed by Mongolian scholars, based on past or historical data, using some approaches suggested by researchers from other countries. While broadly in use, governmental agencies working in the field develop another measurement system as the current one is not enough for practical livestock management issues.

Figure 15.1 presents the long-term changes in the *dzud* index and livestock mortality. Since 2000, frequent *dzud* events have been closely linked to preceding drought conditions. Livestock mortality, a key indicator of *dzud* severity, reflects this relationship. During the severe *dzud* of 1943–1944, approximately 30 per cent of livestock perished. In more recent *dzud* events, around 10 per cent to 15 per cent of livestock were lost between 2000 and 2003, while 23 per cent were lost during the 2009–2010 *dzud*. Based on the study, the frequency of both *dzud* and drought events is likely to increase, posing ongoing threats to the sustainability of pastoralism. The *dzud* risk index will be calculated for the period 2030–2050.⁶⁷⁴

Historical records of drought and *dzud* frequencies from 1740 to 1940, as documented in 1988, show that drought occurred in 72 years and *dzud* in 110 years.⁶⁷⁵

Photo 15.1: Rein deer in northern Mongolia



Photo credit: katiekk2/stock.adobe.com.

⁶⁷¹ Fernandez-Gimenez (2012).

⁶⁷² Benson (2011).

⁶⁷³ Natsagdorj (2024).

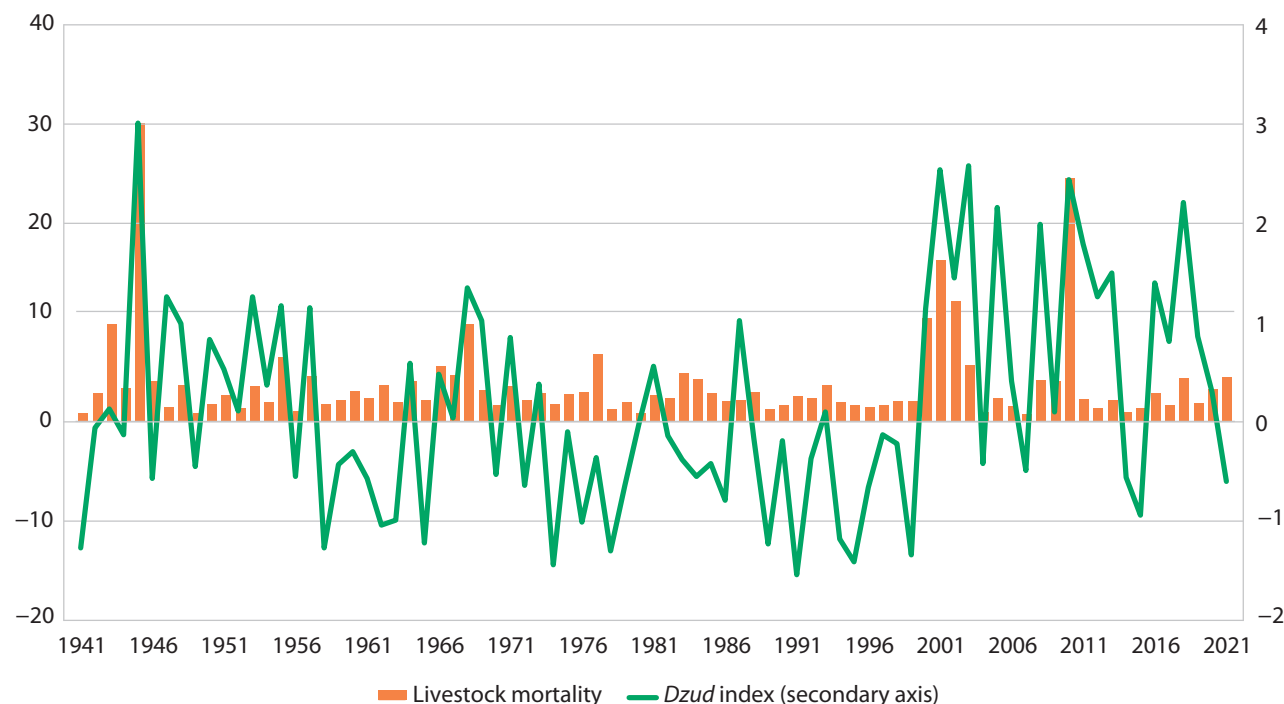
⁶⁷⁴ Ooluun (2024a).

⁶⁷⁵ Mongolia (2024).

Impact on livestock and attributed social consequences

Table 15.1 provides the historical occurrences of *dzud* in Mongolia from 1944 to 2024, revealing that over the past 80 years, *dzuds* have caused the death of 60 million livestock. During the 1944–1998, Mongolia experienced eight *dzuds*, devastating natural disasters that occur during harsh winters. On average, about three million animals die in each *dzud*. However, the Great *Dzud* of 1944 was particularly catastrophic, resulting in the death of 8.1 million animals or 33.2 per cent of all herd animals in Mongolia.

Figure 15.1: Interannual variations of *dzud* index and livestock mortality, 1941–2021



Source: Natsagdorj (2024).

Table 15.1: Historical occurrence *dzud* in Mongolia

Year/period	Type	Affected aimags and soums	Livestock mortality (million)	Livestock mortality (per cent of national total)
1944–1945	Drought, <i>dzud</i>	9 aimags	8.10	33.2
1954–1955	<i>Dzud</i>	9 aimags	1.90	8.2
1956–1957	<i>Dzud</i>	11 aimags	1.50	6.2
1967–1968	<i>Dzud</i>	13 aimags	7.80	11.9
1976–1977	<i>Dzud</i>	116 soums of 15 aimags	1.70	8.6
1986–1987	<i>Dzud</i>	198 soums of 11 aimags	0.80	3.6
1993	<i>Dzud</i>	30 soums of 3 aimags	1.60	6.4
1996–1997	<i>Dzud</i>	69 soums of 11 aimags	0.60	2.1
1999–2000	<i>Dzud</i>	157 soums of 12 aimags	3.50	11.6
2000–2001	Drought, <i>dzud</i>	147 soums of 13 aimags	4.80	18.5
2001–2002	<i>Dzud</i>	114 soums of 13 aimags	2.90	12.2
2009–2010	Drought, <i>dzud</i>	95 soums of 17 aimags	9.70	22.2
2015–2016	<i>Dzud</i>	65 soums of 15 aimags	1.02	2.9
2018	Drought, <i>dzud</i>	143 soums of 20 aimags	2.60	4.0
2019–2020	<i>Dzud</i>	About 50 per cent of the territory (9 aimags)	2.00	2.9
2021	<i>Dzud</i>	About 60 per cent of the territory	3.00	4.5
2023–2024	<i>Dzud</i>	About 90 per cent of the territory (321 soums of 21 aimags)	8.10	12.5

Source: National Agency for Meteorology and Environmental Monitoring, 2024.

Twelve years later, in 1956, once again in the year of the Monkey, 1.5 million animals perished. The *dzud* of 1968, also in the year of the Monkey, lasted 165 days and claimed 2.7 million livestock. Since then, the year of Monkey has remained in the memory of people as the more *dzud* prone year. While several *dzuds* occurred between 1970 and 1990, particularly, centralized planning archival records show that better winter preparations, such as stockpiling hay and fodder and fattening animals during the summer and fall, through pasturing of animals, like *otor*,⁶⁷⁶ helped mitigate the negative effects.

During the socio-economy transition period, since 1990, the rapid increase in the number of livestock and limited carrying capacity of pasture, lead to an increase of *dzud* risk with devastating consequences.

The 1999–2000 *dzud* affected 157 *soums* across 12 *aimags* and, the following year, 147 *soums* in 13 *aimags* were hit by another *dzud*.⁶⁷⁷ In 2001–2002, 114 *soums* in 13 *aimags* were again affected, marking three consecutive years of devastating *dzuds*. These back-to-back disasters resulted in the death of 11 million livestock, or 25 per cent of the herd. Over 2,300 herder households lost all their livestock, while more than 10,000 households were left with fewer than 100 animals. After three years of consecutive *dzuds*, Mongolia's national gross agricultural output had decreased by 40 per cent by 2003 compared to 1999. The living standards of herder households deteriorated significantly, as poverty and unemployment surged in rural areas.

The 2009–2010 *dzud* resulted in the loss of 9.7 million livestock, which accounted for 22.2 per cent of the country's total herd. The losses were estimated at 527 billion tugriks. The disaster affected 220,000 herder households, with 44,000 families losing their entire livestock and 164,000 households suffering the loss of more than half of their animals, according to the Red Cross Red Crescent Movement assessment.

The cyclical nature of the country's four distinct seasons has been significantly disrupted, particularly since 2015, leading to a rise in recurrent summer droughts and subsequent harsh winters. Though the summer of 2023 was initially favourable with abundant rainfall, the months that followed saw the abrupt onset of a severe temperature drop, substantial snowfall in early November, and an unusually rapid temperature rise, causing a snow thaw. Subsequently, an extended period of extreme cold, dipping below -40°C, persisted through the second half of December. These combined factors have made winter 2023–2024 particularly challenging for a significant part of the country. As of 20 December 2023, the Government reports that approximately 90 per cent of the territory, including 21 *aimags* excluding Ulaanbaatar city, or 321 out of 339 *soums* (districts), are categorized as facing a high or extreme *dzud* risk. Within the *dzud* conditions, 47 *soums* in 14 *aimags* are under ice or icy conditions, while 135 *soums* in 17 *aimags* are under the White *Dzud* conditions. The alarming rapid temperature fluctuations and heavy snowfall in November 2023 were already a warning signal that the winter conditions are deteriorating.

As of July 2024, a total of 8.1 million livestock, or 12.5 per cent of the total livestock population, have perished due to the harsh conditions of the 2023–2024 *dzud*. Nearly 5,000 herder households have lost over 70 per cent of their livestock, significantly affecting their livelihoods, as approximately one-third of Mongolia's population relies on herding for income.

Dzud has a severe impact on Mongolia's livestock population, causing large-scale animal deaths due to starvation, cold stress and the unavailability of pasture. These losses significantly affect household income, food security and the rural economy. Animals weakened by drought in previous summers are particularly vulnerable, worsening the effects of *dzud*.

The consequences include massive livestock deaths, as animals are unable to access pasture under snow, leading to malnutrition and freezing. Surviving livestock often suffer reduced productivity, impacting milk, wool and meat production, which in turn affects herders' incomes. The economic strain on herders can push families into poverty, as many rely entirely on livestock for their livelihoods. Additionally, *dzuds* contribute to selected overgrazing and land degradation, which can lead to long-term desertification. Severe *dzuds* may also force herders to migrate to urban areas, increasing urban poverty and straining city infrastructure.

In 1999–2000, 2000–2001 and 2001–2002, Mongolia was hit by three *dzuds* in a row, in which 3.5 million heads (10 per cent of the total), 4.8 million heads (16 per cent), 2.9 million heads (11 per cent) animals were lost, respectively. The next harsh winter had happened in 2009–2010 and during this *dzud* over 10.3 million heads was lost and it caused a 26 per cent decrease from previous year's total (see Figure 15.2).

The results of the Livestock Census for 2024, a total of 57.6 million heads of livestock were counted, of which 4.7 million horses, 5.1 million cattle, 480,600 camels, 24.5 million sheep and 22.9 million goats. Compared to the previous year, the total number of livestock decreased by 7.0 million (10.9 per cent), of which the number of sheep decreased by 4.9 million (16.7 per cent), goats by 1.7 million (6.9 per cent), cattle by 276,200 (5.2 per cent) and horses by 146,500 (3.0 per cent),

⁶⁷⁶ A traditional herding mobility strategy.

⁶⁷⁷ Batjargal (2000).

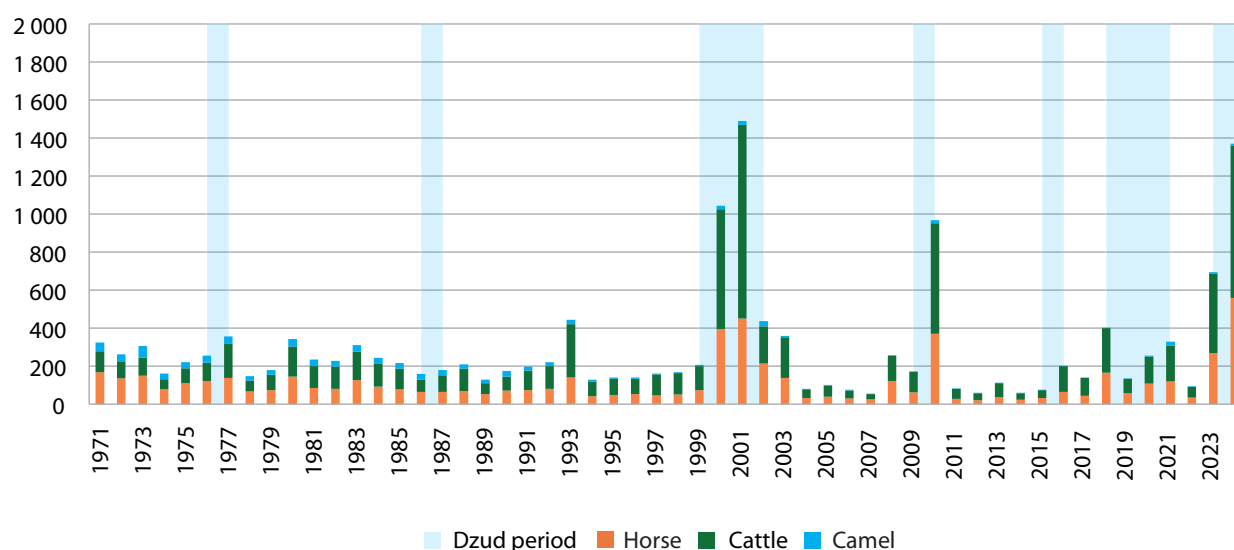
whereas camels increased by 6,700 (1.4 per cent). Out of the total livestock counted at the beginning of the year, 9.4 million heads (14.5 per cent) of adult livestock were lost due to untimely causes, from which 33,100 (0.4 per cent) lost due to diseases. An analysis of losses of adult animals by livestock type reveals that there were losses of respectively 5.0 million heads of sheep, 3.0 million heads of goats, 800,100 heads of cattle, 558,900 heads of horses and 11,200 heads of camels. In terms of livestock type of the total losses, 53.8 per cent were sheep while 31.6 per cent were goats.

According to the NSO, the number of livestock loss reached 8.1 million heads or 12.5 per cent at the national level in the first half of 2024. The *dzud* presents significant challenges for livestock, despite herder households' traditional winter preparations. The main issue is the reliance on pasture and the rapidly depleting reserves of hay and concentrated fodder, which are typically stored for emergency feeding. These reserves, meant for vulnerable livestock like weak yearlings and pregnant animals, usually last 30 to 45 days, but heavy snow and ice have made pastures inaccessible, hastening their exhaustion.

The situation is expected to deteriorate further between February and April, during the late stages of pregnancy and birthing season for small ruminants and cows, when the demand for feed intensifies. Prolonged housing of animals on inadequate bedding increases the risk of infestations like scabies. Moreover, livestock grazing on snow-covered pastures often sustain injuries from digging through ice, leading to rapid weight loss, weakened immunity and higher mortality rates.

Despite these challenges, high-quality feeds rich in protein, vitamins and minerals, as well as treatments for depleted animals and control of external parasites, to reduce the impacts of *dzud* on livestock health and survival are either lacking or limited. Although these issues are reflected in relevant action plans, they are not adequately addressed on every occasion mostly because of financial constraints.

Figure 15.2: Adult animal losses, 1971–2024, 1,000 heads



Source: NSO, 2024.

Note: 2024 until June.

Impact on human, including gender

A 2023 study by FAO on resilience capacity analysis of Mongolian herder households found that single-parent headed households were 24.7 per cent and female headed single-parent herder households were 8.6 per cent, and households with a disabled family member were 10.62 per cent.⁶⁷⁸ According to the same study, male-headed households are more resilient than female-headed households. While overall, female-headed households have better access to essential services, they have significantly fewer agricultural tools, non-productive durables, numbers of livestock as well as sources of income compared to male-headed households. They also face more difficulties in getting loans or finding family supports if needed and have lower levels of education. Despite legal provisions declaring equal rights to inheritance and property, disparities exist in women's access to assets in Mongolia. Of particular concern in the *dzud* response, men are twice as likely to be documented as livestock owners than women (33 per cent men versus 18 per cent women), potentially impacting their access to Government insurance schemes.⁶⁷⁹

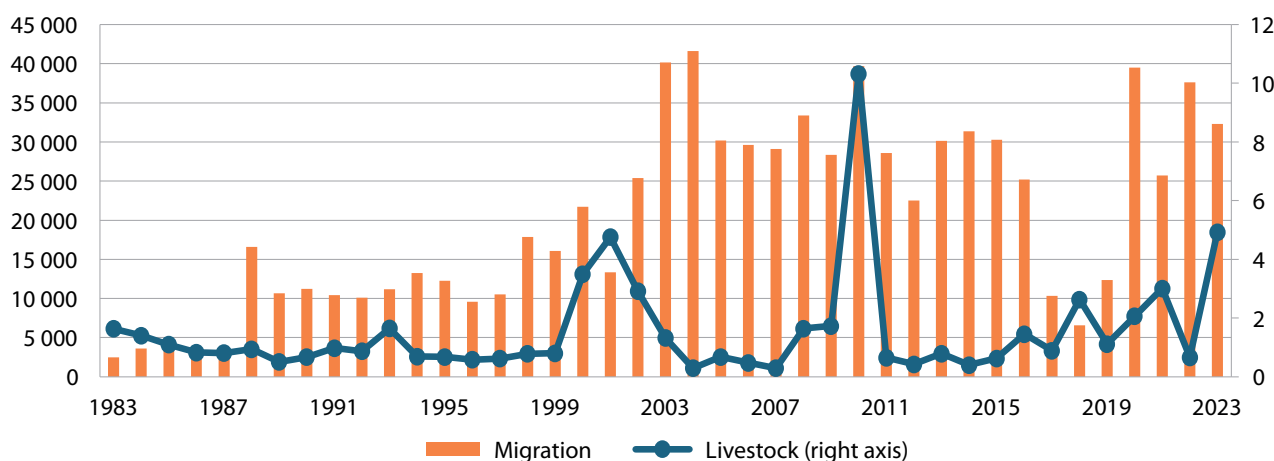
⁶⁷⁸ FAO (2023). United Nations Mongolia (2024).

⁶⁷⁹ Ibid.

Mongolia is making an adequate effort to address these local community related challenges, while being engaged in international gender related activities to have an appropriate synergy from different scope of undertakings.

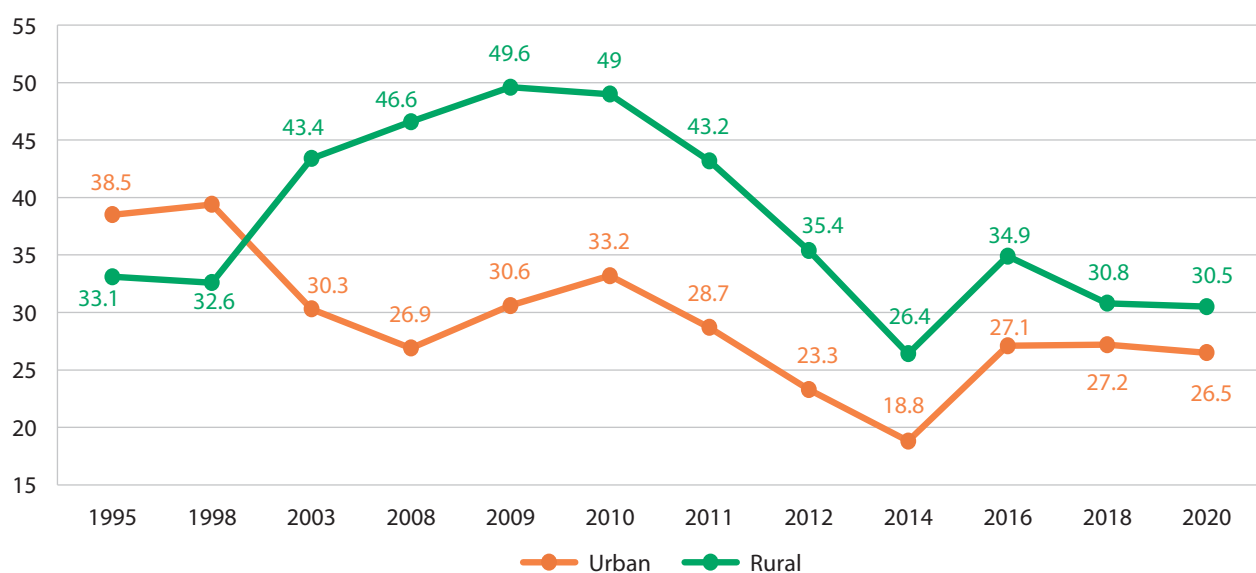
The *dzuds* of 2000–2002 led to significant migration as herders, having lost their livestock, moved to cities, especially Ulaanbaatar, where the number of migrants surged to 40,000–60,000 in 2003–2004. Similarly, the 2009–2010 *dzud*, which resulted in the largest recorded livestock loss, also drove increased migration to urban areas (see Figure 15.3). These disasters have not only devastated herder livelihoods but have also increased unemployment and poverty in rural regions, with poverty rates rising sharply to 43.4 per cent in 2003 and 49.6 per cent in 2009 (see Figure 15.4).⁶⁸⁰

Figure 15.3: People who migrated to Ulaanbaatar city (persons) and livestock deaths (million heads), 1983–2023



Source: NSO, 2024.

Figure 15.4: Interannual variation of poverty



Source: NSO, 2024.

⁶⁸⁰ Mongolia (2024).

The World Women Forum held in Mongolia in 2024 gathered women leaders globally to address gender equality, sustainable development and cooperation. A key outcome was the adoption of the Ulaanbaatar Declaration, calling for stronger global commitments to gender equality, women's empowerment and collaboration on challenges like climate change and poverty.⁶⁸¹ The declaration emphasized women's leadership in driving sustainable solutions and urged partnerships among governments, civil society and organizations to accelerate progress on the 17 SDGs. The Forum marked a significant step in advancing women's leadership for a sustainable future, which is expected to lead to improvement of gender issues attributed for instance to DRR, including *dzud* events in Mongolia.

During the 2009–2010 *dzud*, 8,576 herder households lost all their animals, and 32,756 herder households lost half of their animals. After the *dzud*, about 1,400 herders who were deprived of their livelihood source migrated to urban areas.⁶⁸²

In 2022, in rural regions the poverty rate increased to 35.6 per cent from 30.5 per cent in 2020, according to a Household Socio-Economic Survey conducted by the NSO and the World Bank.⁶⁸³ The survey revealed that the poverty threshold for an average adult in Mongolia was 418,090 tugriks per month. It also reported that 914,200 citizens were living below this poverty line.

Gender

Dzud events also have a gender relevant angle. They have profound and disproportionate impact on women and men, exacerbating existing vulnerabilities. Women-headed households, which account for 8.6 per cent of all herder households, are at risk. These households tend to have fewer resources and smaller herd sizes, limiting their ability to prepare for and recover from severe winters. Moreover, they often face significant challenges in accessing mutual aid networks, which are vital for resilience during *dzud* periods.⁶⁸⁴ Single-parent female-headed households are vulnerable due to limited social welfare benefits and their reliance on livestock as a primary source of survival. This reliance magnifies the economic stress faced by these families during extreme weather events.⁶⁸⁵ However, men tend to face physical risks more related to livestock and disaster mortality for men is the highest.⁶⁸⁶

The *dzud* crisis also reinforces traditional gender roles, with women disproportionately shouldering the burden of caregiving responsibilities. While men focus on outdoor tasks such as *otor* (seasonal migration for grazing), women manage household chores, care for children and handle livestock near their homes.⁶⁸⁷ Compounding these issues, domestic violence rates have been reported to rise during *dzud* periods, driven by economic strain and heightened societal stress.⁶⁸⁸

The economic impact of *dzud* is similarly gendered; women's activities, such as producing dairy products, are directly affected by livestock losses, leading to reduced income and limiting their economic contributions to the household.⁶⁸⁹ Furthermore, women's participation in disaster preparedness and response decision-making is often restricted, exacerbating gender disparities during such crises.⁶⁹⁰

Impact on the environment and its linkage to social and economy issues

Dzuds have far-reaching and complex environmental impacts, profoundly affecting not only domestic livestock but also wildlife, biodiversity, land quality and water resources. One immediate effect is the temporary reduction in competition for resources in overgrazed areas, as livestock die off in large numbers. This may provide short-term relief for wild species that compete for the same food sources. However, this initial benefit is outweighed by the long-term consequences of *dzuds*.

The delicate balance within ecosystems is disturbed, and recovery can take years, especially for species that are already vulnerable.

⁶⁸¹ Sambuunyam (2024).

⁶⁸² Mongolian Society for Rangeland Management (2010).

⁶⁸³ World Bank (2024a).

⁶⁸⁴ Thrift (2015).

⁶⁸⁵ Kouassi-Komlan (2024).

⁶⁸⁶ Mongolia (2021).

⁶⁸⁷ Ahearn, (2018a).

⁶⁸⁸ Thrift (2015).

⁶⁸⁹ Ibid.

⁶⁹⁰ Kouassi-Komlan (2024a).

The recent *dzud* has severely impacted vulnerable wildlife like Mongolian gazelle (*Procapra gutturosa*), Goitered gazelle (*Gazella subgutturosa*) and Khulan (*Equus hemionus* ssp. *hemionus*). The Wildlife Conservation Society branch in Mongolia highlights the need for urgent monitoring and conservation efforts to protect ungulate populations, particularly as habitat fragmentation and limited resources during harsh winters pose significant threats to their survival (see Chapter 12). No multi-faceted approach addressing both *dzud* preparedness and habitat connectivity allowing for their long-term conservation is in place.

Land degradation is another critical consequence of *dzuds* (see Chapter 14). Prior to these extreme winters, overgrazing by livestock often leaves the land stripped of vegetation and highly vulnerable to erosion. When a *dzud* occurs, the already weakened soil structure becomes even more susceptible to degradation. The loss of vegetation accelerates desertification, severely compromising the land's ability to recover. This cycle of overgrazing and *dzud*-induced damage can lead to a continuous decline in land quality, making it increasingly difficult for ecosystems and human livelihoods to recover. The migration of livestock to limited grazing areas further intensifies pasture degradation.

The *dzuds* also have significant impacts on soil and vegetation dynamics, as well as desertification. For example, field voles have disappeared in areas affected by *dzuds*. However, in places where livestock numbers have drastically declined, pastures have been released from grazing pressures, offering opportunities for nature to regenerate. Despite this potential for recovery, the mass die-off of livestock creates additional challenges. The large number of livestock carcasses left behind often complicates disposal efforts, posing environmental and logistical difficulties.

Furthermore, the decomposition of thousands of animal carcasses during *dzuds* introduces risks of soil and water pollution. As carcasses break down, they release organic waste and pathogens into the environment, potentially contaminating water sources. Snowmelt can carry these pollutants into rivers, lakes and groundwater, exacerbating the problem. Improper disposal of dead animals further heightens the risk of disease transmission, impacting both wildlife and human populations that depend on these water resources. Although the decomposition of carcasses may temporarily enrich the soil with nutrients, this benefit is negligible compared to the extensive environmental damage caused by *dzuds*.

The combination of biodiversity loss, land degradation and water pollution creates significant long-term challenges for ecosystem recovery. Given the frequency and severity of *dzuds* in Mongolia, these impacts highlight the need to introduce sustainable land management practices and improved disaster preparedness to mitigate the effects of future *dzuds*.

Photo 15.2: Mongolian ger



Photo credit: Takashi/stock.adobe.com.

In response to these challenges, Mongolia conducted a national consultation on “A One Health Joint Plan of Action” in September 2024. The One Health Joint Plan of Action (2022–2026),⁶⁹¹ developed by the Quadripartite Alliance for One Health, including FAO, UNEP, WHO and the World Organization for Animal Health (WOAH), through a participatory process, provides a set of activities for addressing interconnected health risks affecting humans, animals, plants and the environment. It emphasizes the importance of tackling critical issues such as emerging zoonotic diseases, antimicrobial resistance, food and water safety, and the health of the environment. However, implementing this comprehensive approach faces numerous challenges, including inadequate cross-sector collaboration, insufficient integration of environmental considerations and limited resource availability. These barriers highlight the urgent need for stronger institutional frameworks and sustainable investments to advance One Health principles effectively. At the Mongolia One Health Joint Plan of Action Workshop held in September 2024, participants agreed that the most suitable multisectoral coordination mechanism on One Health needs to be identified, formalized and operationalized to strengthen the collaboration between relevant sectors operating at the human-animal-environment interface.⁶⁹²

15.2 GOVERNMENT RESPONSE EFFORTS

When *dzud* conditions intensify, the Government initiates emergency measures to support affected communities. NEMA oversees the response, coordinating with local authorities, military units and international organizations to deliver essential aid, such as food, fuel, fodder and veterinary services. Crisis centres are set up in severely impacted regions to manage the distribution of supplies. Search and rescue teams are also dispatched to assist herder families stranded by extreme weather, delivering critical supplies or evacuating them to safety.

The Government works closely with international organizations to secure financial and logistical support during *dzud* crises. Fodder reserves are released to affected herders, with supplementary fodder provided by aid agencies to prevent large-scale livestock losses. Humanitarian aid, including food and basic necessities, is directed toward the most vulnerable populations, such as herder families and the elderly. Mobile health teams are deployed to treat cold-related illnesses among herders, and psychosocial support is offered to help families manage the emotional toll of livestock losses and economic hardship.

In the post-*dzud* period, the Government has initiated various measures to recovery efforts focus on restocking livestock to help herders restore their economic stability. The Law on Mitigating the Negative Effects of Climate Change on Traditional Livestock Husbandry is designed to improve the resilience of the livestock sector to climate change. In 2024, to support the law, the New Cooperative-Wealthy Herder Programme (2024 Government Resolution No. 166) has been launched.⁶⁹³ This Programme focuses on strengthening local supply systems and promoting value-added agricultural manufacturing and livestock husbandry. The initiative is aimed at fostering a risk-resilient nomadic lifestyle by diversifying and stabilizing herders’ income sources. It offers coaching programmes and provides herder cooperatives with soft financing options at low interest rates, helping them improve their economic stability and adaptability in the face of climate-related challenges. These efforts work together to build a sustainable and resilient livestock industry while supporting the livelihoods of herder communities.

The 2024 Government Decision No. 173 on some measures for disposal of animal carcasses and animal disease prevention addresses the severe consequences of the devastating *dzud* that resulted in significant livestock deaths. The decision outlines essential actions to manage animal carcasses, aiming to prevent the spread of zoonotic diseases and environmental contamination as temperatures rise and snow melts. The decision includes organized burial and incineration of carcasses to prevent groundwater contamination and mitigate the risk of disease outbreaks. Veterinary teams are being deployed to ensure the safe handling and disposal of these remains, minimizing the spread of pathogens from decomposing animals. Provincial authorities have been directed to prepare for large-scale carcass removal operations, prioritizing environmentally safe methods to protect water sources and soil from contamination.

Dzud risk assessment and early warning

The *dzud* is a slow-onset disaster that is difficult to predict early. Currently, no country, no matter how technologically advanced, can produce highly accurate monthly forecasts, let alone seasonal prediction. Therefore, in Mongolia, assistance can typically only be mobilized after a disaster has struck, such as when a heavy snowfall has already blocked roads and mountain passes. As a result, hay and forage often reach affected households much later, and the benefit is frequently less

⁶⁹¹ FAO, UNEP, WHO and WOAH (2022).

⁶⁹² WOAH (2024).

⁶⁹³ Sambuunjam (2024), UNICEF (2024).

than anticipated. In such cases, local people describe this is a double loss, akin to “losing a camel plus a goat”. Consequently, the Government, national and international actors, and communities have limited capacity for proactive risk mitigation and are often forced into a reactive stance.

To improve disaster preparedness and increase the effectiveness of actions to overcome *dzud* and other high impact weather hazards in disaster prone areas of the country, the Government has decided to introduce impact-based forecasting (IBF) methodology and enhanced human capacity to shift from highly technical weather forecasting to forecasting that meets users’ needs.

The joint UNDP project, supported by GCF, addresses the *dzud* phenomenon by examining its associated natural hazards and related socioeconomic impacts. Specifically, the project has created *dzud* risk maps that identify the numbers of vulnerable herders and livestock in disaster-prone areas. These maps are disseminated to local decision-makers and herders to improve their preparedness. Furthermore, awareness of IBF has been promoted at the national level, and a recent National Conference on Meteorology and Environmental Monitoring officially endorsed the shift to the IBF methodology. However, for full effectiveness, these efforts must be supported by concrete response measures and guaranteed financing. Ultimately, the IBF methodology needs to be complimented by Forecast Based Finance (FBF) to ensure a comprehensive early action system.

This new methodology IBF/FBF was introduced to empower local governments and herders to cope with risky weather phenomena, which might occur during the harsh winter, dry spells, cold or heat waves, and severe storms. Its introduction has required the development of DRR manuals, facilitating cohesive coordination during crisis for an efficient use of it. The newly developed IBF maps on *dzud* were used in December 2023 and an early warning was issued to herders and local decision-makers to take immediate emergency actions. By the end of February 2024, Iron and White *dzuds* had occurred, covering almost the entire country.

The government officials, in charge of DRR issues, have recognized that without that timely warning, provided by NAMEM and NEMA, the actual loss of livestock and other damage could be much higher. NAMEM plays a crucial role in this respect, providing essential early warning through the *dzud* risk map to all stakeholders involved.

Dzud risk assessment involves evaluating the likelihood, potential impact and vulnerability of communities and ecosystems to *dzuds*. Since *dzuds* are complex events caused by a combination of climate, environmental and socioeconomic factors, risk assessments help identify areas at high risk and guide early action and response efforts in a timely and effective manner.

Dzud risk map

The NAMEM Information and Research Institute of Meteorology, Hydrology and Environment (IRIMHE), has developed a *dzud* risk map based on 11 parameters, using a combination of remote sensing data and ground observation data since 2015.⁶⁹⁴ Parameters, including snow cover, drought index, summer condition, anomalous precipitation and temperature, snow depth, air temperature forecast and precipitation forecast, pasture productivity, livestock numbers and pasture carrying capacity are considered in the process. Each parameter is weighted. The weight of each parameter is determined through multi-criteria decision analysis, and the weighted layers are then overlaid using a GIS. The *dzud* risk map categorizes risk into five levels: very high, high, normal, low and very low. Early action is triggered when three or more *aimags* have a very high-risk level over more than 20 per cent of their provincial area.⁶⁹⁵

The *dzud* risk map for the entire country is produced in November and presented to the Government Meeting, Parliament Standing Committee meeting on Food and Agriculture, and Special Committee meeting on Emergency Management. This information forms the basis of winter preparation works and *dzud* early warning management measures that have been implemented countrywide. The primary goal of *dzud* risk assessment is to prevent damage in high-risk areas.⁶⁹⁶ The main users of this risk assessment product are Government bodies and decision-making organizations. These maps are distributed directly to these bodies and made accessible through public communication channels to ensure the information reaches a wide audience. For herders and policymakers alike, the *dzud* risk map is an essential tool for planning and reducing vulnerability to this recurring natural hazard.

NAMEM provides the technical and scientific data needed for *dzud* forecasting and early warning systems. NAMEM works closely with NEMA to ensure that *dzud* early warning alerts reach herders and local authorities. It also collaborates with the Ministry of Food, Agriculture and Light Industry and the Ministry of Environment and Climate Change to align its

⁶⁹⁴ IRIMHE (2017).

⁶⁹⁵ IRIMHE (2017).

⁶⁹⁶ NAMEM (n.d.).

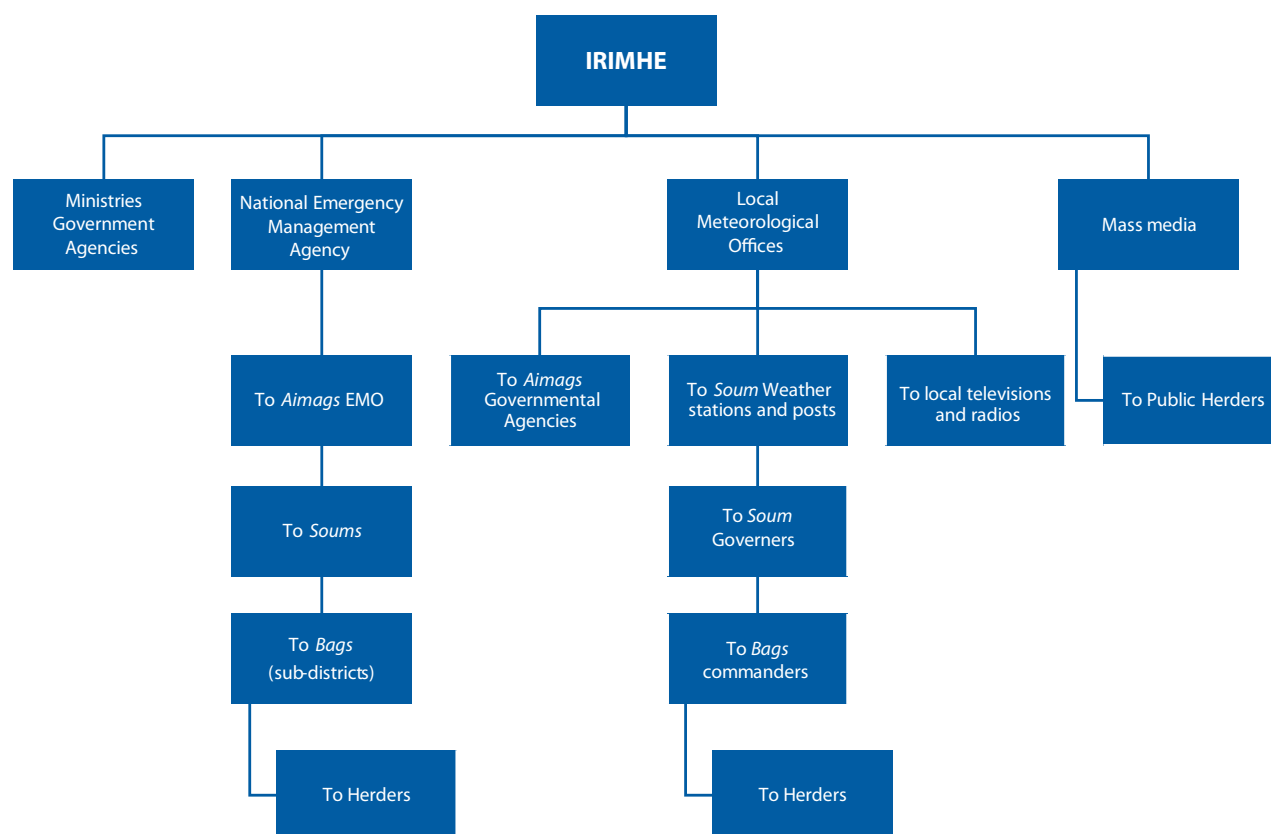
forecasts with the needs of livestock and environmental management. Figure 15.5 presents the flowchart of disseminating information.

Early warnings are communicated to herders through various channels, including SMS alerts, radio broadcasts, television announcements and community meetings. Information on impending *dzud* conditions, pasture quality and recommended preparedness actions is disseminated well before the winter season. Some regions also use mobile applications to distribute weather updates and *dzud* risk information, enabling herders to make informed decisions about livestock management.

In the winter of 2023–2024, the first *Dzud* Risk Map was released on 12 November 2023, followed by updated versions on 30 November and 20 December 2023. These maps revealed a significant increase in the areas categorized as Extreme and High *Dzud* Risk, rising from 54 per cent in November to 80 per cent by December 2023. As the situation deteriorated, NAMEM shifted its approach. Instead of producing further *Dzud* Risk Maps, NAMEM released a *Dzud* Assessment Map on 22 January 2024, reflecting the status of *dzud* in Mongolia at the beginning of 2024. This marked a transition from assessing risk to addressing the ongoing crisis.

According to the *dzud* map, 90 per cent of the country was affected by White and Ice/Iron *Dzud* types. It also showed that, except for the Gobi Desert area in the South where no pasture is possible, the whole country was affected, implying hard challenges for nomadic moves for the herders.

Figure 15.5: *Dzud* flowchart of disseminating information



Source: IRIMHE, 2024.

Preparedness plans, response and emergency management

Mongolia faces frequent and severe *dzuds* and, over the years, the Government has developed comprehensive preparedness plans, early warning systems and emergency management strategies to mitigate their impact. These efforts aim to safeguard livelihoods, particularly for rural herders who depend on livestock, and reduce the human, social and economic toll of *dzuds*.

Due to the dynamic nature of *dzud* conditions, close monitoring of the *dzud* situation across Mongolia is critical to tailor early action and response efforts in a timely and effective manner. The frequent occurrence of drought and *dzud* often leads to severe economic crises, making it crucial to predict *dzud* risks using scientific methods and technology. Providing early warnings to decision-makers and the public is essential for minimizing its impact.

In Mongolia, DRR expenditures are drawn from various sources, including the national and local budgets, the Government's special and reserve funds, intergovernmental soft loans, grants, international organization financing and donations from entities, organizations and citizens. To strengthen the financial and legal framework for DRR, the State Great *Khural* revised the Law on Protection against Disasters in 2017 adding a new provision that "Administrative, territorial units and government organizations shall include in the budget at least 1.0 per cent of the annual budget for disaster protection and risk reduction measures, and legal entities shall plan and spend at least 1.5 per cent of the annual production and service costs".

The 2017 revision of the Law on Protection against Disasters introduced significant changes concerning financing for disaster prevention, risk reduction, mitigation and post-disaster recovery. It enhanced the legal framework for disaster protection financing by stipulating that a specific percentage of the budget for DRR measures be allocated by each administrative level, enterprise, organization and legal entity.

As a result of these reforms, all 21 *aimags* significantly increased their budgeting for DRR. In 2018, the DRR budget was 2.3 billion tugriks, but by 2022, it had risen to 10.4 billion tugriks, according to a 2022 report of the National Council for DRR by the NEMA. This represents a fourfold increase in DRR funding across Mongolia.

The 2024 Government Resolution No. 62 introduced some measures to be undertaken regarding *dzud* high risk condition of wintering and spring campaign. Thanks to the adequate preparedness, for instance, the livestock losses during the *dzud* could have reached 14.9 million (23.9 per cent) by April 2024, but early preparedness efforts reduced the impact and livestock loss to 11.6 per cent, as noted by the State Emergency Commission.

15.3 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

The Constitution of Mongolia establishes the fundamental rights and responsibilities regarding protection against disasters. The Constitution states that citizens have "the right to live in a healthy, safe environment and to be protected from pollution and ecological imbalances".

Legal framework

The legal framework for managing *dzud* is designed to address DRR, preparedness, response and recovery, with a focus on protecting vulnerable populations and promoting sustainable resource use. This framework integrates laws that coordinate disaster management efforts across various levels of government.

The 2003 Law on Protection against Disasters is the main legal framework for managing disasters, including *dzud*. It outlines the roles of the NEMA, local governments and citizens in disaster situations. The Law mandates DRR plans focused on prevention, preparedness and response to minimize losses. It requires *aimag* and district governments to create specific disaster management plans, particularly for high-risk *dzud* areas. Additionally, it emphasizes public awareness and training, and establishes funding mechanisms, including a disaster response fund for emergencies like *dzud*. In terms of the restructuring of the legal environment, the Law was reformulated in accordance with international policies aimed at ensuring the goals of sustainable development and DRR and was approved by the Parliament in February 2017.

The 1995 Law on Environmental Protection aims to safeguard the natural environment, which is essential for reducing *dzud* vulnerability. It promotes the sustainable management of pasturelands, regulating overgrazing and protecting soil health to prevent desertification, which can worsen *dzud* conditions. The law also mandates ecosystem restoration, including the rehabilitation of degraded pasturelands, particularly in areas prone to frequent *dzuds*. Additionally, it requires local governments to ensure sustainable pastureland management to mitigate environmental risks that contribute to the severity of *dzud*.

The 2003 Law on Meteorological, Hydrological and Environmental Monitoring regulates the collection, analysis and dissemination of environmental, meteorological and hydrological data in Mongolia. It defines the roles and responsibilities of Government bodies at national, *aimag* and local levels to manage environmental monitoring systems. It supports early warning systems for *dzud* and helps in planning and preparing for potential disasters by providing accurate and timely information to authorities and the public. The goal is to enhance decision-making and response efforts in managing the risks associated with *dzud* and governs the distribution of specialized information for sectors while ensuring compliance with international standards and treaties.

The 2014 Law on Index-Based Livestock Insurance aims to protect the livestock sector from risks by reducing economic losses and providing compensation to herders during *dzud*. Under this law, insurance compensation is triggered when livestock losses due to *dzud* exceed a threshold determined by an index. By offering financial support, the law helps safeguard herders' livelihoods and assists them in overcoming the challenges posed by *dzud*.

The 2017 Law on Livestock and Animal Health governs the health and welfare of livestock, addressing both preventative and emergency veterinary services critical during *dzud* conditions. It requires that herders have access to veterinary services to prevent and treat diseases that could become more prevalent during *dzud* when livestock are weakened by cold and malnutrition. In times of *dzud*, the law provides for the deployment of mobile veterinary units to care for animals and reduce *dzud*-related livestock losses.

The 2017 Law on State Reserve regulates the process for stocking state reserve items, storage, transportation and renewal of the emergency stockpiles. This law reinforces the law implementation through the state reserve branches for stockpiling, storing and restocking state reserve items in accordance with approved location, list, quantity and disposing of them by a decision of the Government.

The 2024 Law on Mitigating the Negative Effects of Climate Change on Traditional Livestock Husbandry outlines strategies to strengthen the resilience of the livestock industry in the face of climate change and to address associated risks. It aims to promote the sustainable and efficient development of livestock husbandry, ensuring that herding practices are both environmentally sound and economically viable. The law encourages herders to voluntarily form and join cooperatives as a means of improving their livelihoods, addressing shared challenges and increasing the economic returns from livestock products.

The implementation is guided by a number of acts of subsidiary legislation, such as the Regulation on Disaster Vulnerability and Risk Assessment (2006 Government Resolution No. 176); Regulation on Disaster Warning (2011 Government Resolution No. 339); Regulation on Mobilization of Resources and Evacuation during Disaster Situation (2011 Government Resolution No. 340); Guidelines of Volunteer Activities for Disaster Protection (2016 Order of the Head of the NEMA No. A/185); Regulation on the State Emergency Commission (2017 Government Resolution No. 152); and Regulation on Disaster Protection Specialized Professional Unit (2017 Order of the Deputy Prime Minister No. 75) and the regulation on coordinating domestic humanitarian aids for disaster protection (2020 Government Resolution No. 133).

As of September 2024, the legal framework for pasture use is formed by the relevant provisions of the Constitution, 2002 Civil Code, Law on Land, Law on Land Fees and Law on Environmental Protection. The Constitution prohibits the ownership of pastureland in order to preserve pastoral nomadic livestock. However, the Civil Code includes a special chapter on the lease of agricultural land, but it has not been implemented due to some conflicts with the Law on Land.⁶⁹⁷

The provisions of the Law on Land to establish pastureland use agreements (PUAs) by the *soum* Governor for only winter-spring pastures based on the requests of the herder groups, restricts the PUAs covering all pastures. As a result, the duty or mandate of PUAs is limited to the scope of donor projects, while the majority of herders are increasingly vulnerable to land degradation and climate change due to non-sustainable use of pastureland. Moreover, it was difficult to enforce PUAs established under donor-supported programmes for herders who see their neighbours keep increasing the herd size, which strongly suggest that pastureland use agreements are not effective until they cover all herders.

The lack of economic incentives to prevent overgrazing is an obstacle to the introduction and implementation of PUAs. The 2020 Law on Livestock Tax opens up the possibility of introducing economic incentives for the adoption and enforcement of PUAs, but efforts to introduce PUAs and enforce the livestock tax are limited.

As of September 2024, the legislation lacks provisions covering pastures of all seasons, not limited to winter-spring pastures, in establishing PUAs, and to make PUAs inclusive and responsible for all herders, not only those who applied for it. Moreover, economic incentives to adjust the number of animals to the carrying capacity of pastures by providing payment for ecosystem services from livestock head tax revenues to herders in order to stimulate livestock sales are lacking.⁶⁹⁸

Policy framework

Mongolia has developed a wide range of policies, programmes, strategies and action plans to address the impacts of *dzud*. These initiatives are centred on DRR preparedness, response, recovery and resilience-building. The successful implementation of these measures is crucial for safeguarding livelihoods, enhancing the ability of herders to withstand *dzud* events and promoting sustainable development in the country.

⁶⁹⁷ Enkh-Amgalan (2023).

⁶⁹⁸ Ibid.

Among the most notable initiatives are the National Policy on Disaster Prevention, the National Programme on Strengthening Disaster Prevention Capacity and the National Action Programme on Climate Change, all of which were implemented with a different level of successes. In general, these programmes have played a vital role in improving Mongolia's capacity to prevent disasters and cope with them to minimize the negative impacts of climate change.

By focusing on inclusive policies, Mongolia has increased the implementation of measures that strengthen community resilience, particularly for vulnerable groups such as children, women, the elderly, people with disabilities and marginalized communities. Those measures were implemented with different level of success depending on the strength of Government support and the local community's inclusiveness and responsiveness.

National Security Concept (2010 Parliament Resolution No. 48) places strong emphasis on risk management of natural and technological/anthropogenic hazards. The Concept states: "Strengthen the disaster management system, take actions at the national level to reduce vulnerabilities, create conditions to encourage participation in the efforts by central and local governments, specialized organizations, private entities and citizens, create favourable working conditions for them and increase their capacities".

The 2016 Sustainable Development Vision 2030 provided a framework for national development aligned with global sustainability goals.⁶⁹⁹ Vision 2050 Long-term Development Policy⁷⁰⁰ (2020 Parliament Resolution No. 52) outlines nine strategic priorities that closely align with the Sustainable Development Goals (SDGs). One of these priorities, outlined in Goal 7, focuses on "Ensure human and societal security through strengthening national defence capacity, protecting human rights and freedoms, preserving social order and safety of the living environment of citizens, and reducing disaster risks" (see Chapter 1).

The National Programme of Community Participatory Disaster Risk Reduction (2015 Government Resolution No. 303) aims to reduce disaster risks by involving communities and individuals in prevention activities, enhancing their knowledge and skills through education and training, and promoting a culture of safety and resilience to climate change. The programme implementation period is 2015–2025 and widely engages governmental and local institutions, NGOs, legal entities, disaster protection services, professional groups, volunteers, cooperatives, herder groups and citizens in its implementation.

The Medium-term strategy for the implementation of the Sendai Framework for Disaster Risk Reduction (2017 Government Resolution No. 355) covers the period 2015–2030 and was developed, based on the four priority areas and seven global targets of the Sendai Framework for Disaster Risk Reduction. The strategy states its goal "reduce disaster existing and new risks by carrying out measures that prevent and minimize hazard exposure and vulnerability to disaster, through mitigation, prevention, preparedness and recovery actions, thus strengthening resilience in Mongolia". This document was developed to be implemented in three phases: 2015–2020, 2021–2025 and 2026–2030.

In the NDC (2019 Government Resolution No. 407), Mongolia intends to achieve a target to mitigate its greenhouse gas emissions by 22.7 per cent by 2030, compared to the business-as-usual scenario, excluding LULUCF. The NDC covers energy, agriculture, industrial processes and product use, and waste sectors. It also states qualitative adaptation targets related to natural disasters, among others. It was followed by the Action Plan for the implementation of Nationally Determined Contributions (2021 National Climate Committee's Resolution No. 01).

The National Adaptation Plan (NAP) for Climate Change (2024 National Climate Committee Resolution No. 01) consists of three main sections with 15 overarching targets and a comprehensive set of 99 specific measures identified in eight high-priority vulnerable sectors for the period 2023–2030. The Plan outlines the country's strategy for adapting to climate change impacts. It focuses on enhancing resilience in eight key sectors such as: (i) ecosystem, biodiversity, land degradation and desertification, (ii) water regime, reserve and supply, (iii) forest sector, (iv) weather and climate induced natural disasters, (v) livestock husbandry, rangeland, (vi) farming, (vii) public health, and (viii) social security, livelihood. The Plan integrates climate risk assessments into national development planning, promotes sustainable resource management and strengthens the capacity of local communities, institutions and ecosystems to cope with climate challenges. At the local level, almost all cities and *aimags* have officially joined the global campaign "Making Cities Resilient: My City is Getting Ready." This signifies that DRR has been integrated into local development policies and urban action plans, with a focus on ensuring effective implementation across the country.

The New Cooperative-Wealthy Herder Programme (2024 Government Resolution No. 166) aimed at enhancing the livelihoods of herder families by promoting cooperatives and will be implemented over a five-year period. Through this initiative, the Government plans to implement measures that will not only improve the economic conditions of these

⁶⁹⁹ Mongolia (2016).

⁷⁰⁰ Mongolia (2020).

families but also increase the overall value of livestock, as well as raw materials and products derived from livestock. By focusing on strengthening cooperatives, the programme seeks to foster sustainable growth and development in the livestock sector.

Other relevant policy documents include the: National Plan for Prevention and Rescue of the population, Animals and Properties from Disaster, Disaster Response and Early Warning (2015 Government Resolution No. 416); General Procedure of State Disaster Protection Services (2016 Government Resolution No. 97); and General Procedure on Volunteerism in Disaster Management (2016 Order of the Deputy Prime Minister No. 34).

Institutional framework

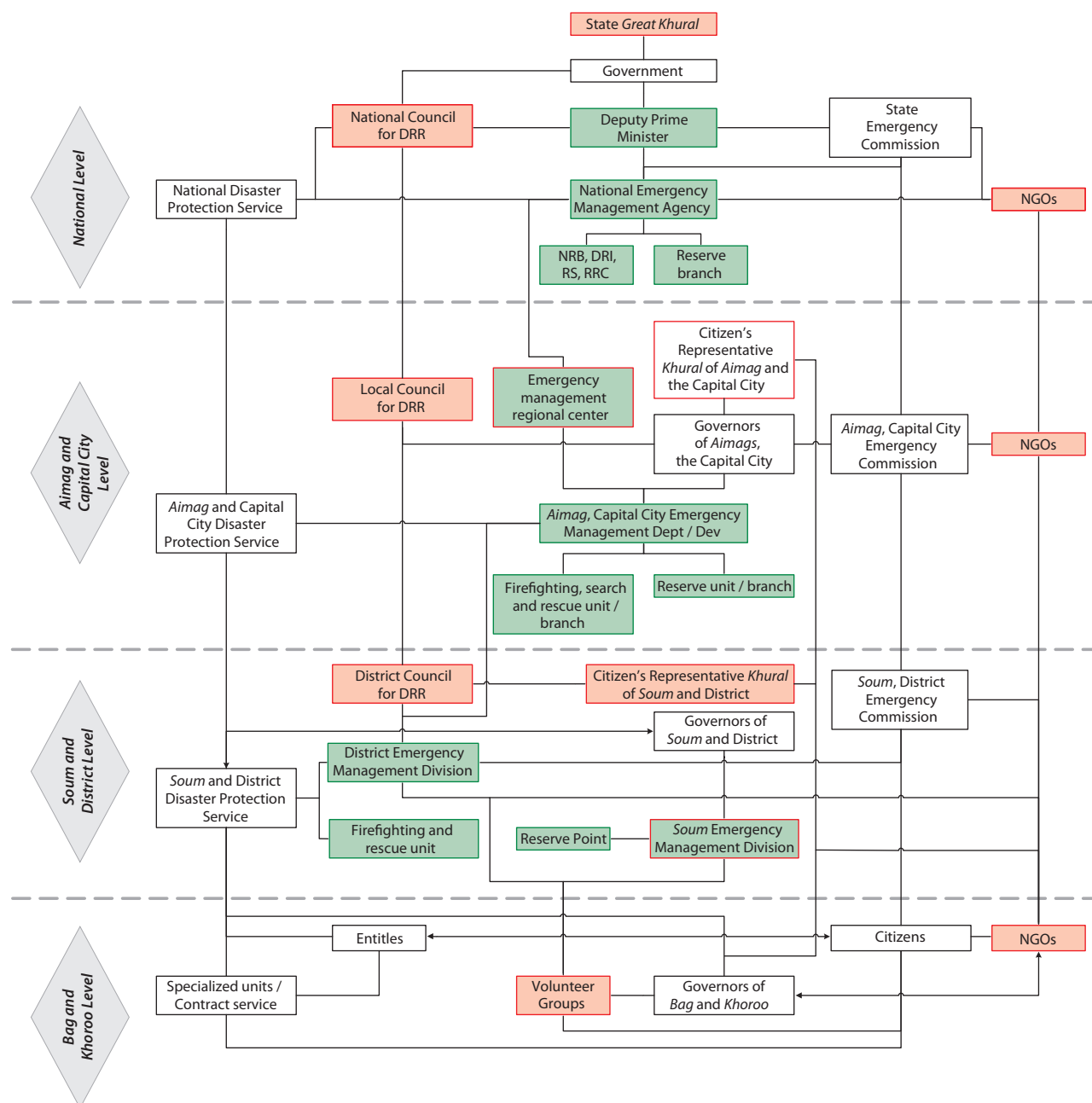
The institutional framework for managing *dzud* involves coordinated efforts between national, regional and local institutions, ensuring effective collaboration across Government bodies, international organizations and local communities for disaster preparedness, response and recovery. The Government works in close collaboration with international organizations, NGOs and local communities to ensure effective *dzud* management. The institutional framework has evolved over time, focusing on DRR, climate adaptation and sustainable herding practices. While the Government has made significant strides in preparedness, early warning and response, challenges remain in terms of resource allocation, coordination and long-term resilience. These challenges are not addressed and do not reduce the impact of *dzud* on herder communities and ensuring their continued survival in the face of extreme weather events. This institutional structure stems from the 2011 State Policy on Disaster Protection with updates from the 2017 Law on Protection against Disasters (see Figure 15.6).

At the national level, the NEMA leads disaster risk management efforts, developing strategies, coordinating relief operations and working closely with other ministries, including the Ministry of Food, Agriculture and Light Industry and the Ministry of Environment and Climate Change. The Ministry of Food, Agriculture and Light Industry focuses on livestock protection, providing veterinary services, managing fodder distribution and ensuring sustainable pasture use, while the Ministry of Environment and Climate Change handles environmental sustainability, implementing policies to protect pastureland and integrating climate adaptation measures. NAMEM provides critical data for *dzud* forecasting and early warnings, ensuring timely alerts to herders and local authorities.

At the regional and local levels, *aimag* and *soum* governments play key roles in localizing national policies and responding to *dzud* events. *Aimag* governments develop disaster management plans, coordinate fodder distribution and oversee pastureland management, while *soum* governments act as first responders, assessing *dzud* impacts and delivering emergency aid. Local disaster management committees ensure community engagement and the smooth delivery of resources.

The revised 2017 Law on Protection against Disasters outlines that “Disaster management activities shall be organized by administrative and territorial units, state and local administrative organizations, and legal entities regardless of the form of ownership”, to ensure an optimal institutional structure, including:

- The State Great *Khural* determines state disaster protection policies;
- The National Council for Disaster Risk Reduction, led by the Prime Minister, integrates public-private partnerships, inter-sectoral cooperation and citizen participation into DRR efforts;
- Local councils, headed by the chairman of Citizens’ Representative *Khural*, oversee budgeting and monitoring at the local level;
- The Emergency Management Organization, under the Deputy Prime Minister, implements disaster protection legislation and coordinates disaster management activities, and providing professional operation management;
- State Disaster Protection Services, based in various ministries, handle professional disaster management tasks;
- The State Emergency Commission organizes search and rescue, response and recovery operations during disasters and hazardous events;
- All levels of governors, legal entities, NGOs, volunteers, citizens and communities are involved.

Figure 15.6: Disaster Protection Institutional Framework

Source: NEMA (2022).

Note: Established stakeholders with red frame since 2017.

Community based risk reduction activities

In addition to the Government's action, there is a tradition of individual communal mitigation measures against *dzud*. On an individual level, herders prepare winter shelters, purchase fodder and hay and the transport of livestock to ensure the survival of the livestock.⁷⁰¹ Further, herders have increasingly turned to community-based organizations (CBOs) to share resources, coordinate responses and support each other during *dzud* events. These organizations facilitate joint actions like stockpiling fodder, managing pasture use and organizing early warnings for climatic hazards. Collaborative practices include pooling resources for shared infrastructure, such as shelters and wells, to mitigate the effects of *dzud*. CBOs play a critical role in capacity building, providing training on sustainable herding practices and promoting strategies for livestock health during extreme weather conditions. The level of cooperation within these groups can vary, from simple exchanges of ideas on various issues to more organized efforts, such as coordinating *otor* and joint marketing of livestock products.

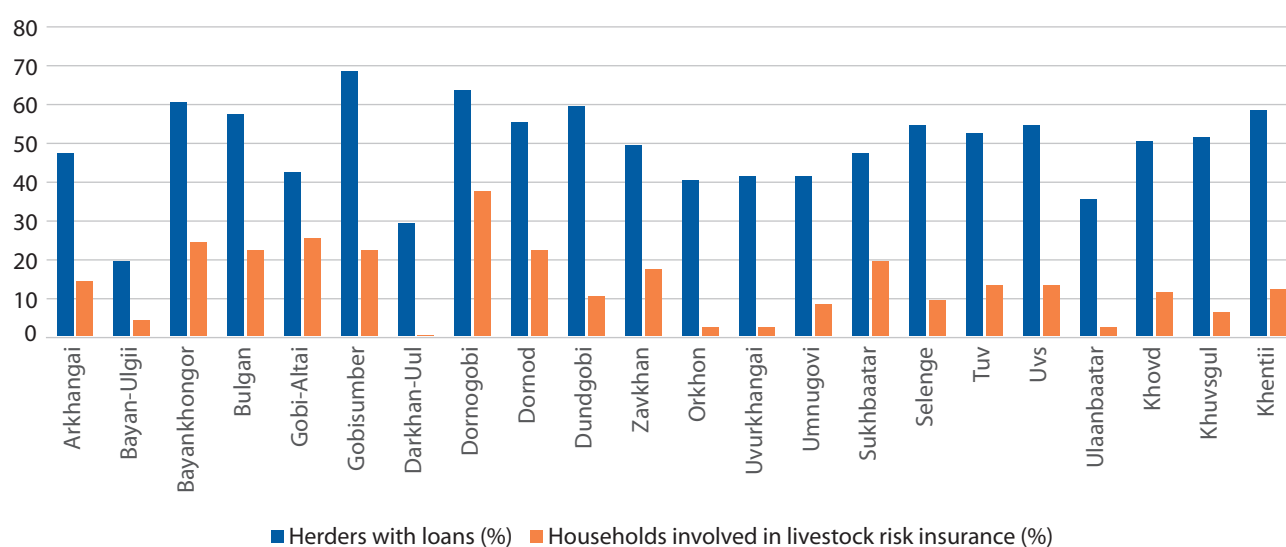
⁷⁰¹ Ahearn (2018). Thrift (2015).

There is no formal legal framework governing these herder groups or organizations. Instead, they establish their own rules during meetings attended by all members. These rules outline the rights, responsibilities and duties related to the shared use and protection of pastureland and water resources. The lack of active coordination between the herder groups or organizations and the Government does not support an effective *dzud* management.⁷⁰²

Insurance as an instrument for risk sharing

The herders are using loans and insurance to reduce the risk and pressure from hazards like *dzud*. Figure 15.7 shows that the herders for the time being preferring to have credit rather than to be insured. As a rule, it leads to more risk to be trapped in debt. In this regard, other types of insurance system are not introduced in the livestock breeding practices in Mongolia.

Figure 15.7: Herders with loans and households involved in livestock risk insurance, 2023, percentage



Sources: NSO (2024b). NSO (2024c).

According to the Law on Index-Based Livestock Insurance, the first threshold is set at 6 per cent, while the second threshold is set at 30 per cent. The threshold of approximately 6 per cent loss is considered as the point at which insurance compensation is activated, which implies that the herders are responsible for any losses below this threshold. As of 2023, 35,703 herder households across the country are covered by indexed livestock insurance, with a total of 7,010,381 head of livestock.⁷⁰³

As of October 2024, the highest compensation of 16.8 billion tugriks has been distributed to 22,034 herder households in 218 *soums* through the indexed livestock insurance programme. This marks the largest payout in the history of this insurance scheme. Currently, 18 per cent of herders in local areas are covered by livestock-indexed insurance.⁷⁰⁴

15.4 ASSESSMENT AND RECOMMENDATIONS

Assessment

As of September 2024, the capacity to produce and collect disaster impact data by type, from the *soum* to *aimag* and national levels, is insufficient. International methodologies, standards and best practices for producing disaster indicators and statistics—such as the number of deaths, missing persons and directly affected persons per 100,000 population, as well as direct economic losses in relation to GDP—are not being adequately applied.

Following the 2016 Sustainable Development Vision 2030, the 2020 Vision 2050 Long-term Development Policy sets a new direction for Mongolia's development over the next 30 years. Its overarching goal is to establish Mongolia as a leading Asian nation in terms of social development, economic growth and quality of life for its citizens by 2050. This policy is structured around nine strategic priorities that align closely with the SDGs.

⁷⁰² Ahearn (2018). Ankhzaya (2024). The Nature Conservancy (2024).

⁷⁰³ NSO (2024c).

⁷⁰⁴ NEMA (2024a).

DRR is both a policy goal and an operational objective, involving strategic measures to anticipate future disaster risks, reduce current exposure, hazards and vulnerabilities, and enhance resilience. The relationship between key elements of DRR is as follows: hazards and vulnerabilities are directly related to disaster risk, while the capacity for DRR is inversely related to disaster risk.

As of September 2024, Mongolia has laws and policies that focus on disaster preparedness and emergency response. Emerging environmental challenges, combined with urbanization and economic development, led to the 2017 revision of the institutional and governance framework established under the earlier 2003 Law on Protection against Disasters.

Disaster risk management involves designing, implementing and evaluating strategies, policies and measures to enhance the understanding of disaster risk, promote DRR and risk transfer, and improve preparedness, response and recovery practices. Its primary goal is to increase human security, well-being, quality of life and support sustainable development.

The National Programme on Community Participatory Disaster Risk Reduction and the Medium-term Strategy for the Implementation of the Sendai Framework for Disaster Risk Reduction are being implemented in alignment with Vision 2050. As a result of inclusive policies, measures to strengthen community resilience, particularly for children, women, the elderly, people with disabilities and marginalized communities, have significantly increased. At the local level, disaster protection plans based on risk assessments have been developed. In 2024, the National Climate Committee also approved the National Adaptation Plan for Climate Change, further strengthening the country's resilience efforts.

The country's approach to *dzud* preparedness, early warning and emergency management combines traditional practices with modern technology. By focusing on early warning systems, emergency preparedness, rapid response and post-*dzud* recovery, the Government aims to reduce the impact of *dzud* on herder livelihoods and the wider economy. However, limited resource allocation, weak infrastructure and social inequality continue to hinder the resilience of rural communities.

The measures taken in 1999–2002 and 2009–2010 *dzuds* provided valuable lessons regarding the lack of preparedness, communication and mitigation of harmful impacts, and these experiences have influenced the inclusion of DRR in national policies. However, the *dzud* of 2023–2024 has been particularly severe, with Mongolia experiencing its heaviest snowfall in 49 years. This event affected 90 per cent of the country's territory, resulting in the loss of over 8.1 million livestock, equivalent to 12.5 per cent of the total livestock population.

Sustainable pastureland management is not adequately supported by the promotion of practices such as rotational grazing or the revision of land use regulations. Ecosystem resilience has not been strengthened, the carrying capacity of pastures is not maintained, and the impacts of climate change and land degradation on livestock-dependent communities are not sufficiently mitigated. As an increasing number of herders move to other *aimags* to access *otor* pasturelands, there is no systematic approach for monitoring these movements or assessing their impacts on *otor* pasturelands and on community relations between local and migrating herders. While challenges remain, ongoing efforts by the Government, international organizations and local communities continue to enhance the country's capacity to manage and mitigate *dzud* impacts effectively.

Dzuds have severe environmental consequences, affecting livestock, wildlife, biodiversity and ecosystems. While the mass die-off of livestock temporarily reduces competition for resources, the long-term effects are dire. The decomposition of livestock carcasses risks contaminating soil and water, further harming ecosystems. *Dzuds* also affect herders, leading to shortages of fuel, food and cashmere exports, and increasing poverty. To address these challenges, Mongolia launched the One Health Joint Plan of Action in 2024, emphasizing a multi-sector approach to tackle health and environmental risks, although resource and coordination challenges remain. However, recovery efforts are still hindered by limited sustainable land management, inadequate *dzud* preparedness and weak cross-sector coordination.

Recommendations

Legal framework for *dzud* risk management

Recommendation 15.1:

The Government should:

- (a) *Develop disaster risk reduction (DRR) manuals based on reliable disaster risk information, such as hazard mapping and vulnerability assessments, which would facilitate cohesive coordination during crisis;*
- (b) *Implement the disaster risk management process from the national to the community level;*
- (c) *Strengthen the role of women in DRR management.*

Coherence and effectiveness of national disaster risk management, climate change adaptation and sustainable development efforts

Recommendation 15.2:

The Government should:

- (a) Mainstream disaster risk management into sectoral and local development plans and financial arrangements;
- (b) Provide herders with alternative income-generating opportunities, such as value-added livestock products, ecotourism and climate-resilient agriculture, to reduce dependency on livestock.

Enhancing sustainable pastureland management

Recommendation 15.3:

The Ministry of Food, Agriculture and Light Industry, in collaboration with the Ministry of Environment and Climate Change, should:

- (a) Implement regular monitoring and assessment of otor land conditions using tools like remote sensing data and geoinformatics to identify areas at risk;
- (b) Identify and reserve otor pastures in each soum based on livestock density and risk profiles where feasible.

Data collection and sharing of post-dzud impact data

Recommendation 15.4:

The National Emergency Management Authority, in collaboration with relevant stakeholders and the National Statistics Office, should:

- (a) Identify priority data flows and disaster-related indicators, by disaster type, loss and damage, that are relevant for state of the environment reporting and Sustainable Development Goal alignment;
- (b) Promote inter-institutional cooperation and data sharing between institutions at national and sub-national levels;
- (c) Provide training to staff to improve their capacity to conduct inventories and vulnerability and risk assessments, by ensuring data quality on disaster impacts at the soum and aimag levels;
- (d) Enhance the data sharing process by utilizing IT and GIS-based tools to ensure that more reliable and robust data are available for relevant databases;
- (e) Improve the structure and management of the database on disaster-related issues including dzud phenomenon.

Enhancing cross-sector collaboration between health, environment and agricultural governmental agencies to address dzud-related risks to both human and animal health

Recommendation 15.5:

The Government should:

- (a) Expand vaccination programmes for livestock to prevent disease transmission to wildlife;
- (b) Promote biosecurity measures to reduce livestock-wildlife contact, protecting both domestic and wild animal populations;
- (c) Develop environmentally safe methods for disposing of livestock carcasses to prevent soil and water contamination;
- (d) Require the enforcement of strict waste management protocols in dzud-affected areas to safeguard local ecosystems.

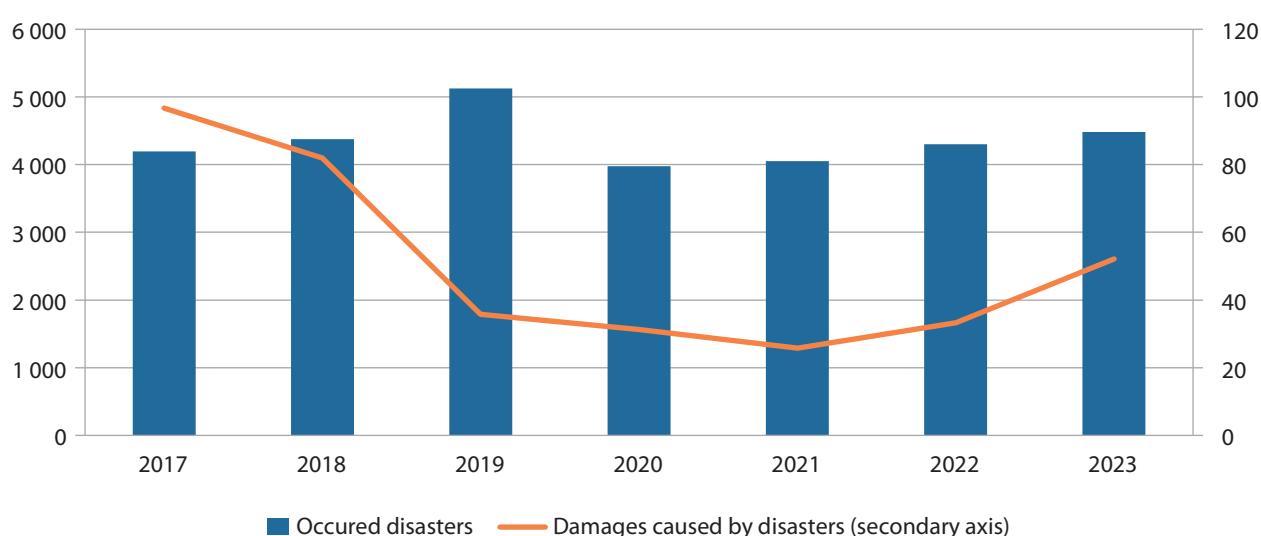
CHAPTER 16

RISK MANAGEMENT OF NATURAL AND TECHNOLOGICAL/ANTHROPOGENIC HAZARDS

16.1 CURRENT SITUATION

Mongolia is vulnerable to a wide range of natural disasters, including floods, snow and dust storms, wildfires, earthquakes, droughts and *dzuds* (see Chapter 14). These events have an adverse impact on people's lives and livestock. Because of climate change, the frequency of these hazards has increased in recent years, often overstressing the Government's response capacity. A rapid, yet unplanned, urban development further increases the country's vulnerability.

Figure 16.1: Total number of disasters and related damage (billion tugriks), 2017–2023



Source: NEMA, 2024.

Since 2017, disasters induced by natural and technological/anthropogenic hazards have increased from 4,194 in 2017 to 4,484 in 2023 (see Figure 16.1). Over 70 per cent of the total number of the reported disaster events were building fires and forest and steppe fires, with the remaining 30 per cent being caused by other natural and technological/anthropogenic hazards. Building fires alone are responsible for the highest average mortality rate in the review period (61 fatalities), excluding the fatalities due to the COVID-19 pandemic. Among natural hazards, strong snow and dust storms, heavy rain and floods, and earthquakes are the most frequent hazards, with heavy rain and floods accounting for the highest mortality in the period 2017–2023 (49 fatalities).

Disasters impact the national economy. In 2023, the economic loss from disasters caused by natural and technological/anthropogenic hazards reached 52.1 billion tugriks (see Figure 16.1). There was a loss of 96.7 billion tugriks in 2017 due to a severe *dzud* event in that year. The average economic loss was 51.0 billion tugriks per year in the period 2017–2023.

According to a report by the Asian Disaster Reduction Centre, natural and human-induced hazards caused an average economic loss of approximately US\$28.4 million (77.27 billion tugriks) per year between 2001 and 2020. This figure represents 2 per cent of Mongolia's GDP annually. The report highlights the significant share of disaster damage in the country's economy, with disaster-related losses accounting for 14.2 per cent of the GDP in 2001, 8.3 per cent in 2002 and 5.5 per cent in 2010.⁷⁰⁵

⁷⁰⁵ Asian Disaster Reduction Centre (2022).

Natural hazards

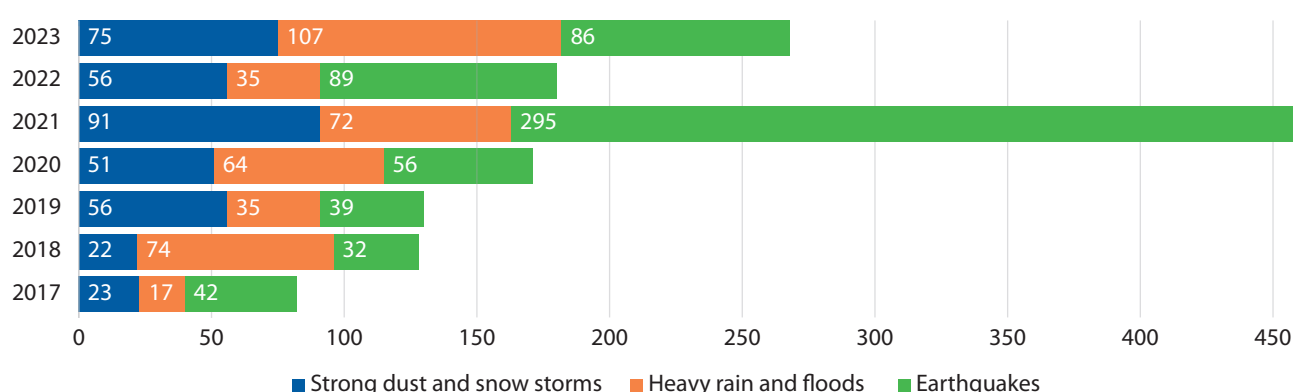
The most common and most devastating disasters come from natural hazards (see Figure 16.2).

Earthquakes

The entire territory of Mongolia is part of an active seismic zone. Earthquakes with a moment magnitude of over 6 have been recorded more than 40 times during the last two decades. The country has experienced four earthquakes of magnitude 8 during the last century. During the review period (2017–2023), 639 earthquakes were registered, but with no fatalities.⁷⁰⁶

The highest risks have historically been in the far northern, southern and western areas of the country. Most earthquakes occur in the region of the Altai, Khangai, Khoridol Saridag and Bulnayn Nuruu mountain ranges, which are sparsely populated areas, not causing catastrophic damages. Smaller magnitude earthquakes occur very frequently, with more than 200 earthquakes of magnitude above 3.5 every year.

Figure 16.2: Disasters induced by natural hazards, 2017–2023, number



Source: NEMA, 2024.

Ulaanbaatar, the country's densely populated capital, is in a seismically active area on the boundary of several geological faults. With a rapid urbanization rate in Mongolia, the risks associated with earthquakes are increasingly evident.

Earthquakes with high magnitudes could happen and result in considerable building damage and heavy casualties in the metropolitan area.

Heavy rain and floods

Mongolia's exposure to risk of flooding is considered high (see Box 16.1). The country typically presents three types of floods: (i) spring or snow melting flood when river levels slowly rise and overflow their banks over a relatively longer period of time; (ii) rainfall flood when a quick rise of water levels from heavy rainfall leads to overflowing banks; and (iii) flash flood when heavy rainfall over steep riverbeds causes turbulent flows of water along with rocks, sediment and other surface materials.

Flooding affects both rural and urban areas and has become more frequent due to climate change. In Ulaanbaatar, old bridges, roads and avenues built without sewage systems have been severely impacted by floods during the last years. In Mongolia, the integration of nature-based solutions (NBS), zoning and spatial planning in urban areas is not enough to reduce the impacts of floods. For example, the current share of green space in Ulaanbaatar is 1.8 per cent and green space per capita is 0.12–5 m²,⁷⁰⁷ which is smaller than the level WHO recommends for cities with more than 1 million residents (9 m² per person) and much lower than the average of 30 per cent of green space in cities of European Environmental Agency member countries.⁷⁰⁸

During the review period, there were 404 heavy rain and floods, with a total of 49 fatalities.⁷⁰⁹ According to the Ulaanbaatar City Emergency Management Department, in 2023, four major floods occurred in the capital, with a loss of 35.5 billion tugriks. The Department carried out a first damage assessment 72 hours after the flooding event. One month later,

⁷⁰⁶ NEMA, 2024.

⁷⁰⁷ Ulaanbaatar City Mayor Office's Working Plan for 2017–2020 Plan, 2017.

⁷⁰⁸ EEA (2022).

⁷⁰⁹ Ibid.

a detailed assessment is carried out and, after 1 year, the final damage assessment is finalized. There is a legal framework in place to build back better the infrastructure impacted, but this concerns only public institutions.

Box 16.1: Impacts of 2020–2021 flash floods

Heavy rainfall from June to August 2020 caused flash floods across the country to varying degrees, with an average precipitation of 50–60 mm. Flash floods on 3 and 4 July caused the death of 5 people in Umnugovi *aimag* in central southern Mongolia and 3 people in Sukhbaatar in the east. This event damaged approximately 2,360 houses and killed 7,000 animals across Tuv, Khuvsgul and Khentii *aimags*. Severe flash floods also occurred from 11 to 15 July, particularly in Uvs, Khentii and Tuv *aimags*, with other affected provinces including Arkhangai, Orkhon, Khuvsgul, DarkhanUul, Dornod, Govi-Altai, Selenge and Umnugovi. Parts of Ulaanbaatar were also affected, damaging more than 14,000 m² of public areas and 13,100 m of paved road. The most affected districts of the capital were Bagakhangai, Sukhbaatar and Bayanzurkh, where more than 200 households were severely affected.

In 2021, from 28 June to 29 July, a prolonged rainfall averaged 46–60 mm across the country and generated flash floods that severely affected 1,549 households in seven *aimags*: Arkhangai, Umnugovi, Orkhon, Dornogovi, Govi-Altai, Uvurkhangai and Tuv. Umnugovi was the most affected *aimag*, where they reportedly received 274 rescue calls, while search and rescue operations saved 397 people. No casualties were reported in Umnugovi *aimag*. In Govi-Altai, *aimag*, there were five deaths.

Source: Asian Disaster Reduction Centre (2022).

Snow and dust storms

Snow and dust storms occur frequently in Mongolia due to natural conditions, geography and climate features. They usually result in natural disasters that severely affect the Mongolian ecosystem, economy, society and population health. In the period 2017–2023, 374 snow and dust storms were recorded, which caused 28 deaths.⁷¹⁰

Snowstorms, also called blizzards, are one of the most disastrous meteorological hazards causing significant damage in a very short time. A heavy blizzard occurred on 5–6 May 1993 in six *aimags*, resulting in 16 human casualties and 100,000 deaths of cattle. Several other similar events occur regularly in the country.

Rapid and massive land degradation such as desertification in the past few decades has contributed to increased occurrences of severe storms. This increase is mostly attributed to climate change and harmful human activities. Overgrazing also contributes to dust storms, as the total Mongolian herd has tripled in size in the last three decades. The Gobi Desert, which comprises about 41 per cent of Mongolia, experiences frequent dust storms. The highest frequency of dust storms is over three areas in the Gobi Desert: south of the Altai Mountains, around Ulaannuur lake and Zamiin-Uud. Atmospheric dust is a recurrent problem for animal herders and breeders, particularly in the Gobi region. Dust storms have several negative impacts including delays and reductions in pasture for livestock, road closure, and settlements and villages becoming enshrouded with sand. In addition, the dust raised and carried away by the wind is considered as one of the major causes of soil erosion. For example, in 2021, from March 13 to 15, strong winds, snow and dust storms hit the whole territory of Mongolia, and a total of 706 people went missing in 51 *soums* of 12 *aimags*.⁷¹¹ A total of 10 people died in the snowstorm and 140,347 livestock were lost, and a large amount of property was destroyed. They also caused electricity failures and construction wreckage.

Landslides

Landslides, rock falls and debris flow also occur in Mongolia. This type of hazard is linked to other events, such as earthquakes or heavy rains. NEMA started to record landslides in 2023, when eight events were registered.

Forest and steppe fires

Forest and steppe fires frequently occur every year and negatively impact Mongolia's environment and socioeconomic status. During the period 2017–2023, 908 forest and steppe fires occurred (see Table 16.1), with no fatalities. About 55 per cent of the territory of Mongolia is considered at risk for steppe and forest fires, which usually occur in spring and autumn. Spring weather brings strong, dry winds, which are prevalent from March through June, these winds increase fire risk in dry, dead grass. In autumn, the new grass grown during summer dries out, becoming potential fuel for wildfires during September and October. These fires can destroy organic matter, thus reducing soil quality and causing soil erosion. They can also burn dry grass and cause livestock starvation through a shortage of forage. Moreover, grassland fires could directly result in livestock deaths and casualties.

⁷¹⁰ Ibid.

⁷¹¹ Asian Disaster Reduction Centre (2022).

Table 16.1: Forest/steppe fires and building fires, 2017–2023, number

	2017	2018	2019	2020	2021	2022	2023
Forest and steppe fires	225	77	121	140	65	179	101
Building fires	3 536	3 826	4 301	3 036	2 671	3 075	3 054

Source: NEMA, 2024

Both natural hazards and anthropogenic hazards can cause severe fires. Two main environmental and socioeconomic causes led to this sharp increase of wildfire events in the country: the impact of climate change (higher temperature and lower precipitation) and an increase of human activities in search of natural resources as a source of income. Several hectares are affected by fires every year; in 2020, about 226 million ha were burnt.⁷¹² NEMA lacks capacity to efficiently respond to fires located in remote areas. Among the main issues, there is a lack of equipment and training local volunteers to improve the response. A 2024–2025 UNDP project, focused on training local people and funding equipment, is under implementation.

Fires that cause serious damage to ecosystems, require rehabilitation after fires. Reforestation has been carried out by NFA and had good results in some regions (see Chapter 13). From the total damaged areas, only up to 10 per cent have been rehabilitated due to budget constraints. Local governments request funds from NFA that prepares a tender to choose an accredited company to rehabilitate the damaged areas.

Technological/anthropogenic hazards

Building fires

In Mongolia, building fires are the most frequent technological/anthropogenic hazard (see Table 16.1), with about 70 per cent of building fires occurring in Ulaanbaatar. Building fires together with forest and steppe fires account for over 70 per cent of the total number of the reported disaster events in Mongolia. Approximately 70 per cent of building fires occurred in the cold season, from late October to late April. Since 2017, Mongolia registered a total of 23,499 building fires (see Table 16.1), which resulted in 427 fatalities (average of 61 deaths annually).

There are many causes of building fires, including the misuse of old heating stoves, open dump ashes, electricity malfunctioning, lack of awareness of fire safety and fire legislation, among others. Most houses in *soum* centres or *ger* districts are considered self-made informal houses. While *gers* are very convenient for nomadic herders as they are easy to assemble and disassemble, they have a high risk of fire. Apartment buildings are less at risk because they are connected to centralized networks of water, electricity and heating.

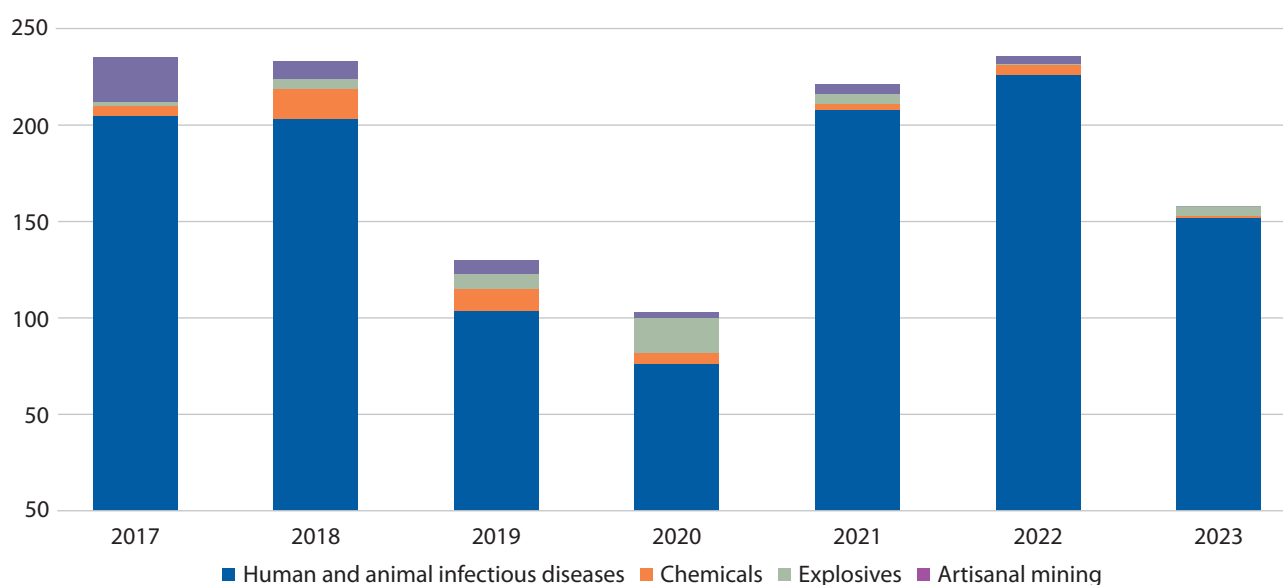
Since 2017, several disasters have been induced by technological/anthropogenic hazards around the country. Figure 16.3 shows the most common disasters/events that occurred in the country, excluding building fires.

Human and animal infectious diseases

Since 2017, a total of 1,174 incidents caused by this type of hazard occurred in Mongolia (see Figure 16.3). Human and animal infectious diseases include zoonotic and non-zoonotic diseases, but also the COVID-19 virus, that accounted for 1,661 deaths in 2021, 154 in 2022 and 1 in 2023.

Zoonotic diseases such as marmot plague, anthrax, rabies, brucellosis, smallpox and meningitis could turn into epidemics. In July–September 2020, cases of marmot plague were registered in three *aimags*, and three citizens died. Quarantines and restrictions on entry and exit from the borders of these *aimags* were established, as well as checkpoints to avoid spreading the disease. Rabies remains an endemic problem especially among dogs, wolves and livestock cases reported in Mongolia. In recent years, animal rabies has prevailed in the Khangai and western *aimags*. Anthrax is endemic throughout Mongolia, except in the semi-desert and desert areas of the south. Animal and human anthrax has become an increasing problem since the mid-1990s. Non-zoonotic diseases include foot-and-mouth and blood infection diseases. In the last decade, foot-and-mouth disease mostly occurred in the eastern part of Mongolia. Although infectious diseases have caused major losses to the country's economy, studies on zoonotic diseases risks are relatively rare. The National Centre for Zoonotic Diseases has conducted a systematic statistical analysis and mapped out the potential areas that are prone to the outbreak of infectious diseases.

⁷¹² NEMA, 2024.

Figure 16.3: Disasters/events induced by selected technological/anthropogenic hazards, 2017–2023, number

Source: NEMA, 2024

Chemical accidents

During the period 2017–2023, Mongolia registered 47 accidents involving the release of hazardous chemicals, or an average of 6.7 accidents per year, with four fatalities.⁷¹³

The most common hazardous chemicals are not produced in Mongolia, but they are stored and transported through the country. There are several warehouses in Ulaanbaatar to store chemicals used in mining, wastewater treatment plants and refrigeration production facilities. Cyanide is transported by road to industrial gold mines as it is used to concentrate the gold exploited. Cyanide is also used by small scale and artisanal gold miners, together with mercury, increasing the risk of chemical spills. For example, a mercury and sodium cyanide spill happened in a mine located in Khongor *soum* of Darkhan-Uul *aimag* in February 2007. Ammonia for fertilizers is also stored in Ulaanbaatar.

Artisanal and small-scale mining

This type of accident is mostly triggered by inefficient mining operations management and a lack of enforcement of health and safety requirements. During the review period, 51 mining-related accidents occurred. There was an average of 8.1 deaths per year, or a total of 57 deaths in the same period. For example, in 2019, four people died after an accident at a gold mine of Eco Altan Zaamar company in Tuv *aimag*. The accident happened in Zaamar *soum*, a region hit by a 4.6 magnitude earthquake a few hours before. According to the Institute of Astronomy and Geophysics of the Mongolian Academy of Sciences, the collapse that occurred at the mine could be related to the earthquake.

Explosions

Accidents involving explosions occur on an average of 6.3 per year, or a total of 44 accidents between 2017 and 2023, and three fatalities. A recent accident occurred in January 2024, when six people, including three firefighters, were killed in a gas truck explosion in Ulaanbaatar.

Industrial accidents

There were no industrial accidents during the period 2017–2023 and this category was not included in the NEMA's statistics.

The recent increase of large mining operations, especially gold mining, has raised serious concerns. Industrial hazards and risks, such as the breaking of a tailings dam containing several tons of hazardous substances that can contaminate the environment and affect human health, requires special attention (see Box 16.2). Moreover, natural-hazard-triggered technological accidents (Natech) accidents can also happen in Mongolia.

⁷¹³ Ibid.

Box 16.2: Tailings management facility and hazardous chemicals management at the Boroo gold mine

The Boroo gold mine is located in Selenge *aimag*, in northern Mongolia, approximately 135 km northwest of Ulaanbaatar. The mine entered commercial production in 2004, with a designed plant capacity of 1.8 million tons of ore per year. The leaching circuit consists of two pre-leach tanks and six carbon-in-leach tanks. The recovered gold is subsequently stripped from the carbon and again put in solution to be recovered by electrowinning, followed by smelting and the production of gold bars. The resulting tailings are detoxified to meet a target cyanide concentration of less than 1 mg/L and deposited in the tailings management facility. The facility is designed for zero discharge and is located in the Ikh Dashir River valley. To minimize the potential of seepage, the facility was constructed by the placement and compaction of a low permeable clay layer over the base of the impoundment area that ties into a high-density polyethylene geomembrane on the upstream faces of the earth fill embankments. There is monitoring of dam wall stability as there is a risk of earthquake and flooding with heavy rain in the area, which is getting more frequent.

The chemical storage pad at the mine was constructed in 2003. The cyanide containers are stored on their own dedicated concrete containment off-loading and storage pad to segregate them from other hazardous chemicals. The cyanide is located within a fenced and locked compound that is located away from the communities, the Boroo mine camp and the mill. There is no surface water in the proximity of the pad. All mixing of cyanide occurs in the mill reagent area at the mine site. The cyanide mix tank and storage tank are each provided with overfill protection, specifically an automatic level indicator. The forklift driver and warehouse shipper/receiver wear full personnel protection equipment when opening the cyanide containers. Natural ventilation would prevent the build-up of cyanide gas; however, monitors are used for verification of potential hydrogen cyanide gas when the container is opened. The containers are unloaded on the concrete pad and transferred onto a truck for delivery to the mill as cyanide is required for mixing, with quantity limited to the number of boxes required to complete cyanide mixes scheduled. All cyanide mixing, storage and process tanks are located within concrete containments. An engineering report concluded that the mix and storage tank containment areas have sufficient capacity to contain greater than 110 per cent of the volume of the largest tank and provide a competent barrier in the event of leakage. The empty cyanide shipping containers are cleaned by the mill storage operator and are stored empty (labelled) on site, until required to transfer for the next shipment.

The Boroo gold mine has developed a Health and Safety Management System and an Environmental Management System, which are based on the OSHAS 18000 and ISO 14001 standards, respectively. The mine has also adhered to the International Cyanide Management Code For the Manufacture, Transport and Use of Cyanide In the Production of Gold (Cyanide Code) since 2011. Moreover, the mine has a voluntary rescue team and a fire brigade (volunteers), and an agreement with a local fire brigade of two *soums* nearby. They carry out joint trainings every year.

Photo 16.1: Tailings dam, Boroo gold mine



Photo credit: EPR Team.

Photo 16.2: Chemicals storage pad, Boroo gold mine

There is no major nuclear facility in Mongolia. However, with the exploitation of uranium mines and the existence of other radiation sources (hospitals, scientific institutions), the relatively low capacity to deal with nuclear risks and accidents became a major issue.

Other categories

This includes accidents related to firearms and ammunition and transport, among others.

Interaction between technological hazards and natural hazards

Technological hazards also may arise directly as a result of the impacts of a natural hazard event. Natural hazards represent significant threats to process units of different industries, including mining. These natural hazards can affect industrial facilities producing a loss of containment in process equipment that store hazardous materials, causing fires, explosions, toxic cloud emissions or release of hazardous substances (tailings dam overtopping or wall breaching), which generates significant impact on the environment and the surrounding population. During Natech events, the risk of cascading events is generally higher than during conventional disasters. Overall, the frequency of occurrence of this type of events has varied over time, taking in consideration that the probability of occurrence is higher concerning the past decades.

Therefore, decision-makers face the challenge of mitigating not only the single risks and hazards, but also their interrelations. Currently, the multi-hazard approach focuses mostly on risk mitigation in urban areas without considering Natech risks. Also, the assessment of industrial risk briefly considers Natech risks. Recommendation 14.2 of the First EPR of Mongolia concerns urban infrastructure. Part (a) asked for the Government to conduct an inventory, vulnerability and risk assessment of infrastructure facilities in urban areas; this was done by the 2023 National Disaster Risk Assessment and thus, this part was implemented. However, providing guidance and support to the redesign and retrofitting of urban infrastructure was not implemented yet (part (b)). The implementation of part (c) on ensuring the integration of disaster risk management and climate change adaptation aspects in the construction, zoning and other relevant regulation is ongoing.

Number of deaths and injured persons affected by disasters

However, according to data from the NSO, 336 people lost their lives due to hazardous phenomena and accidents in 2024. In Mongolia, the number of deaths, missing persons and directly affected individuals due to disasters is influenced by the country's exposure to a variety of natural hazards, including *dzuds*, floods, droughts, snow and dust storms, wildfires, acute infectious diseases in humans and animals, earthquakes, landslides and lightning strikes.

SDG target 1.5 is about building the resilience of the poor and those in vulnerable situations and reducing their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters by 2030. SDG target 11.5 refers to reducing the number of deaths and the number of people affected and substantially decreasing the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations, by 2030. SDG indicators 1.5.1, 13.1.1 and 11.5.1 vary from 204 deaths and missing persons attributed to disasters in 2017 to 306 in 2022 with a peak of 2,230 in 2021. Similarly, the direct economic loss attributed to disasters in relation to global GDP has declined from 0.4 in 2017 to 0.07 in 2022 (SDG indicators 1.5.2 and 11.5.2). SDG indicator 1.5.3 has maintained the score of 1 during the review period.

SDG target 13.1 refers to strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in all countries. There was progress in achieving the SDG indicator 13.1.1 by reducing the number of deaths, missing and directly affected persons attributed to disasters from 274.3 in 2017 to zero in 2022. Regarding SDG indicator 13.1.2, it was kept at 1 in the review period and SDG indicator 13.1.3 increased from 27.2 in 2017 to 100 in 2022.

16.2 CLIMATE CHANGE AND DISASTERS

Climate change is significantly impacting the frequency and severity of natural disasters in Mongolia, being responsible for more than 80 per cent of the natural disaster occurrence in the country. Climate change impacts include pasture and biodiversity degradation, desertification, increasing occurrence of forest and steppe fires and scarcity of water in steppe areas, as well as increasing the frequency and intensity of climate related events such as snow and dust storms, wildfires, heavy rain and floods (see Chapter 7).

In Mongolia, several factors are contributing to the increase in flood risk. These include changes in rainfall, storms and temperatures, driven by climate change, as well as societal factors such as changes in land use and the development of floodplains. The country is also experiencing flash floods due to heavy rainfall.

At the same time, wildfires are growing in scale, frequency and intensity, wreaking devastating consequences on an ever-larger number of communities. With the climate crisis intensifying, hotter temperatures, more intense and longer dry seasons, earlier snowmelt and stronger winds damage nature's ability to resist fire. Fuel accumulates as more intense wet periods lead to rapid vegetation growth, and longer heat waves dry it out. Moreover, increasingly frequent lightning strikes provide more opportunities for ignition. These fires can destroy vast areas of forest, homes and wildlife habitats. They also release substantial amounts of carbon dioxide, further exacerbating climate change.

In Mongolia, the use of NBS in disaster risk management (DRM) is still low. Nevertheless, NBS is cost-effective and offers numerous co-benefits, helping to mitigate disasters such as floods and wildfires.

A national assessment showed that some sectors or activities are highly exposed to disasters, such as the livestock industry and agriculture and water sectors. Nomadic herders are particularly vulnerable. They face challenges such as unpredictable seasonal changes, loss of livestock and reduced pasture availability.

Thus, addressing climate change is crucial for DRR, minimizing the adverse effects of climate change on population, property, environment and economy, predicting potential harm, reducing risks and coordinating and organizing socioeconomic activities under the context of changing climate (see Chapter 8). However, local communities still lack sufficient funds for disaster preparedness and resilience to mitigate the impacts of these increasingly common natural disasters.

16.3 DISASTER RISK MANAGEMENT

Disaster risk assessment

The 2023 National Disaster Risk Assessment has established major hazard profiles, exposure profiles and hotspots, vulnerability profiles and hotspots, and a capacity profile. It has also developed hazard intensity and susceptibility zoning maps.

The classification of hazard susceptibility or intensity of target hazards is based on information on hazard zones, and includes statistics of territory exposure to main hazards, classification of hazard susceptibility and intensity, as well as the implication of damage to different levels of hazard intensity. With these contents of a hazard zoning map, users can have a better understanding of hazard zoning and its implications of risks for development planning. Several hazard susceptibility

and intensity zoning maps (e.g. seismic intensity, snowstorm, lightning, windstorm, dust storm, among others) of Mongolia were produced.⁷¹⁴

Moreover, the 2023 National Disaster Risk Assessment has also produced multi-hazard national exposure profile and hotspot maps (e.g. household, educational facilities, health facilities, power stations, warehouses, enterprises in operation). The multi-hazard national exposure profiles of targeted critical facilities provide a nation-wide overview of exposure profiles of each type of critical facilities, by different exposure levels (i.e., moderate, high and very high exposure levels) and the ratio of major exposure profiles to the national total.

Concerning the national vulnerability profile of communities, 891 out of 1,809 communities (49.3 per cent) have been identified as highly vulnerable, in terms of their hazard exposure, demographic vulnerability and housing vulnerability. Of the 891 highly vulnerable communities, 833 are rural communities (46.0 per cent) and 58 are urban communities (3.2 per cent). Also, 58.8 per cent of all rural communities (1,417) and 14.8 per cent of all urban communities (392) are considered highly vulnerable.

In 2020, the Capital City Emergency Management Department developed the Ulaanbaatar Disaster Risk Comprehensive Assessment. According to this, forest fires and strong wind and storms present low-medium risk; chemical and radiation accidents, human and animal diseases are of low risk; and building fires are of high risk. As of September 2024, this assessment is being updated. The Ulaanbaatar disaster protection plan was approved in 2023. In 2024, four emergency response plans for Ulaanbaatar were developed for the following hazards: human and animal infectious diseases, earthquake, flooding and radiation and chemical accidents.

Impact-based forecasting

Impact-based forecasting combines a forecast of a weather or climate hazard and an assessment of possible impacts, including when, where and how likely the impacts are. Impact-based forecasting drives actions which save lives and protect property and livelihoods. The inclusion of risk assessments makes impact-based forecasting unique among other forecasts and warnings. Hazard forecast information combined with vulnerability and exposure data is used to create a risk assessment. Moreover, impact-based forecasting is one of the crucial elements for forecast-based financing systems.

Mongolia successfully developed and implemented impact-based forecasting for the extreme conditions that lead to large-scale livestock mortality, known as *dzud* (see Chapter 15). The Mongolian Red Cross and FAO use these monthly updated impact-based forecasts to trigger the release of funds before the impacts of *dzud* are felt.

Disaster risk management

The country is highly exposed to natural hazards, but moderately vulnerable. In Mongolia, two priority hazards for DRM have been identified through both hazard-specific exposure and vulnerability indices.⁷¹⁵ Regarding priority one, the hazard-specific national exposure indices indicate that earthquakes, droughts, *dzuds* and dust storms are the four hazards that are high in their major exposure profiles. The hazard-specific national vulnerability indices indicate that only earthquakes are high in their major vulnerability profile. Concerning priority two, hazard-specific national exposure indices show that floods, windstorms, snowstorms and wildfires have the major exposure profiles at the moderate level. Hazard-specific national vulnerability indices show that only wildfires have their major vulnerability profile at the moderate level, whereas other hazards are low in major vulnerability profiles.

The priority one element-specific national exposure indices concern warehouses, and the priority one element-specific national vulnerability indices include power stations and enterprises. Industrial facilities are required to develop emergency response plans after the operation permit is issued. Simulation exercises must be carried out every four years. Since 2019, 32 legal entities were certified by the NEMA to perform disaster risk assessments. From 2020 to 2024, these entities have conducted risk assessments in about 500 organizations. According to the NEMA, however, for working group members to perform initial disaster risk assessments, organizers always include representatives from the Government and NGOs, business organizations, elderly citizens, citizens who have been living in the area for a long time, children, people in the working group, as well as men and women in equal numbers in terms of gender.⁷¹⁶

⁷¹⁴ NEMA, ADB (2023).

⁷¹⁵ Ibid.

⁷¹⁶ NEMA (2022).

In terms of the major exposure profile of individual target elements at risk, the top five *aimags* are: Uvurkhangai, Bayankhongor, Bayan-Ulgii, Khuvsgul and Umnugobi. Concerning the major vulnerability profile of individual target elements at risk, the top five *aimags* are: Bayan-Ulgii, Uvurkhangai, Darkhan-Uul, Ulaanbaatar and Sukhbaatar.

According to the 2023 National Disaster Risk Assessment, the country's DRR capacity is high. The capacity for DRR was assessed against 20 indicators on four dimensions, i.e., (i) the availability and quality of disaster risk information, (ii) the extent and depth of risk governance, (iii) the level of disaster preparedness, and (iv) the availability and use of financial resources for DRR. The results indicated that the national DRR capacity is predominantly high as the national capacity for disaster risk information and disaster preparedness is high, whereas the national capacity for risk governance and financial resources for DRR is moderate. The regional capacity for DRR is as follows: the Central, Khangai and Western regions have high capacity, whereas Ulaanbaatar and the Eastern region have moderate capacity. At the *aimag* level, Gobisumber *aimag* has the highest capacity for DRR. Overall, around half of the *aimags* have high capacity while the second half has moderate capacity.

Early warning systems for disasters

NAMEM is the body responsible for the early warning system for natural disasters. This body has a forecast department in each of the 21 *aimags* for early warning. The current early warning system includes snow and dust storms, thunderstorms, strong winds, flash floods and forest and steppe fires. There is no drought forecast. In rural areas, 48–72 h before storms, winds, heavy rain, NAMEM sends a warning to NEMA which disseminates it to the population. Since 1999, NAMEM had only one radar, which covered 480 km (radius). A second radar was bought in 2022, covering 240 km (radius). However, these two radars do not cover the entire country. There are plans to acquire two more radars in the next 2–3 years. As of September 2024, the technology used for early warning is not covering the entire territory, so people in rural areas may not be informed of disasters in due time. Moreover, the current number of hydrometeorological stations is not sufficient to monitor rivers for floods and only 52 per cent are automatic stations (see Box 16.3).

NAMEM has satellite data monitoring for wildfires. When they identify wildfires, they send the information to NEMA, who will take appropriate actions. Also, the communities inform NEMA when they detect wildfires. The main issue is that the specific topography of the country and strong winds make it difficult to access the affected areas and fight the fires. A fire risk assessment map was prepared in 2019–2020, but it lacks integration of climate data, such as wind and precipitation. To build resilience to forest fires, UNDP is implementing a project on an early warning system for forest fires funded by the Government of China (2024–2025). The project aims to build local communities' capacity on early warning, provide equipment to the fire brigade and training for better resilience.

Concerning earthquakes, NEMA implemented in 2012–2014 an Earthquake Disaster Warning System that includes a control centre, 60 siren towers, three televisions and five radio systems, earthquake monitoring sensors and a mobile control centre. Disaster information comes from the Research Centre for Astronomy and Geophysics or NAMEM through special lines and controlling mechanisms by the NEMA Control Centre. The warning methods consists of siren towers, the emergency broadcasting system through television and radio, and the cell broadcasting service for mobile network operators. The issue is that the system is getting old and needs upgrading, i.e. the mobile network is still 2G. Moreover, the system does not allow the authorities to know exactly the population that is being warned.

Box 16.3: Flood prevention measures in Ulaanbaatar

The 2012 Law on Water establishes a special protection zone not less than 50 meters from the riverbanks. However, this law has not been always respected, especially in Ulaanbaatar, where illegal buildings are found in several riverbanks, e.g., Gers and buildings at the banks of Uliastai and Selbe Rivers. However, there are no plans to resettle the population living in the flood prone areas of the main rivers, and the budget for this is limited. The Water Agency is working with the Ulaanbaatar municipality to develop a related land taxation aimed at avoiding illegal construction.

The current facilities (reservoirs or dams) to prevent floods in the capital city are mostly obsolete as they were built in 1996 when there were important floods. Moreover, they are full of sediments. A cooperation between the municipality and the Water Agency has allowed cleaning up activities of such facilities and the building of a 1.5 km wall in the Selbe River. There are also plans to build two water reservoirs (small dams) in the Selbe River, which is prone to floods. A feasibility study was carried out for the construction of one reservoir in the upper part of the Tuul River, which is also flood prone and has no reservoir. Reservoirs or dams are very important due to the increase of floods and droughts.

Another issue is the lack of automatic monitoring stations in the main rivers. For example, there are only two NAMEM monitoring stations in the Selbe River. The Water Agency plans to buy two new automatic stations in 2025 to measure the water level in this river.

Disaster preparedness and emergency response

Since 2017, disaster preparedness and emergency response have improved. New laws and policies cover disaster preparedness and emergency response, identifying risks and hazards. Recommendation 14.3 of the First EPR of Mongolia is about enhancing disaster preparedness, response, recovery, rehabilitation and reconstruction efforts. The implementation of part (a) is ongoing as training on building capacities of stakeholders in contingency planning has been carried out. Part (b) was implemented as response plans were developed and validated at the national and *aimag* levels. The implementation of parts (c) and (d) on strengthening the capacity of NEMA and the coordination and monitoring of disaster response is ongoing. Part (e) on developing mechanisms to improve targeting of post-disaster assistance of the poor is underway.

However, increasing awareness about the impact of those risks, being prepared for them and making resources (including financial) available to implement preparedness and emergency response plans is still a challenge. Recommendation 14.4 of the First EPR of Mongolia regards increasing awareness of and understanding of DRM concepts and practices of all stakeholders involved in the DRM system. Parts concerning conducting multi-hazard risk assessments (a) and developing and updating a national multi-hazard risk profile (b) have been implemented with the 2023 National Disaster Risk Assessment and the 2020 Ulaanbaatar Disaster Risk Comprehensive Assessment, which is currently being updated. Nevertheless, part (c) was not implemented as a coordination mechanism for data collection and information sharing between relevant entities was not set up. Part (d) on raising awareness, educating and building capacities and skills for effective community and citizen engagement in DRM activities is partially implemented and still ongoing.

Although the Government's measures have enabled an increase of investments in DRR and preparedness during the last years, opportunities to engage the private sector as a complement to further increase in overall financial resilience to disasters remain low. There is still a limited understanding and knowledge among policy makers, private sector stakeholders and the public about enhanced financial arrangements for disaster response, the levels and nature of disaster risk, opportunities for DRR and preparedness measures.

Emergency preparedness and response capacities are more developed at the national level, although NEMA still lacks sufficient personnel and equipment. At the local level, international organizations and NGOs support Government efforts and provide technical assistance with emergency response services, especially in regions frequently affected by disasters. Traditional early warning systems are present in communities that experience earthquakes and floods. In the most at-risk locations, people often use their indigenous knowledge to prevent the adverse effects of hazards and self-manage their relocation when disaster strikes. Effective coordination of the activities of all DRM structures at national and local levels to optimize the use of available funds and resources is among the recurrent challenges (see Box 16.3).

NEMA has developed specific emergency preparedness and response plans, which include floods, forest and steppe fires, dzuds, pandemics, chemical hazards, earthquake, dam failure, storms (dust, snow, wind) and building fires. Nevertheless, capacity is lacking to efficiently deal with disasters, especially regarding adequate equipment, hardware and software, human resources and training, as well as more accurate assessments for planning. Flood risk maps are established for Ulaanbaatar. Flood risk maps for Mongolia are being developed and will be published in 2026.⁷¹⁷

Building back better

Mongolia has made efforts to enhance disaster preparedness for effective response to “build back better” in recovery, rehabilitation and reconstruction.

Recovery programmes and initiatives in the past have been conducted with the support of NGOs, such as People in Need, the International Federation of Red Cross and Red Crescent Societies (IFRC) and Mercy Corps. To further support the work of NGOs in the country, the Government included a new chapter about International Humanitarian Assistance into the 2017 Law on Protection against Disasters, according to which all aid and services must meet the needs of affected populations and abide by the standards of humanitarian aid rehabilitation and reconstruction. However, the country has not enough capacity to implement such standards.

Instruments for disaster risk reduction and disaster management

Financing disaster risk reduction

The Law on Protection against Disasters has established that administrative, territorial units and Government organizations should include in the budget at least 1.0 per cent of the annual budget for disaster protection and risk reduction measures,

⁷¹⁷ Batnyam (2022). Narangerel (2024).

and legal entities should plan and spend at least 1.5 per cent of the annual production and service costs. Following these requirements, all 21 *aimags* significantly increased their budgets for DRM. The related budget increased from 2.3 billion tugriks in 2018 to 10.4 billion tugriks in 2022, according to a 2022 report by NEMA to the National Council for DRR.

Disaster risk insurance is a financial instrument that can enhance resilience. As of June 2025, the legal framework for disaster risk insurance is not yet fully established and is not governed by a standalone law. As of June 2025, the draft law on risk insurance is not adopted. Certain regulations are reflected in relevant legislation and policy documents. This issue is mainly addressed in the Law on Protection against Disasters, which requires all legal entities to have an insurance policy in place against the potential risk of natural and technological disaster incidents. Moreover, the Government established a State-funded index insurance system for certain agricultural assets, such as livestock in 2005 and crops (wheat) in 2014, against extreme weather conditions. This index insurance system provides compensation based on a percentage of overall losses in a region, rather than on actual losses incurred by herders or agribusinesses. Loss compensation is handled by a partnership between private and public insurance companies, based on the percentage of loss exceeding the regional threshold. There are currently 17 private insurance companies offering a range of insurance products, including for buildings and vehicles, against multiple disaster risks such as earthquakes, floods, fires and other disasters most common in Mongolia. Some commercial banks and the state bank offer risk insurance with an interest rate reduction option built into loans to herders. There is no national disaster risk financing strategy in place.

According to a self-assessment carried out in 2022,⁷¹⁸ 13 out of 22 *aimags* assessed their capacity on budgeting for DRR as satisfactory (score of 50 to 75 per cent) to very satisfactory (score of 75 per cent or above). Gobisumber, Umnugobi, Dundgobi, Bulgan and Uvs *aimags* assess their capacity as the highest, while Khovd and Arkhangai *aimags* assess their capacity as the lowest. For 2022, all *aimags* state that at least one per cent of the budget for 2022 was reserved for DRR; seven *aimags* state that they have already used all this budget for DRR activities; five *aimags* say 70 per cent of the reserved budget has been spent already on DRR activities; for 7 *aimags* this is 50 per cent, for one *aimag* (Gobi-Altai) this is 25 per cent and for two *aimags* (Khovd and Arkhangai) it is less than 25 per cent.

Building standards and regulations

As of September 2024, guidelines to redesign and retrofit urban infrastructure have been prepared and were submitted for approval to the Government. Although construction standards were developed for rebuilding, no major rebuilding works have been done so far.

There is little information about the seismic design regulations in Mongolia, and such regulations are not included in the Law on Construction.

Land use zoning

Ulaanbaatar has developed several issues related to the lack of urban planning, such as the absence of a systematic city structure, boundaries and planned expansion; few public open spaces and green areas; undeveloped land use standards; among others. Moreover, the informal settlements on the fringe of the city have become the *ger* areas and represent a substantial part of the city with more than 60 per cent of the inhabitants. The fast and unplanned growth of the *ger* areas has resulted in many issues, such as a lack of adequate urban public services and infrastructure, poor quality construction, air pollution and other environmental issues.

Another important issue is that Ulaanbaatar lacks waterfront open spaces along major rivers (Tuul, Selbe and Uliastai Rivers) and streams. These open spaces would provide green areas within the city for residents. More than 30 parks on 3,780.4 ha of land are planned to be built by 2030, so the city will have 30.3 m² of open space per resident. The use of NBS in cities can bring several benefits. Parks and open spaces would provide shading and reduce city temperatures during summer and mitigate wind and snowstorms during other seasons. Open spaces also contribute to reducing air and noise pollution, providing a natural balance with the built environment.

The Ulaanbaatar 2020 Master Plan and Development Approaches for 2030, developed in 2014, comprises four volumes including considerable technical and background information and a summary for the general public. The proposed zoning system covering the area of the Ulaanbaatar City includes seven zones: residential, commercial, industrial, open space, mixed use, engineering infrastructure and special purpose.

The Study on City Master Plan and Urban Development of Ulaanbaatar City (funded by the Japan International Cooperation Agency (JICA)), which revised the existing master plan, presents a detailed zoning system in its Part II: Ulaanbaatar City

⁷¹⁸ Ibid.

Master Planning 2030. The area covered by this new zoning system is approximately 27,670 ha in which the Urbanization Promotion Area occupies 18,470 ha (66.8 per cent) and the preserved area for Water Resource Prevention and Environmental Protection accounts for 9,200 ha (33.2 per cent). Three major zones: Residential Housing Zone, Commercial and Business Zone and Industrial Zone, are allocated with areas of 10,250 ha, 2,300 ha and 1,990 ha, respectively. The Greenery Area, Recreation and Tourism Zone totals 3,760 ha, meaning that the per capita green area will be about 25 m² in 2030. In addition, the Study proposes a legal designation system of Special Policy-based Districts which is incorporated into the zoning system. This system aims to promote appropriate land use with special consideration of environmental conservation and historical and cultural assets protection. There is no available information on the current implementation status of the Plan.

Integrated National Disaster Information System

A project for an integrated national disaster information system (E-NEMA) was developed in 2020, but has not been implemented so far, mainly due to the lack of funds.

Disaster protection training

NEMA organizes disaster protection training at the national and local levels for:

- Senior managers and other personnel of NEMA;
- Students, school and preschool children;
- State and local administrative unit officers, legal entity managers and workers;
- Disaster protection services and professional units' personnel;
- Citizens and communities.

From 2017 to 2022, about 755,000 people participated in 187 trainings at the national and local levels. The guidelines for disaster protection comprehensive training and command staff training were approved by the NEMA 2017 Order No. A/323. Annually, disaster protection comprehensive training and command staff training are organized in two or three *aimags* under the direct supervision of NEMA, and in two or three *soums* and districts under the supervision of the Emergency Management Department of *aimags* and Ulaanbaatar. Disaster evacuation is included in the training programmes.

16.4 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

The Law on Protection against Disasters establishes national and *aimag* councils aimed at the reduction of disaster risks, to ensure participation and cooperation of State, private and inter-sectoral bodies and citizens and provide policy recommendations. In accordance with the Law, governors in *aimags* and *soums* should also establish disaster protection units composed of 50–60 appointed professional personnel to be involved in disaster protection activities. Roles, responsibilities and mandates of multiple stakeholders and agencies including government and non-government organizations, private sectors, volunteers and citizens, in DRR are clearly defined. These reflect four priority areas and seven global targets of the Sendai Framework for Disaster Risk Reduction 2015–2030 and make it clear that DRR is critical to development.

This law also highlights the importance of conducting vulnerability and multi-hazards risk assessments. It focuses on the following key areas: DRR and prevention, humanitarian coordination; and recovery and reconstruction. It has also introduced international cooperation and procedures for coordinating and facilitating foreign assistance in the event of a large-scale disaster response. Other improvements on disaster management introduced by this law include the definition of phases of disaster protection and of disaster terminology to align with international DRM terminology and mandatory funds for DRR by State and local administrative bodies. The Law has also introduced significant changes concerning financing for disaster prevention, risk reduction, mitigation and post-disaster recovery. In the Law, references to gender are limited and cover topics such as the section on forming specialized disaster protection units which mentions age and gender eligibility criteria, and prohibiting discrimination based on gender in international humanitarian assistance.⁷¹⁹

Other related laws include the 2017 Law on State Reserve that regulates the process for stocking State reserve items, storage, transportation and renewal of the emergency State reserve. The 2015 Law on Fire Safety regulates the obligations as well as the mandate of local authorities, private enterprises, entities and individuals on providing fire safety. The 2003

⁷¹⁹ ADB (2022a).

Law on Meteorological, Hydrological and Environmental Monitoring provides for the monitoring of environmental and weather conditions, crucial for the natural hazards forecast and early warning.

Main regulations and guidelines related to disaster protection include the Regulation on Disaster Vulnerability and Risk Assessment (2006 Governmental Resolution No. 176); Regulation on Disaster Warning (2011 Governmental Resolution No. 339); Regulation on Mobilization of Resources and Evacuation during Disaster Situation (2011 Governmental Resolution No. 340); General Regulation on Fire Safety (2016 Governmental Resolution No. 339); Guidelines of Volunteer Activities for Disaster Protection (2016 Order of the Head of NEMA No. A/185); General Procedure of State Disaster Protection Services (2016 Government Resolution No. 97); Regulation on the State Emergency Commission (2017 Governmental Resolution No. 152); Regulation on Disaster Protection Specialized Professional Unit (2017 Order of the Deputy Prime Minister No. 75) and the Regulation on Coordinating Domestic Humanitarian Aids for Disaster Protection (2020 Government Resolution No. 133).

Policy framework

DRM policies currently lack a gender-sensitive approach. The absence of gender analysis in the DRM framework limits women's representation in disaster-related institutions and decision-making roles. Additionally, the lack of targeted social protection mechanisms exacerbates the vulnerability of rural women and girls, who often face increased violence, disrupted education and limited economic opportunities after disasters. This gap underscores the need for gender-responsive measures to enhance women's resilience and capacity to recover from environmental shocks.⁷²⁰

Medium-term Strategy for the Implementation of the Sendai Framework for Disaster Risk Reduction

The Medium-term Strategy for the Implementation of the Sendai Action Framework for Disaster Risk Reduction (2017 Government Resolution No. 355) is the national strategy for disaster risk reduction for the period 2015–2030. Its main goal is to reduce disaster risks by carrying out measures that prevent and minimize hazard exposure and vulnerability to disaster, through prevention, mitigation, preparedness and recovery actions. The Strategy was developed based on the four priority areas and seven global targets of the Sendai Framework for Disaster Risk Reduction 2015–2030. Moreover, it is strongly aligned with eight SDGs, weakly integrated with five SDGs and not connected with four SDGs. This document was developed to be implemented in three phases: 2017–2020, 2021–2025 and 2026–2030. SDG target 11.b concerns increasing the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and to develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic DRM at all levels, by 2020. SDG indicator 11.b.1 maintained a score of 1 and the indicator 11.b.2 has progressed from 27.2 to 100 in the review period.

The Action Plan of the first phase (2018 Order No. 23 of the Deputy Prime Minister) implemented actions based on cooperation and partnership between local governments and scientific and civil society organizations, private organizations, international organizations and communities. It was completed in 2020 with an implementation rate of 94.2 per cent. The Action Plan of the second phase started in 2021 and will be completed in 2025 (2021 Order No. 51 of the Deputy Prime Minister). This plan includes 56 measures and is a main body of the Strategy. The third phase (2026–2030) of the Strategy is expected to consolidate the achievements reached in the previous phases.

National Programme of Community Participatory Disaster Risk Reduction

The National Programme of Community Participatory Disaster Risk Reduction (2015 Governmental Resolution No. 303) covering the period 2015–2025 guides the implementation of the State Policy on Disaster Protection with regard to building community resilience, with emphasis on women, children and vulnerable people, including low income and poor people. The main purpose is to reduce disaster risks through the involvement of communities and individuals in disaster prevention activities, enhancement of their knowledge and skills by organizing training and awareness raising campaigns, strengthening the safe living environment and culture as well as resilience to climate change adaptation. More specifically, the programme aims at:

- Building a legal environment and system for community participatory DRR;
- Organizing community training and awareness in DRR at all levels;
- Planning and implementing DRR with community participation;

⁷²⁰ Ibid.

- Enhancing the emergency warning system for climatic and hydro-meteorological hazard prevention information;
- Strengthening community resilience through climate change adaptation.

In 2016, its Implementation Plan was adopted (2016 Order of the Deputy Prime Minister No. 50), including two phases. The implementation of the first phase was evaluated at 91.2 per cent and completed in 2020. The second phase will be completed in 2025.

Vision 2050 Long-term Development Policy

The Vision 2050 Long-term Development Policy⁷²¹ is the national long-term development policy (2020 State Great *Khural* Resolution No. 52), being the successor of the 2016 Mongolia Sustainable Development Vision 2030⁷²² (see Chapter 1). Climate change and DRR issues are mainstreamed into the national development policy in a certain context. Climate change adaptation measures are aimed at reducing the exposure and risk of vulnerable sectors while strengthening the national adaptive capacity and, therefore, reducing disaster risk.

In addition, the Vision 2050 outlines nine strategic priorities that are aligned with the SDGs. One of these priorities, outlined in Goal 7, states that “Ensure human and societal security through strengthening national defence capacity, protecting human rights and freedoms, preserving social order and safety of the living environment of citizens, and reducing disaster risks.”

National Adaptation Plan

The 2024 National Adaptation Plan (2024 National Climate Committee Resolution No. 01) states the country's strategy for adapting to climate change impacts. It focuses on enhancing resilience in eight key priority sectors, including ecosystem, biodiversity, land degradation and desertification; water regime, reserve and supply; forest sector; weather and climate induced natural disasters; livestock husbandry, rangeland; farming; public health; and social security, livelihood.⁷²³ These sectors are closely related to DRR and integrate climate risk assessments into national development planning to cope with climate challenges.

National Determined Contribution

The 2019 NDC (2019 Government Resolution No 407) has the target to mitigate its greenhouse gas emissions by 22.7 per cent by 2030 (See Chapter 7). The NDC covers energy, agriculture, industrial processes and product use, and waste sectors. It also states qualitative adaptation targets related to natural disaster, public health, livelihood, water resources, forest resources, biodiversity, among others.

Other relevant policy documents

Other relevant policy documents include the 2015 National Plan for Prevention and Rescue of population, Animals and Properties from Disaster, Disaster Response and Early Recovery (2015 Governmental Resolution No. 416); 2016 Measures for Earthquake Prevention and Risk Reduction (2016 Resolution of the State Great *Khural* No. 34); 2016 Action Plan for Earthquake Prevention and Risk Reduction (2016 Government Resolution No. 282); 2016 General Procedure of State Disaster Protection Services (2016 Governmental Resolution No. 97); and 2016 General Procedure on Volunteerism in Disaster Management (2016 Order of the Deputy Prime Minister No. 34).

The National Security Concept, State Policy on Disaster Protection and National Programme on Strengthening Disaster Protection Capacity, National Action Programme on Climate Change, all adopted in 2011, were successfully implemented. They have played an important role in strengthening DRR in the country.

Recommendation 14.1 of the First EPR of Mongolia concerned enhancing coherence and increasing the effectiveness of national DRM, climate change adaptation and sustainable development efforts. Part (a) was implemented as the national and local strategic documents on DRM are closely linked to and feed into the broader national sustainable development agenda. Parts (b) and (c) were also implemented as mainstreaming and integrating DRM and climate change adaptation into sectoral and local development plans and budgets, as well as aligning the national DRM and climate change policies have been accomplished (e.g., National Adaptation Plan and Mid-Term Strategy to Implement the Sendai Framework for Disaster Risk Reduction).

⁷²¹ Mongolia (2020).

⁷²² Mongolia (2016).

⁷²³ Mongolia (2024a).

Projects and initiatives

Several DRR related projects and initiatives have been developed in Mongolia during the review period. For example, the global campaign “Making Cities Resilient: My City is Getting Ready” has been implemented by almost all cities and *aimags*. It is divided into two phases: 2010–2020 and 2020–2030. In 2016, Ulaanbaatar along with Erdenet and Darkhan cities, joined the campaign, with all *aimags* following in 2018, therefore integrating DRR into their local development policies and plans.

Another example is the project Strengthening the National Capacity of Earthquake Disaster Risk Protection and Prevention in Mongolia, funded by Japan's Fund for Poverty Reduction, supported disaster risk reduction education programmes in the school and preschool curriculums. As a result of the project, a joint working group of Mongolia and Japan developed a training programme on Life Safety Education. Since the Academic Year 2018/2019, school and preschool children have studied the programme. University, college and vocational school students study disaster management as a one credit core subject.

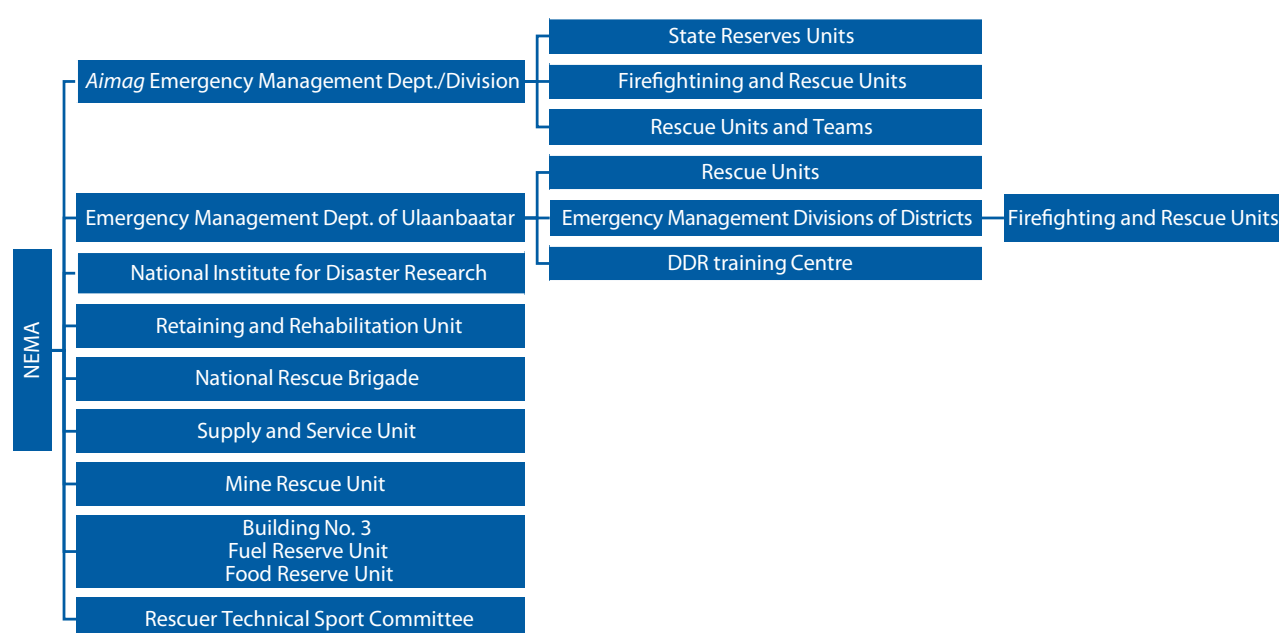
Institutional framework

National Emergency Management Agency

NEMA is responsible for the development and implementation of the State disaster protection policy and legislation, as well as for the operational national level disaster management activities. To reach these objectives, NEMA works in close cooperation with other relevant ministries and agencies. There are several subdivisions of NEMA including an early warning centre, rescue units, firefighting units and others. Its organizational structure is illustrated in Figure 16.4.

According to the Law on Protection against Disasters, DRR activities at the national level are organized under the oversight of the Government, specifically the Deputy Prime Minister, who leads the work during emergencies (see Figure 16.5). During a disaster response, NEMA is responsible for coordinating the activities of different stakeholders who are involved in disaster response including non-governmental and governmental organizations, the private sector, community groups and international organizations. In addition, Ulaanbaatar and all 21 *aimags* have an emergency management division or department. Overall, there are more than 7,000 emergency staff nationwide (rescuers and firefighters). The emergency management department in each *aimag* is responsible for disaster prevention, recovery, reduction of risks and vulnerabilities, and assessment of emergencies and disasters within the *aimag*. These units function as implementing agencies together with the *aimag* Governor's Office and are funded by the State budget. Governors at the *aimag* level are responsible for leading the emergency response within the *aimags*.

Figure 16.4: Structure of NEMA



Source: NEMA, 2024.

The National Disaster Research Institute, under NEMA, greatly contributes to enhancing a science-driven approach to DRR. The institute has conducted 53 baseline and supplementary studies to support strengthening disaster management activities in Mongolia since 2015. The studies and research reports are used for developing the National Midterm Review of the Sendai Framework.

Ministry of Climate Change and Environment

The Climate Change Department within the Ministry is responsible for policy issues related to climate change and DRR, as well as for the cooperation with UNFCCC. As part of the Ministry, NAMEM provides critical data for natural hazards forecasting and early warning in case of a disaster, ensuring timely information to NEMA.

Ministry of Industry and Mineral Resources

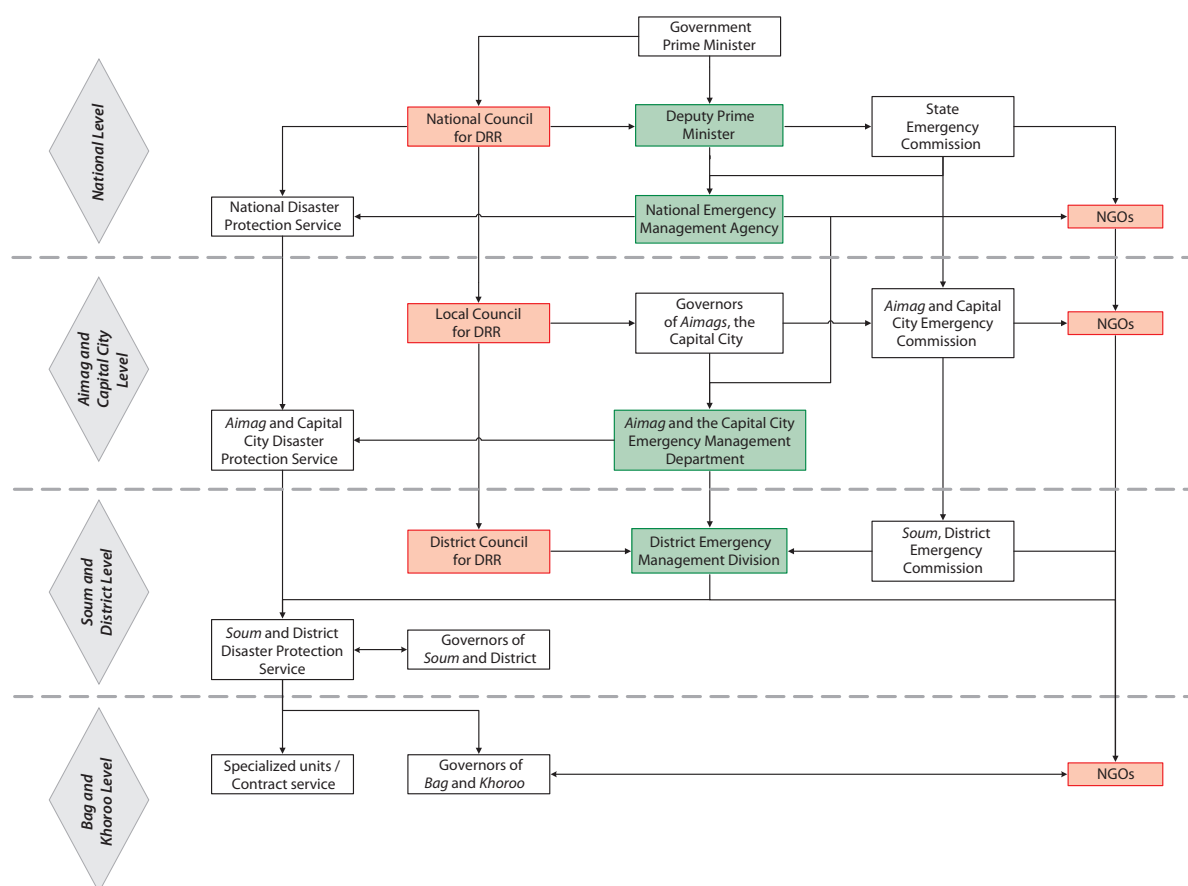
This ministry is responsible for developing and implementing mining policies, including those related to DRR. It cooperates with NEMA in case of a mining related disaster, especially through their "Rapid Operation Mechanism".

Other institutions also play an important role in DRR. For example, the Water Agency and the National Forestry Agency are crucial in the management of floods and forest and steppe fires, respectively.

State Emergency Commission

The State Emergency Commission is the primary decision maker for political and operational issues during a national emergency situation. It is tasked with organizing DRR activities as well as coordinating and monitoring initial response actions established by the Government. The Commission is also responsible for organizing emergency commissions at the *aimag*, Capital, *soum* and Ulaanbaatar's district level that are mandated to be established by the Governor of the relevant administrative unit (see Figure 16.5). The Commission is chaired by the Deputy Prime Minister, and several ministries are part of the Commission, including those responsible for agriculture, energy, environment, climate change, health, urban planning and transport. NEMA supports the Commission in overall crisis management, including planning at the interdepartmental and interagency levels. Funding requests and resource requirements are examples of the types of issues that are addressed by the Commission.

Figure 16.5: Institutional framework for DRR



Source: NEMA, 2024

National Council on Disaster Risk Reduction

The National Council on Disaster Risk Reduction was established to implement the Law on Protection against Disasters. It is responsible for developing policies and plans related to disaster prevention, preparedness, reduction, rescue, response and recovery. The National Council is also in charge of establishing councils at the local level (*aimag* and Ulaanbaatar) and Ulaanbaatar's district level (see Figure 16.5).

Bilateral and multilateral cooperation in DRR

A number of partners and stakeholders have played an important role in protecting Mongolia's people from disasters and supporting the government after large-scale disasters. Bilateral cooperation is carried out with NEMA and several organizations from different countries, including the Russian Federation, China, the United States of America and the Republic of Korea.

Multilateral cooperation is carried out with several international organizations including the United Nations Office for Disaster Risk Reduction, International Civil Defence Organization, Asian Disaster Reduction Centre, Asian Disaster Preparedness Centre (ADPC), IAEA, International Fire Chiefs' Association of Asia, World Bank, ADB, IFRC, Mongolian Red Cross, Mercy Corps, World Vision, Save the Children, JICA, Korea International Cooperation Agency, Turkish International Cooperation Agency, SDC and United States Agency for International Development.

Community participation in DRR

With the adoption of the 2017 Law on Protection against Disasters, citizens' participation in DRR has been enhanced. Emergency commissions have been established in many *soums* and districts. Members of such groups use their indigenous knowledge to prevent the adverse effects of the hazards and self-relocate themselves when disaster happens. Traditional early warning systems have proven to be crucial in communities experiencing frequently earthquakes and floods and the SDG indicator 1.5.4 on the proportion of local governments that adopt and implement local DRR strategies in line with national DRR strategies has showed a huge progress passing from 27.2 in 2017 to 100 in 2022.

16.5 ASSESSMENT AND RECOMMENDATIONS

Assessment

Since 2017, Mongolia has made a significant progress in identifying hazards, assessing risk exposure and vulnerability, and estimating the frequency and severity of potential damage and losses. This increased knowledge and awareness about the hazards and risks led the Government to adopt and implement specific laws, regulations, policies, programmes and plans to reduce disaster risk.

However, the strengthening of the current disaster management system remains crucial to supporting the country's sustainable socioeconomic development. As of September 2024, the approach to DRR, including the further development of impact-based forecasting that integrates risk assessment and provides information to enable action before disasters, remains limited. For instance, Mongolia currently produces impact-based forecasts only for *dzud*.

Although the Government's investment in DRR has increased since the adoption of the 2017 Law on Protection against Disasters, there remains limited understanding and knowledge among policymakers, private sector stakeholders and the public regarding enhanced financial arrangements for disaster preparedness and response. The current financial management system related to DRM is not comprehensive and has limited impact. The absence of a disaster risk financing strategy, integrating forecast-based financing systems, hinders the effective implementation of DRR policies and plans through appropriate financing instruments and related budgetary support for disaster relief, early recovery and reconstruction. The Law also provides a legal basis for disaster risk insurance; however, the legal framework for disaster risk insurance has not been fully established. A standalone law on risk insurance was prepared but has not yet been adopted, hampering the use of disaster risk insurance as a financial instrument to enhance resilience.

Addressing the impacts of climate change is essential for disaster risk reduction, in order to minimize its adverse effects on the population, property, the environment and the economy. In Mongolia, flooding affects both rural and urban areas and has become more frequent. When communities and infrastructure are unable to cope with inundation, the resulting flood impacts can be devastating. Hard engineering measures, such as dams and walls, are often the default methods of flood management in the country. However, these structural measures cannot easily adapt to changing conditions, are expensive to construct, and can cause negative social and environmental

impacts. NBS for flood management, such as restoration of wetlands, can maximize the benefits of floodwaters while managing and minimizing negative consequences, but such approaches are not commonly applied in Mongolia. Overall, the use of NBS in DRM remains low.

Mongolia is addressing GHG emissions, which lie at the heart of the climate crisis, but efforts to strengthen fire risk management approaches to mitigate the worst impacts of fires are lagging. Around 55 per cent of Mongolia's territory is considered at risk from forest and steppe fires. However, existing risk assessment methods do not incorporate climate data (e.g., precipitation, wind), and the early warning system for such disasters is insufficiently developed. Moreover, the capacity of local communities to prepare and respond to forest and steppe fires remains inadequate to cope with the increasing intensity and frequency of such events. The State budget remains the main financial source to combat wildfires, while opportunities to engage the private sector and international institutions, thereby increasing overall financial resilience to disasters, are rare.

Natural hazards also pose significant threats to process units across different industries, including mining. However, Natech risk assessment is only briefly considered during industrial risk assessments in Mongolia.

Current technologies used for early warning do not cover the entire territory, meaning that people in rural areas may not receive timely disaster notifications. NAMEM currently operates only two radars, making network expansion essential for better coverage and more effective early warnings. Furthermore, the current number of hydrometeorological stations is insufficient to monitor rivers for flooding, and only 52 per cent of these stations are automated.

Regarding earthquakes, NEMA has operated an early warning system since 2012–2014. The warning methods consist of siren towers, an emergency broadcasting system through television and radio, and a cell broadcasting service via mobile network operators. However, as of September 2024, the system had not been upgraded. For example, mobile networks have only 2G coverage, and the system does not allow authorities to determine precisely which population groups are being warned.

NEMA has made efforts to improve the collection of disaster data in the country and regularly reports to UNDRR. Nonetheless, several gaps remain in data collection and databases, with some indicators missing. Disaster-related indicators and data, such as those by disaster type, loss and damage, relevant for environmental reporting and monitoring progress towards the SDGs lack prioritization, resulting in less reliable data. Moreover, cooperation and data sharing between NEMA, NAMEM, NSO and other institutions involved in DRM, as well as between the national and sub-national bodies, remain inefficient. These institutions also lack modern IT tools to ensure adequate data processing and sharing. A project for an Integrated National Disaster Information System (E-NEMA) was developed in 2020 but has not yet been implemented.

Recommendations

Enhancing the national disaster risk management approach

Recommendation 16.1:

The National Emergency Management Agency, together with the National Agency for Meteorology and Environmental Monitoring, should:

- (a) *Develop impact-based forecasts for all weather and climate hazards to minimize socioeconomic costs;*
- (b) *Develop and adopt a national disaster risk financing plan using forecast-based financing systems;*
- (c) *Strengthen regulations related to disaster risk insurance.*

Managing flood risks

Recommendation 16.2:

The Water Agency, in cooperation with the Ministry of Environment and Climate Change, the National Emergency Management Agency, the National Forest Agency and other relevant bodies, should:

- (a) *Designate flood risk areas nearby main rivers and lakes;*
- (b) *Apply nature-based flood management methods, either independently or in combination with engineering methods, to maximize the benefits of floodwaters while managing and minimizing negative consequences.*

Strengthening wildfire risk management

Recommendation 16.3:

The National Emergency Management Agency, in cooperation with other institutions involved in disaster risk management, should:

- (a) Continue updating fire risk management approaches;
- (b) Further regulate land-use change to avoid development in high-risk areas;
- (c) Enhance the early warning system for forest and steppe fires;
- (d) Integrate climate data into forest and steppe fire risk assessment;
- (e) Explore the use of sources other than public funds to finance forest and steppe wildfire management;
- (f) Increase the disaster management capacity of local communities to address wildfire risk management.

Natural-hazard triggered technological accidents

Recommendation 16.4:

The National Emergency Management Agency should ensure that risk assessments of industrial facilities consider the risk of natural-hazard triggered technological accidents for better preparedness and response in case of such events.

Strengthening early warning systems for disasters

Recommendation 16.5:

The National Emergency Management Agency, National Agency for Meteorology and Environmental Monitoring and the Institute of Astronomy and Geophysics should:

- (a) Expand radar coverage to the entire national territory;
- (b) Increase the network of hydrometeorological monitoring stations including the installation of automatic stations;
- (c) Upgrade the early warning system for earthquakes.

Disaster-related data collection and sharing

Recommendation 16.6:

The National Emergency Management Agency, in collaboration with the National Statistics Office and other relevant stakeholders, should:

- (a) Enhance their disaster-related databases through the adoption of international standards for data collection and better coverage of data gaps;
- (b) Prioritize disaster-related indicators;
- (c) Increase the capacity for data collection and sharing between relevant institutions at both national and local levels;
- (d) Develop an integrated national disaster information system.

CHAPTER 17

HEALTH, FOOD SAFETY AND THE ENVIRONMENT

17.1 POPULATION HEALTH STATUS

Population development

As of the end of 2023, the population of Mongolia was 3.504 million marking an increase of 1.5 per cent compared to the previous year. The population was 3.178 million in 2017. The average population density is 2.2 persons per km² in 2023. In 2023, most of the population lived in urban areas: 2,479,930 people (70.8 per cent), up from 2,146,716 people (67.6 per cent) in 2017. The population living in rural areas was just under 1.031 million in 2017 and decreased to 1.024 million at the end of 2023. During the last 10 years, the distribution between the populations of rural and urban areas remained almost the same. The population of Ulaanbaatar, the capital city, was 1.734 million people in 2023, representing 49.5 per cent of the total population. The population density in Ulaanbaatar was 369.1 persons per km² in 2023, marking a twofold increase compared to 2000. Divided by regions, the most crowded *aimags* in 2023 were Khuvsgul *aimag* (136,845) in the Khangai region, Bayan-Ulgii *aimag* (116,615) in the Western region, Darkhan-Uul *aimag* (109,236) in the Central region and Dornod *aimag* (84,053) in the Eastern region.

The female population constituted 51.0 per cent of the total in 2023, resulting in a sex ratio of 96 men per 100 women. In 2023, individuals under 15 years old represented 31.6 per cent of the Mongolian population (up from 29.6 per cent in the year 2015), those aged 15–64 years 63.4 per cent (down from 66.6 per cent in 2015) and people aged 65 years and older represented 5.0 per cent of the Mongolian population (up from 3.8 per cent in 2015).⁷²⁴

A person born in Mongolia in 2023 may expect to live on average for 79.9 years if female and 67.6 years if male, while it was 75.4 years for a female and 65.9 years for a male born in 2017. Over the period 2017–2023, average life expectancy at birth has increased by 1.5 years for females and 1.7 years for males, however the difference in life expectancy between males and females remains elevated at almost 10 years. Strong variations in life expectancy are observed depending on *aimags*. A person born in Darkhan-Uul in 2023 may expect to live on average for 68.6 years while a person born in Bayan-Ulgii or Sukhbaatar may expect to live on average for 75.1 years.⁷²⁵

In Mongolia, the average number of years that a person can expect to live in “full health” from birth has improved by 7.5 years from 53.8 years in 2000 to 61.3 years in 2021. In the Western Pacific (WHO region), the healthy life expectancy at birth reached 68.2 years in 2021.

The birth rate increased from 21.7 births per 1,000 in 2007 to 25.9 births per 1,000 in 2016 and then slowly decreased. In 2023, the crude birth rate per 1,000 people stood at 19 births per 1,000 people. In 2023, 22.9 per cent of births were delivered by women over the age of 35; the proportion of live births delivered by mothers aged under 20 decreased from 8.1 per cent in 1997 to 4.0 per cent in 2007 and reached 5.4 per cent in 2016. In 2023, the general fertility rate was 77 live births per 1,000 women of reproductive age, compared with 95.3 in 2016 and 72.3 in 2007.⁷²⁶ In 2023, about 63.6 per cent of women of reproductive age (aged 15–49 years) have their need for family planning satisfied with modern methods, which relates to SDG indicator 3.7 of SDG target 3.7 (By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes). Adolescent birth rate (per 1,000 women aged 15–19 and 10–14 years) increased for women aged 10–14 years from 0.0 per 1,000 women in 2017 to 0.11 per 1,000 women in 2022, while decreased for women aged 15–19 years from 30.08 per 1,000 women in 2017 to 21.09 per 1,000 women in 2022 (SDG indicator 3.7.2).

In Mongolia, the rate of adolescent fertility has remained roughly the same since 2010. In Mongolia, 25 of every 1,000 girls ages 15–19 gave birth in 2022. The rate in 2022 was lower than the average rate in the East Asia and the Pacific region.⁷²⁷

In 2023, 99.7 per cent of deliveries occurred in a health facility and almost 100 per cent of deliveries were attended by skilled health personnel (SDG indicator 3.1.2). During the last 10 years, the proportion of births attended by skilled health personnel remained stable in Mongolia.

⁷²⁴ NSO, 2025.

⁷²⁵ Ibid.

⁷²⁶ NSO, 2023. ECE (2018).

⁷²⁷ WHO (2023a).

Photo 17.1: Mongolian gurt from sour milk

Photo credit: Kokhanchikov/stock.adobe.com.

Child and maternal mortality

Maternal mortality

In 2023, the maternal mortality ratio stood at 26.40 maternal deaths per 100,000 live births which is similar to the ratio in 2017 of 26.91 maternal deaths per 100,000 live births (SDG indicator 3.1.1 of SDG target 3.1 (By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births)). In 2021, the maternal mortality ratio peaked at 94.89 maternal deaths per 100,000 live births due to the coronavirus outbreak.⁷²⁸ The SDG target 3.1 sets a target of 70 maternal deaths per 100,000 live births by 2030. Given the national average maternal mortality rate, this SDG target has been achieved for several years. The Vision 2050 Long-term Development Policy aims to reduce the maternal mortality rate to 20 deaths per 100,000 live births by 2025, a goal that remains a challenge for Mongolia.⁷²⁹ Differences in maternal mortality rates are observed depending on the *aimags* and cities and over the years. For example, in 2023, several *aimags* reported no maternal mortality and others reported values higher than 57 deaths per 100,000 live births.

Under-5 mortality

The under-5 mortality rate was 17 deaths per 1,000 live births in 2017 and 14 deaths per 1,000 live births in 2021 and was 15 deaths per 1,000 live births in 2023.⁷³⁰

The value of SDG indicator 3.2.1 of the SDG target 3.2 (By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births) of 25 deaths or fewer for the under-5 mortality rate per 1,000 live births by 2030 has been reached since 2011 with an under-5 mortality rate estimated at 24.4 deaths per 1,000 live births, falling to a value of 16.74 per 1,000 live births in 2017 and 14.3 in 2023. Mongolia has already achieved the SDG target for the under-five mortality indicator and, on current trends, the under-five mortality rate will be 8.8 deaths per

⁷²⁸ NSO, 2025.

⁷²⁹ Centre for Health Development (2023).

⁷³⁰ NSO, 2025.

1,000 live births in 2030.⁷³¹ However, depending on the year and *aimag*, under-5 mortality rates have been close to the SDG target of 25 deaths per 1,000 live births (e.g., 24.8 in 2021 for Zavkhan *aimag*; 30.0 in 2023 for Tuv *aimag*), highlighting the need to maintain the country's efforts to reduce under-5 mortality.⁷³²

In 2023, the major causes of death in under-5-year-olds were related to certain conditions originating in the perinatal period, congenital malformations, deformations and chromosomal abnormalities, and diseases of the respiratory system (see Table 17.1).

For 86.5 per cent of children who died before reaching the age of five years in 2023, deaths were due to diseases while 13.2 per cent were due to accidents and injuries. The leading causes of death for under five-year-olds are perinatal pathologies in both urban and rural areas. The second leading cause of death in urban areas was due to congenital malformations (22.9 per cent) and the third due to an external cause of morbidity and mortality (7.8 per cent) while in rural areas the second leading cause of death was due to an external cause of morbidity and mortality (20.8 per cent) and the third due diseases of the respiratory system (13.2 per cent).⁷³³

Table 17.1: Top 10 causes of deaths for children between 1–4-year-old, 2017, 2021, per 100,000

<i>Cause</i>	<i>2017</i>	<i>2021</i>	<i>Change (per cent)</i>
Congenital anomalies	11.48	9.88	-13.94
Lower respiratory infections	9.88	6.70	-32.19
Drowning	4.20	3.34	-20.48
Diarrhoeal diseases	2.68	1.84	-31.34
Falls	2.06	1.82	-11.65
Fire, heat and hot substances	2.23	1.67	-25.11
COVID-19		1.45	
Road injury	2.49	1.36	-45.38
Paralytic ileus and intestinal obstruction	1.16	0.94	-18.97
Encephalitis		0.83	
Whooping cough	2.31		
Tuberculosis	1.03		

Source: WHO (2021).

According to the WHO data portal, congenital anomalies were the major cause of deaths for children aged 1 to 4 years old in 2017 (11.5 deaths per 100,000 population) and 2021 (9.9 deaths per 100,000 population). The second and third causes of deaths in 2017 and 2021 were lower respiratory infections at 11.5 and 9.9 deaths per 100,000 population respectively. Drowning was the third major cause of death with 4.2 and 3.3 deaths per 100,000 population in 2017 and 2021 respectively. Along with injuries, communicable diseases are the categories most represented among the top 10 causes of deaths for the children aged 1 to 4 years old. Diarrhoeal diseases (1.8 deaths per 100,000 population) remain in 2021 in the top 10 causes of deaths for children aged 1 to 4 years old, as they were since 2017. The same applies to lower respiratory infections. Tuberculosis and whooping cough, however, were no longer one of the 10 leading causes. Instead, COVID-19 (1.4 deaths per 100,000 population) and Encephalitis (0.8 deaths per 100,000 population) were newly included in 2021, compared to the 2017 data.

Infant mortality (under-1 year)

In Mongolia, the neonatal mortality rate (number of deaths during the first 28 completed days of life per 1,000 live births) has improved with a decrease from 8.9 deaths per 1,000 live births in 2017 to 7.5 in 2022. The target of the SDG indicator 3.2.2 for Mongolia, aiming for a neonatal mortality rate of 12 deaths or less per 1,000 live births by 2030, has been achieved since 2010 (11.4 deaths per 1,000 live births). According to current trends, neonatal mortality will be 5.7 deaths per 1,000 live births in 2030 which is in line with the Vision 2050 Long-term Development Policy, which sets the goal of reducing the

⁷³¹ UN Interagency Group for Child Mortality Estimation (2022).

⁷³² Centre for Health Development (2023).

⁷³³ Ibid.

infant mortality rate to 9 per 1,000 live births in 2025, 8 in 2030 and 2.3 in 2050. The improvement of the neonatal mortality rate in Mongolia is the same as that observed in the East Asia and Pacific region.⁷³⁴

The national infant mortality rate was 13.6 deaths per 1,000 live births in 2017, then it slowly decreased to 11.6 deaths per 1,000 live births in 2021. A slight increase was observed in 2022 and 2023 (the infant mortality rate was 12.3 deaths per 1,000 live births in 2023). Large disparities are observed across the different *aimags* of Mongolia. The highest averages (per 1,000 live births) of infant mortality rates calculated for the period 2014–2023 are found for the *aimags* of Bayan-Ulgii (19.3 deaths per 1,000 live births), Zavkhan (17 deaths per 1,000 live births) and Khuvsgul (17.9 deaths per 1,000 live births).⁷³⁵

The leading cause of death for infants is perinatal pathologies in both urban (59.3 per cent of infant deaths) and rural areas (56.8 per cent of infant deaths) (see Table 17.2). The second leading cause of death in urban areas is due to congenital malformations (22.2 per cent) and the third due to diseases of the respiratory system (5.1 per cent) while in rural areas the second leading cause of death is due to diseases of the respiratory system (12.0 per cent) and the third is due to an external cause of morbidity and mortality (10.2 per cent).⁷³⁶ According to the WHO data portal, preterm birth complications were the major cause of deaths for infants (under- one year old) in 2017 (401.4 deaths per 100,000 population) and 2021 (354.2 deaths per 100,000 population) (see Table 7.2). The second and third causes of deaths in 2017 and 2021 were congenital anomalies at 378.9 and 324.8 deaths per 100,000 population respectively, and birth asphyxia and birth trauma remained as the third major cause of death with 168.6 and 147.8 deaths per 100,000 population in 2017 and 2021 respectively. Communicable diseases are the categories most represented among the top 10 causes of deaths for infants. In 2021, tuberculosis was among the 10 main causes of infant deaths (11.8 deaths per 100,000 population) while this was not the case in 2017, and, conversely, encephalitis disappeared from the top 10 causes of infant deaths in 2021 although it was present in 2017 (13.8 deaths per 100,000 population).

Table 17.2: Top 10 causes of deaths for children under 1 year old, 2017, 2021, per 100,000

<i>Causes</i>	<i>2017</i>	<i>2021</i>	<i>Change (per cent)</i>
Preterm birth complications	401.43	354.25	-11.75
Congenital anomalies	378.99	324.77	-14.31
Birth asphyxia and birth trauma	168.58	147.83	-12.31
Lower respiratory infections	134.72	88.58	-34.25
Neonatal sepsis and infections	44.71	41.49	-7.20
Syphilis	54.97	41.07	-25.29
Diarrhoeal diseases	49.28	28.04	-43.10
Paralytic ileus and intestinal obstruction	31.91	22.43	-29.71
Sudden infant death syndrome	17.10	13.49	-21.11
Tuberculosis		11.80	
Encephalitis	13.81		

Source: WHO (2021)

Mortality by main causes of death

In 2017, the crude mortality rate was 5.1 deaths per 10,000 population and was 5.2 in 2023. During the period 2017–2023, the lowest mortality rate was observed in 2020 (4.9 deaths per 10,000 population) and the highest value in 2021 (6.1 deaths per 10,000 population) corresponding to the COVID-19 pandemic.

In 2023, the highest mortality rates are observed for the Bulgan *aimag* (5.8 deaths per 10,000 population), Arkhangai *aimag*, Ulaanbaatar and Tuv *aimag* with a mortality rate of 5.5 deaths per 10,000 population; the lowest mortality rate is observed for the Umnugovi *aimag* (4.1 deaths per 10,000 population) and Khovd, Govisumber and Dornod *aimags* (4.4 deaths per 10,000 population).

⁷³⁴ UN Interagency Group for Child Mortality Estimation (2022).

⁷³⁵ Centre for Health Development (2023).

⁷³⁶ Ibid.

According to the Ministry of Health, in 2023, the leading causes of mortality were diseases of the cardiovascular system (17.1 deaths per 10,000 population), cancer (12.8 deaths per 10,000 population), accidents and external causes (9.1 deaths per 10,000 population), digestive system disorders (3.6 deaths per 10,000 population) and respiratory system disorders (2.6 deaths per 10,000 population). All these values were almost the same in 2017. In 2023, cardiovascular diseases were responsible for 33 per cent of all deaths, the mortality rate due to cardiovascular diseases is 20.9 per 10,000 men and 13.5 per 10,000 women.⁷³⁷ According to the WHO, the three leading causes of deaths in 2017 and 2021 were non-communicable diseases (NCDs) with ischaemic heart diseases at 137.2 and 111.6 deaths per 100,000 population respectively, stroke at 98.0 and 79.7 deaths per 100,000 population, respectively, and liver cancer at 60.6 and 63.2 deaths per 100,000 population, respectively (see Table 17.3). Among the top 10 leading causes of deaths, NCDs were predominant, but one communicable disease was also a leading cause: COVID-19 (ranked 4) in 2021 and tuberculosis was ranked 10 in 2017. Injuries with self-harm were ranked 8 in 2021 and ranked 6 in 2017. Further, road injuries were ranked 7 in 2017 but were out of the top ten in 2021.⁷³⁸

Table 17.3: Top 10 causes of deaths, 2017, 2021, per 100,000

<i>Causes</i>	<i>2017</i>	<i>2021</i>	<i>Change (%)</i>
Ischaemic heart disease	137.12	111.63	-18.59
Stroke	98.02	79.72	-18.67
Liver cancer	60.64	63.22	4.25
COVID-19		59.56	
Cirrhosis of the liver	34.53	27.35	-20.79
Stomach cancer	26.33	22.04	-16.29
Alcohol use disorders	35.58	21.08	-40.75
Self-harm	30.56	18.38	-39.86
Cardiomyopathy, myocarditis, endocarditis		13.03	
Trachea, bronchus, lung cancers	17.98	12.72	-29.25
Road injury	26.34		
Tuberculosis	16.92		

Source: WHO (2021)

Selected trends in morbidity

Non-communicable diseases

According to the WHO, Mongolia has one of the highest mortality rates due to NCDs across the Western Pacific. In 2018, around 6 out of 10 deaths were attributed to either cardiovascular diseases (34.4 per cent) or cancer (24.6 per cent).⁷³⁹ In the period 2005–2016, the morbidity of all NCDs continued to increase, and this trend continued during the period 2017–2023 except for the period 2020–2021 which showed a small drop, probably due to lower diagnosis during the COVID-19 pandemic and the associated lockdown. According to the 2021 WHO Global Health Estimates, the mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease was 28.7 [21.1–37.9] per cent in 2019 and 26.3 [18.7–35.1] per cent in 2021 (SDG indicator 3.4.1).

In 2023, the diseases of the digestive system were the leading cause of NCD morbidity with 2,083.1 cases per 10,000 population, followed by diseases of the respiratory system with 1,930.8 cases per 10,000 population and the diseases of the circulatory system with 1376.9 cases per 10,000 population.

Cancer has remained the second leading cause of population mortality. In 2023, the five leading causes of cancer deaths in males, in deaths per 10,000 men, were liver cancers (5.9), stomach (3.0), lung (1.9), oesophagus (0.9) and pancreas (0.6). In females, in deaths per 10,000 women, the leading causes were liver cancers (4.2), stomach (1.4), cervix uteri (0.9), oesophagus (0.7), pancreas (0.5) and breast cancer (0.5) were the main cancer related causes of death.

⁷³⁷ Ibid.

⁷³⁸ WHO (2021).

⁷³⁹ WHO (2020).

According to WHO, it is estimated that 35 per cent (24–47.7 per cent) of 30-year-old people in 2019 would die before their 70th birthday from NCDs.⁷⁴⁰

Several factors contribute to increasing the risk of developing NCDs; among them: dietary and lifestyle habits, environment, genetics, alcohol and drug use, tobacco use and others. In 2019, 42.8 per cent (37.6–48.2 per cent) of adults (30–79 years) were living with hypertension in Mongolia. The percentage of adults aged 18+ years with a body mass index of 30 or higher reached 24.1 per cent (21.3–27 per cent) of adults in 2022, this indicator tends to increase over time, and the proportion was 20.9 per cent (21.3–27 per cent) in 2017. The WHO estimated that 30 per cent (24.1–35.8 per cent) of people aged 15 years and over were tobacco users (SDG indicator 3.a.1) in 2020. However, the national SDG indicator 3.a.1 on age-standardized prevalence of current tobacco use among persons aged 15 years and older reports a value of null. It was estimated that 7.93 (5.38–10.55) litres of pure alcohol were consumed per adult (15 years and over) in 2019.⁷⁴¹

Communicable diseases

For the period 2016–2020, the number of registered cases of communicable diseases showed a decrease which was interrupted by the COVID-19 pandemic for the period 2021–2022. In 2023, the number of registered cases of communicable diseases, at 121.4 cases per 10,000 population, tends to recover the value observed for the years before the COVID-19 pandemic: 103.5 communicable diseases cases per 10,000 population in 2020 and 144.9 cases per 10,000 population in 2017.⁷⁴²

Tuberculosis

According to WHO, Mongolia is one of the tuberculosis (TB) high-burden countries. In 2023, the estimated TB incidence rate was 189 cases per 100,000 population for the High Burden Countries and 97 cases per 100,000 population for the WHO Western Pacific region. The trends in estimated TB incidence rates in Mongolia for the period 2010–2023 showed a stable incidence from 2010 to 2020 and a tendency to increase in 2021 and years after. During the COVID-19 pandemic, tuberculosis, detection was lower, as illustrated by lower TB notification rates in 2021 (81 cases per 100,000 population) compared to 2020 (117 cases per 100,000 population) and 2019 (132 cases per 100,000 population).⁷⁴³ SDG indicator 3.3.2 on TB incidence per 100,000 population increased slightly from 428 per 100,000 to 452 per 100,000, in 2017 and 2022, respectively.

According to the data reported by Mongolia, a progressive decrease in the tuberculosis incidence rate was observed from 2016 (13.2 cases per 10,000 population) to 2023 (7.0 cases per 10,000 population). In 2023, the number of new registered cases (2,357 cases) was almost halved compared to 2016 (4,045 cases). In 2023, among the new registered cases 60.4 per cent were men and 39.6 per cent were women. Children under the age of 15 diagnosed with tuberculosis represented 11.2 per cent and 6.8 per cent of all new cases in 2017 and 2023, respectively.

In 2023, of the 2,357 registered new cases of tuberculosis, 1,410 (60 per cent) were registered in Ulaanbaatar. Among the new cases registered, 71 per cent were pulmonary tuberculosis and the remainder, 29 per cent, were extrapulmonary tuberculosis.⁷⁴⁴

Data reported by Mongolia are different from the WHO estimates. According to WHO, worldwide, case notifications of people newly diagnosed with TB in 2023 were 75 per cent of the estimated TB incidence overall, but this varied by age and sex: 76 per cent for adult men, 80 per cent for adult women and 55 per cent for children aged 0–14 years. Among children aged <5 years, the figure was only 48 per cent.

In Mongolia, 410 deaths were attributed to tuberculosis in 2023 compared to 340 estimated deaths due to tuberculosis in 2017. Trends in tuberculosis deaths were stable during the period 2017–2020 and showed the beginning of an increase since 2021 (280 tuberculosis deaths).⁷⁴⁵

In 2022, it was estimated that 7.2 per cent of new TB cases were Multidrug-resistant tuberculosis. Among the multidrug-resistant tuberculosis cases, 79 per cent of the second line treatments were successful.⁷⁴⁶

⁷⁴⁰ WHO (2023a).

⁷⁴¹ Ibid.

⁷⁴² Centre for Health Development (2023).

⁷⁴³ WHO (2023b).

⁷⁴⁴ Centre for Health Development (2023).

⁷⁴⁵ WHO (2023b).

⁷⁴⁶ Ibid.

The percentage of children aged 12–23 months who received Bacillus Calmette-Guérin (BCG) vaccine at any time before the 2023 Multiple Indicator Cluster Survey (MICS) was 96.8 per cent; this percentage was lower for urban areas (96.4 per cent) compared to rural areas (98.2 per cent), and the Ulaanbaatar region presented the lowest value (94.5 per cent) in the country, representing a high number of children aged 12–23 months not vaccinated.⁷⁴⁷

However, the concentration of children in school or kindergarten favours tuberculosis transmission among children. When in close contact with TB patients for an extended amount of time in settings with poor air ventilation and in overcrowded places, many people can become infected, resulting in an outbreak. In Mongolia, similar situations of poor air quality and ventilation are common in buildings, especially in schools and kindergartens, due to the long cold season accompanied by air pollution.

During 2019, a TB outbreak was reported in a general education school in Ulaanbaatar and schoolchildren and teachers were infected. In the school, more than 30 cases of TB were reported with 529 students, or 35 per cent of the total student population, getting infected with tuberculosis. Tuberculosis is transmitted through the respiratory tract, so anyone may be infected. Of the infected people, 10 per cent are reported to fall ill with the disease, while 90 per cent will have a latent infection.⁷⁴⁸

COVID-19

From January 2020 to November 2024, 2,136 COVID-19 deaths (65 deaths per 100,000 population) were reported in Mongolia.⁷⁴⁹ As soon as the new COVID-19 virus emerged in the neighbouring countries, Mongolia took strict measures to protect its population and closed all its borders, causing the suspension of all international flights and passenger trains. Subsequently, the Government increased its preventive measures against COVID-19 by closing schools, kindergartens and universities.⁷⁵⁰ The COVID-19 vaccine was introduced in Mongolia on 23 February 2021.

As of December 2023, in Mongolia, 5.67 million COVID-19 vaccine doses were administered; 67 per cent of the total population has been vaccinated with a complete primary series of a COVID-19 vaccine and 32 per cent of the total population had received at least one booster dose of a COVID-19 vaccine.⁷⁵¹

The National Committee on Gender Equality collaborated with UNDP and conducted a study on the impact of COVID-19 on women's and girls' lives. It revealed that the pandemic contributed to the deepening of inequality between rural and urban areas as well as impacted the lives of women, low-income people, elderly people, persons with disabilities, herders and migrant families. In addition, the study found that the COVID-19 pandemic increased the unpaid care and domestic workload significantly and the risks of domestic and sexual violence for women and girls.⁷⁵²

Intestinal infectious diseases

In 2023, there were 7,731 reported cases of intestinal infectious diseases, a value higher compared to the average value (6,735 cases) registered in Mongolia during the last 10 years. During the period 2017–2023, the incidence of intestinal diseases tended to decrease from 34.1 cases per 10,000 population in 2017 to 3.2 cases per 10,000 population in 2021 and then an increase was observed in 2022 with 11.9 cases per 10,000 population and in 2023 with 22.9 cases per 10,000 population.

Six types of intestinal infections were registered: hand foot and mouth disease (54.5 per cent of all intestinal infections recorded), dysentery/shigellosis (31.2 per cent of all intestinal infections recorded), food-borne bacterial poisoning (3.4 per cent of all intestinal infections recorded), salmonellosis (4.5 per cent of all intestinal infections recorded) diarrhoea (6.3 per cent of all intestinal infections recorded), acute hepatitis A (0.03 per cent of all intestinal infections recorded). Shigellosis is a highly contagious diarrheal disease that spreads through faecal-oral transmission. In 2023, 2,413 cases of shigellosis (7.1 cases per 10,000 population) were recorded; 54.2 per cent of cases occurred in children under five years old, 18.6 per cent in children aged 5–9 years, and 4.8 per cent in children aged 10–14 years.⁷⁵³

⁷⁴⁷ NSO (2023).

⁷⁴⁸ WHO (2019).

⁷⁴⁹ WHO (2023c).

⁷⁵⁰ UNICEF (2022).

⁷⁵¹ WHO (2023c).

⁷⁵² Mongolia (2024b); World Bank (2023).

⁷⁵³ Centre for Health Development (2023).

Viral hepatitis

While 534 cases of viral hepatitis were recorded in 2017 in Mongolia, 270 cases of viral hepatitis were recorded in 2023, or 0.8 cases per 10,000 population. Hepatitis B was the most represented and accounted for 46.3 per cent of all cases, hepatitis C accounted for 44.5 per cent and hepatitis A for 0.7 per cent. In 2023, 8 deaths were attributed to viral hepatitis infection.⁷⁵⁴ The prevalence of the Hepatitis B surface antigen in children under five years of age (proportion with chronic infection) was 0.47 per cent [0.37–0.59 per cent] in 2019.⁷⁵⁵ There is no reporting for the SDG indicator 3.3.4 on the prevalence of hepatitis B surface antigen.

Sexually transmitted infections

Sexually transmitted infections accounted for 24.9 per cent of all registered infectious diseases in the country (down from 34.7 per cent in 2017). In 2023, the incidence rates of sexually transmitted infections in Mongolia were 6.5 cases per 10,000 population for Syphilis, 3.8 cases per 10,000 population for Gonorrhoea and 5.0 cases per 10,000 population for Trichomoniasis.⁷⁵⁶

The prevalence of HIV infection among the population is less than 0.1 per cent and the prevalence of HIV in vulnerable groups of people is less than 5 per cent.⁷⁵⁷ Since 2017, the number of new HIV infections for all ages is stable at 0.01 per 1,000 uninfected population (SDG indicator 3.3.1).

Zoonotic and vector borne diseases

In 2023, 317 cases of zoonotic diseases were registered (0.9 cases per 10,000 population). The distribution was: 45.4 per cent for tick-borne rickettsiosis, 33.1 per cent brucellosis, 10.7 per cent for tick-borne encephalitis, 6.9 per cent for malaria and 1.6 per cent per cent for marsupial plague.⁷⁵⁸

17.2 HEALTH RISKS ASSOCIATED WITH ENVIRONMENTAL FACTORS AND ENVIRONMENTAL CAUSES OF MORBIDITY AND MORTALITY

Based on the 1999 WHO guidelines, the National Centre for Public Health (NCPH) developed an environmental health surveillance system which aims to use the current and numerical data of different national organizations as basic information, to enter it into the electronic programme of environmental surveillance, to analyse it, and to issue regular reports. Recommendation 15.2 (a) of the First EPR of Mongolia on carrying out studies on the health impact of environmental factors is however only partly implemented. Recommendations 15.2 (b) and (c) on the registration of diseases related to environmental exposure are however, not implemented. Also, Recommendations 15.3 (a), (b) and (c) of the First EPR of Mongolia on the development and implementation of a strategy on environmental health are not implemented.

Air pollution (indoor and outdoor)

Air pollution has become the second-leading risk factor for death both in terms of total global population as well as for children under five years old.⁷⁵⁹ Breathing polluted air has been linked to lower respiratory infections like pneumonia, cardiovascular disease – including ischemic heart disease and stroke – lung cancer, chronic respiratory diseases such as chronic obstructive pulmonary disease (COPD), diabetes and lower birthweight and premature births.

Women's exposure to air pollution can have significant consequences on maternal and neonatal health, leading to a higher incidence of infant and maternal mortality, birth defects and breast cancer. Children under five years old are especially vulnerable, with health effects including premature birth, low birth weight, asthma and lung diseases. This has a direct impact on the health of future generations

⁷⁵⁴ Ibid.

⁷⁵⁵ WHO (2023a).

⁷⁵⁶ Centre for Health Development (2023).

⁷⁵⁷ Ibid.

⁷⁵⁸ Ibid.

⁷⁵⁹ Institute for health metrics and evaluation (2024).

In Mongolia, an estimated 2,839 people die each year due to ambient air pollution.⁷⁶⁰ The main cause of morbidity is diseases of the respiratory system with incidence among infants and children under five years ranging from 34.6–38.4 per cent in urban area and twice as high in rural areas with 65.7 per cent.⁷⁶¹

In Ulaanbaatar, on the coldest days of the year, daily average of PM_{2.5} pollution levels reach 687 µg/m³ — 45 times the 2021 WHO Air quality guidelines recommended levels (15 µg/m³ for 24 hours).⁷⁶² The largest contributor to PM_{2.5} is coal and biomass combustion from household heating. Power plants, heat only boilers, road dust and motor vehicles also contribute to PM_{2.5} emissions (see Chapter 9).

According to WHO, the annual mean concentrations of fine particulate matter (PM_{2.5}) in urban area was 58.2 µg/m³ in 2019 and 65.1 µg/m³ in 2017, and the values have tended to slowly decrease since 2015. Urban areas presented the highest annual mean PM_{2.5} concentration compared to rural area.⁷⁶³ These values are higher than the national standard of 25 µg/m³ and much further from the WHO air quality guidelines for annual average PM_{2.5} concentration of 5 µg/m³ aimed at limiting diseases attributable to ambient air pollution.

The population-weighted annual average PM_{2.5} concentration estimates the population exposure, it combines the number of people living within the studied area, and the PM_{2.5} concentration to which they are exposed. The average annual population-weighted PM_{2.5} concentrations for Mongolia were lower than those of the Central Asia region until 2010, when they surpassed those of the Central Asia region. The average annual population-weighted PM_{2.5} concentration in 2020 was 29.7 µg/m³ (31.4 µg/m³ in 2017) and was 27.2 µg/m³ for the Central Asia Region (29.8 µg/m³ in 2017). According to estimates, the exposure of the Mongolian population to PM_{2.5} (34.4 µg/m³ in 2016) has tended to decrease since 2016.⁷⁶⁴

As of 2019, Mongolia has the highest death rate due to air pollution among countries in the Western Pacific region. The age-standardized mortality rate attributed to household and ambient air pollution (SDG indicator 3.9.1) in Mongolia was 215.4 (167.8–263.2) deaths per 100,000 population in 2019 (94 deaths per 100,000 population for the Western Pacific region), this rate is higher for men at 284.8 deaths per 100,000 population compared to women at 164 deaths per 100,000 population.

In 2017, according to WHO, the number of deaths attributable to ambient and household air pollution was almost the same at 219.2 deaths per 100,000 population with the same marked difference between men (282.5 deaths per 100,000 population) and women (170.4 deaths per 100,000 population).

The mortality rate attributable to indoor and outdoor air pollution calculated from the population mortality database of the country in 2023 was 293.9 deaths per 100,000 population (age standardized); in 2017 this mortality rate was estimated at 305.8 deaths per 100,000 population (age standardized). In 2023, among these deaths 8.2 per cent concerned lower respiratory tract infection, 7.6 per cent lung cancer, 46 per cent ischemic heart disease, 34 per cent stroke and 3.9 per cent COPD.⁷⁶⁵

According to a 2021 Global Burden of Disease (GBD) study, the death rate attributable to PM_{2.5} pollution in Mongolia was estimated to be 51.3 deaths per 100,000 population in 2021; it was almost the same in 2017 with 53.4 deaths per 100,000 population but was lower in 2010 with 40.7 deaths per 100,000 population. The death rate estimated for Mongolia is lower compared to the value obtained for the Central Asia region with 68.2 (47.9–87.5) deaths per 100,000 population in 2021.⁷⁶⁶ It was estimated that 1,710 (834–2,340) deaths were attributable to PM_{2.5} air pollution in 2021 in Mongolia; this value is slightly higher compared to the year 2017 with 1,660 (775–2,190) deaths attributable to PM_{2.5} air pollution. In 2021, 26 per cent of COPD deaths, 20 per cent of ischemic stroke deaths, 18 per cent of lung cancer deaths, 14 per cent of diabetes deaths, 14 per cent of neonatal outcomes deaths, 19 per cent of lower-respiratory infections deaths and 24 per cent of ischemic heart disease deaths were attributable to air pollution (PM_{2.5}) in Mongolia.⁷⁶⁷ According to the 2021 GBD study, the death rate attributable to ozone in Mongolia was estimated to be 0.7 (0.1–1.4) deaths per 100,000 population in 2021; this rate was slightly higher in 2017 with 0.9 (0.2–1.7) deaths per 100,000 population and in 2010 with 1.1 (0.2–1.0) deaths per 100,000 population.⁷⁶⁸ Seven per cent of COPD deaths were attributable to ozone pollution in Mongolia in 2021.⁷⁶⁹

⁷⁶⁰ UNDP (2024).

⁷⁶¹ WHO (2022).

⁷⁶² UNICEF (2024a).

⁷⁶³ WHO (2024).

⁷⁶⁴ Health Effects Institute (2024).

⁷⁶⁵ Centre for Health Development (2023).

⁷⁶⁶ IMHE (2024).

⁷⁶⁷ IMHE (2024), State of Global Air (n.d.).

⁷⁶⁸ IMHE (2024).

⁷⁶⁹ State of Global Air (n.d.).

Children are the most vulnerable to adverse health effects of air pollution from the day they are conceived. According to UNICEF, pneumonia is the second leading cause of under-five child mortality in Mongolia. Children living in a highly polluted district of central Ulaanbaatar were found to have 40 per cent lower lung function than children living in a rural area. Air pollution is also linked with diseases that can be highly damaging for children, such as bronchitis and asthma.

Pregnant women's exposure to air pollution can affect a growing baby's lungs and respiratory system causing pre-term birth and spontaneous abortion. In the last 10 years, incidences of respiratory diseases in Ulaanbaatar have alarmingly increased, including a 2.7-fold increase in respiratory infections per 10,000 population. In Mongolia, a 3.5-fold increase in foetal deaths has been documented between winter and summer.⁷⁷⁰

In Mongolia, the percentage of household members with primary reliance on clean fuels and technologies for cooking was estimated to be 64.8 per cent. There is however a strong difference between urban areas with 77.4 per cent and rural areas with 27.0 per cent. The highest value was observed for the Ulaanbaatar region with 86.9 per cent and the lowest in the western region with 24.9 per cent.⁷⁷¹ The percentage of household members with primary reliance on clean fuels and technologies for space heating was estimated to be 46.7 per cent with a strong difference depending on whether they were in urban areas with 58.1 per cent or rural areas with 12.5 per cent. The highest value was observed in the Ulaanbaatar region with 66.7 per cent and the lowest value in the western region with 12.2 per cent.⁷⁷²

In Mongolia, estimates suggest that more than 4,300 people die each year due to household air pollution.⁷⁷³ According to the 2021 GBD study, the death rate per 100,000 population attributable to household air pollution from solid fuels has tended to decrease for several years. It caused an estimated death rate of 61.9 deaths per 100,000 population in 2010. This rate progressively decreased and reached 23.2 deaths per 100,000 population in 2017 and 19.3 deaths per 100,000 population in 2021.⁷⁷⁴

According to the 2021 GBD study, it was estimated that 11 per cent of COPD deaths, 8 per cent of ischemic stroke deaths, 6 per cent of lung cancer deaths, 5 per cent of diabetes deaths, 6 per cent of neonatal outcomes deaths, 7 per cent of lower-respiratory infections deaths and 9 per cent of ischemic heart disease deaths were attributable to household air pollution.⁷⁷⁵ Raw coal is commonly used for household heating or cooking and is the main cause of winter air pollution in Ulaanbaatar. In Ulaanbaatar, an estimated half of households are traditional *gers* or houses without central heating. To reduce pollutant emissions, the Government has banned the distribution and use of raw coal in households and small businesses in Ulaanbaatar and replaced it with the introduction of refined coal briquettes.⁷⁷⁶

The ban became effective in May 2019 in six of the nine districts of Ulaanbaatar, and the raw coal ban was extended to an additional district (Nalaikh) in February 2022. In October 2019, when the population started heating their houses, the incidence of carbon monoxide (CO) poisoning significantly increased. Indeed, the incidence of non-fatal CO poisoning was sixfold more elevated during the winter 2019–2020 (520 registered cases) compared to the winters 2018–2019 (78 registered cases) and 2017–2018 (73 registered cases); the winter (2021–2022) presented the highest incidence of fatal poisoning compared to previous winters since 2017. The incomplete combustion of briquettes was suspected to be responsible for CO intoxication. Authorities immediately reacted to the increase in CO incidence and started awareness campaigns on coal briquettes use. To address the risk of CO intoxication, CO sensors were distributed for free to households. In spite of this immediate authorities' response, the incidence of CO intoxication continued to increase and remained sixfold higher during the following winters 2020–2021 (n=576 registered cases) and 2021–2022 (n=537 registered cases).⁷⁷⁷ The risks and benefits of using coal briquettes instead of raw coal need to be assessed and accompanying measures need to be identified and implemented to improve the benefits of briquette use. Indeed, the study demonstrates the need to support changes in household practices.

The symptoms reported by the population when using coal briquettes are raising questions among medical personnel and health institutions. They highlight the uncertainty regarding the impact of using briquettes of varying quality on indoor air quality. The composition of the briquettes and the compounds emitted during the combustion of the briquettes

⁷⁷⁰ UNICEF (n.d.).

⁷⁷¹ MICS (2024).

⁷⁷² MICS (2024).

⁷⁷³ UNDP (2024).

⁷⁷⁴ IMHE (2024).

⁷⁷⁵ IMHE (2024), State of Global Air (n.d.).

⁷⁷⁶ WHO (2019b).

⁷⁷⁷ Sambuu (2023).

could provide an initial response; thus, according to the WHO, a study is expected to be conducted on this subject during the winter of 2024–2025.

The Cooking, Heating and Insulation Products and Service (CHIPS) concept was developed by UNICEF and partners in *ger* households in Bayankhongor for the winter 2019–2020. The concept has three key components: insulation, electric heating and ventilation. The product allows for heating *gers* with electric heaters in a cost-effective way while ensuring proper insulation. First, 200 *gers* were modified to improve the insulation against heat loss and the coal fired stoves were replaced with electric heaters. UNICEF initiated CHIPS in 2019, and it is now used by 2,000 *ger* households in two districts of Ulaanbaatar and six provinces. The concept was also developed in 2022 for *ger* kindergartens to protect children from indoor air pollution.⁷⁷⁸

Tobacco smoke

Tobacco use is one of the major risk factors contributing to the global burden of non-communicable diseases, the leading cause of mortality in Mongolia. In 2013, the prevalence of tobacco smoking was 27.1 per cent of the total population of people older than 15 years. It was much higher for men (49.1 per cent) than women (5.3 per cent).

According to the 2019 Global Youth Tobacco Survey (GYTS), among students aged 13–15 years, 7.5 per cent (11.6 per cent of boys and 3.2 per cent of girls) smoked cigarettes or other types of tobacco at any time during the past 30 days. According to the 2014 GYTS, it was 5.6 per cent of students (8.2 per cent of boys and 2.9 per cent of girls) who currently smoked tobacco. The 2019 GYTS also indicated that 3.5 per cent of students, 5.8 per cent of boys and 1.0 per cent of girls, currently used electronic cigarettes. Almost 9 in 10 (85.6 per cent) students who currently smoke tobacco tried to stop smoking in the past 12 months. Also, 42.9 per cent of young people were exposed to tobacco smoke at home during the seven days prior to the survey. This proportion was similar in the 2014 GYTS (42.4 per cent). According to the 2014 GYTS, 52.3 per cent of the students declared they were exposed to tobacco smoke inside any enclosed public place during the 30 days prior to the survey; this figure was 49.8 per cent in the 2019 survey.⁷⁷⁹

Water pollution and sanitation

SDG target 6.1 aims by 2030, to achieve universal and equitable access to safe and affordable drinking water for all. In Mongolia, 83.5 per cent of the population have access to “at least basic” drinking water services in 2022 compared to 80.1 per cent in 2017. The proportion of the population using piped drinking water sources increased from 34.8 per cent in 2017 to 36.8 per cent in 2022. The proportion of the population using a safely managed drinking water service, defined as an improved source located on premises, available when needed and free from contamination, in the country increased from 28.6 per cent in 2010 to 34.7 per cent in 2017 and 39.3 per cent in 2022 (SDG indicator 6.1.1 of SDG target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all). In 2022, 81.0 per cent of the population were using improved drinking water sources, free from faecal and priority chemical, contamination compared to 78.0 per cent in 2017.

Strong differences in water quality remained depending on water sources and on the distribution system available. In Ulaanbaatar, the water utility services are available for all apartment households but were only able to provide services to approximately 62 per cent of the *ger* households in 2017.⁷⁸⁰

Centralized water distribution infrastructure does not extend to the *ger* districts of Ulaanbaatar. Over 180,000 households in the *ger* districts of Ulaanbaatar are not connected to central water, sanitation and heating services, and 90.0 per cent use unimproved pit latrines (toilets). In these areas, water is obtained from independent hand-dug wells or public kiosks supplied either by the central network, or by tankers trucks filled with water collected from watersheds. In addition, households in the *ger* districts do not rely on the sewage system and sanitation is provided by septic tanks and pit latrines. Open pit latrines discharge untreated wastewater directly into the ground and contaminate local groundwater and water from dug household wells. This inequity in the level of service between urban centres and *ger* areas has impacts on the population environment and health.

⁷⁷⁸ UNICEF (2023d).

⁷⁷⁹ GYTS (2014), GYTS (2019).

⁷⁸⁰ 2030 WRG (2019).

Even with the adoption of the *Ger* District Replanning Programme, more than 400,000 citizens are expected to remain unconnected to central sanitation services by 2030. In remote areas of Mongolia during summertime, rural families use surface water such as rainwater, springs and other unprotected water, which is a main cause of diarrhoeal infection among children under 5 years old.⁷⁸¹

In 2023, 88 per cent of health care facilities have access to basic water services (defined as water available from an improved source located on premises (99 per cent of hospitals; 93 per cent in urban area and 67 per cent in rural areas)). In 2023, the proportion of healthcare facilities with basic hygiene services was 72.4 per cent (79.6 per cent in urban areas and 43.7 per cent in rural areas).

According to the 2022 NCPH report, water quality is monitored for all Ulaanbaatar districts, and for most *soums* in all 21 *aimags*.⁷⁸² The six indicators analysed in drinking water were ammonium (NH₄), nitrite (NO₂), nitrate (NO₃), total number of bacteria, *Escherichia coli* count and number of pathogens in the intestinal group. The frequency and location of the sampling and analysis for drinking water quality monitoring are unclear. Some raw data are available in 2022 on the NCPH database website, but sampling and analysis conditions are not presented and consequently results are difficult to interpret.

The Water Services and Regulatory Commission in cooperation with the Institute of Chemistry and Chemical Technology and the Institute of Geography and Geo-Ecology of the Mongolian Academy of Sciences analyses the quality of groundwater in Ulaanbaatar and *aimags* and establishes a water quality database.

The water quality of 3,582 groundwater wells was determined across the country; 38 per cent of them (or 1,367 wells) do not meet the national standard for clean drinking water (MNS 0900:2018). The quality of some of the wells (4 per cent or 151 wells) does not reach the requirement needed to use the water for drinking. In several provinces, the levels of radon, uranium and lead in the drinking water are higher than what is considered safe by the WHO standards.⁷⁸³ Some waters are salty. However, no desalination programme was implemented. Recommendation 15.4 (d) of the First EPR of Mongolia thus was not implemented.

Information on bottled mineral water and data on bottled water quality monitoring are not available.

Sanitation

By 2030, the SDG 6.2 objective is to achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

According to the UNICEF Data Warehouse, in 2022, 66 per cent of the Mongolian population (70.2 per cent in urban areas and 56.3 per cent in rural areas) used safely managed sanitation services (defined as access to an improved sanitation facility that is not shared with other households, where excreta is safely disposed of on-site or removed and treated off-site), (SDG indicator 6.2.1), compared to 61.5 per cent (67.7 per cent in urban areas and 48.2 per cent in rural areas) in 2017 and 55.8 per cent 10 years ago (2012). The proportion of the population with basic handwashing facilities with soap and water available at home (SDG indicator 6.2.1) increased from 66.6 per cent in 2010 to 80.3 per cent in 2017 and 86.4 per cent in 2022. The proportion of safely treated domestic wastewater flows increased from 10.4 per cent in 2020 to 26.1 per cent in 2022.

According to UNICEF, 27.5 per cent of the population used sanitation facilities connected to sewer network in 2022 compared to 26.7 per cent in 2017. In 2022, 5 per cent of the population practised open defecation, a decrease compared to 7 per cent in 2017. Lack of sanitation increase risk for the population during flood events. The proportion of healthcare facilities with basic sanitation services was 39.8 per cent (41.1 per cent in urban areas, 34.3 per cent in rural areas) in 2023. In 2023, 14 per cent of health care facilities in Mongolia have no sanitation services; this proportion is much more elevated in rural areas (42.2 per cent compared to urban area at 7.6 per cent).

The primary reasons for insufficient access to water, sanitation and hygiene (WASH) stem from inadequate infrastructure. However, Norms and Requirements for WASH in Schools, Dormitories and Kindergartens were approved in June 2015.⁷⁸⁴ Improvements in access to WASH initiated in schools, dormitories and kindergartens have continued since 2017. Since 2019, UNICEF and its development partners have supported the implementation of over 200 WASH facilities in Mongolia.⁷⁸⁵

⁷⁸¹ WHO (2022).

⁷⁸² NCPH (2023).

⁷⁸³ UNICEF (2023e).

⁷⁸⁴ UNICEF (2015).

⁷⁸⁵ UNICEF (2022a).

The implementation of recommendation 15.4 (b) of the First EPR on securing access to safe drinking water in schools is therefore ongoing. A guide on Improving Water, Sanitation and Hygiene in Schools in Mongolia was published by ADB in 2020. This document provides essential information on the planning, implementation and management of improved WASH in schools, particularly for small and isolated rural settlements in Mongolia.⁷⁸⁶

Mongolia is engaged in implementing the Water Safety Plan programme, but no reports or data are available to determine the progress of this implementation. According to WHO, in 2019, the mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene for all (WASH) services in Mongolia was 3.2 per 100,000 population (women 2.6 per 100,000 population and male 3.8 per 100,000 population (SDG indicator 3.9.2)). The implementation of Recommendation 15.4 (a) of the First EPR of Mongolia is therefore ongoing.

According to the 2023 Centre for Health Development report, in 2023, 14.7 deaths per 100,000 population were attributed to unsafe water and sanitation, this rate was 10.6 deaths per 100 000 population in 2017. During the period 2014–2017 mortality rates attributed to unsafe water and sanitation were similar on a national level, and across *aimags* and Ulaanbaatar. However, since the year 2018, the mortality rate is higher for Ulaanbaatar compared to the *aimag* average and national average. In 2023, the mortality rate attributed to unsafe water and sanitation for Ulaanbaatar was 20.0 per 100,000 population compared to the national average of 14.7 per 100,000 population and the *aimag* average of 9.8 deaths per 100,000 population. The implementation of the recommendation 15.1 of the First EPR on the continued implementation of the 2017 Government Resolution No. 259 is ongoing.

According to the 2018 MICS report, the percentage of household members with an improved drinking water source located on premises free of *Escherichia (E.) coli* and available when needed was 22.1 per cent at national level, 29.5 per cent in urban areas (25.5 per cent for the capital city) and 6.2 per cent in rural areas. The report showed that 80.3 per cent of households use low-risk drinking-water (<1 *Escherichia (E.) coli* per 100 mL), 9 per cent use drinking-water of moderate risk (1–10 *Escherichia (E.) coli* per 100 mL) and 9.8 per cent used drinking water contaminated by high and very high concentrations of *Escherichia (E.) coli*.⁷⁸⁷ According to the 2023 MICS report, in Mongolia, the percentage of household members with an improved drinking water source on premises, whose source water was tested and free of *E. coli* and available when needed is 30.6 per cent at national level, 37.9 per cent for urban area and 9.3 per cent for rural areas. There were 37.5 per cent of household members whose household drinking water was tested and found to have *Escherichia (E.) coli* contamination in household drinking water; this proportion was highest in rural areas (53.6 per cent compared to urban areas (32.0 per cent)).⁷⁸⁸

While some progress has occurred since 2017, access to safe water and sanitation remains a challenge in rural and remote areas but also in *ger* districts of Ulaanbaatar. The implementation of recommendation 15.4 (b) of the First EPR of Mongolia is ongoing.

Bathhouses, inland bathing, swimming pools and hot springs

No comprehensive and regular data are collected concerning water quality in bathhouses, inland bathing areas, swimming pools and hot springs.

Radiation

As of February 2025, Mongolia has no nuclear facilities. Mongolia is a party to the Non-Proliferation Treaty and a IAEA member since 1973. As of 2020, more than 540 X-ray machines and devices are used in over 240 organizations in the human health sector. There are over 1,100 radiation sources in 377 non-medical organizations which operate in research, inspection, geology and mining, transportation and industry.⁷⁸⁹

Concerning medical radiation surveillance (prevention/declaration/management of accidental radiation exposure) there are no specific statistical data available. A national database of doses received by patients as a result of medical examinations is not available. There is no national database to record information on workers throughout the country that are working with sources of ionizing radiation and the doses they receive.⁷⁹⁰

⁷⁸⁶ ADB (2020e).

⁷⁸⁷ MICS (2019).

⁷⁸⁸ MICS (2023).

⁷⁸⁹ Tsegmed (2022).

⁷⁹⁰ Ibid.

Noise and vibration

As of February 2025, there are no data available on noise and vibration monitoring in Mongolia, and no data are available on the impact of noise and vibration on human health. Many construction sites are present in Ulaanbaatar and can generate vibrations and noise at high sound levels. Some data are available in environmental impact assessment reports for development projects. However, noise mapping in urban areas is not carried out and the population and workers are not made aware of the negative impact of noise on health. This environmental factor is not sufficiently considered, although its negative impact on public health is well known.

However, noise quality standards are available. In the daytime (7 a.m. to 10 p.m.), the permissible limit is 60 dB; at night (10 p.m. to 7 a.m.), the permissible limit is 45 dB.

Chemical safety

There is no specific health survey in Mongolia dealing with chemical poisoning. It was estimated in 2022 that hazardous waste generation in Mongolia is 27,000 to 54,000 tons per year and that much of this waste is not disposed of properly.⁷⁹¹

No database is available on the location and characterization of polluted soil in Mongolia. As of February 2025, no data are available concerning compounds, volumes and location of industrial releases, and no evaluation of their impacts on the environment (air, soil and water) and health is conducted.

Persistent organic pollutants (POPs)

Mongolia participated in the multinational project on the global monitoring plan of POPs. POPs concentrations were measured in air, human milk and the Tuul River in Ulaanbaatar (2017–2028). Results showed that legacy industrial POPs (polychlorinated biphenyls, Hexachlorobenzene, hexachlorocyclohexanes) were more abundant than organochlorine pesticides. Perfluorinated POPs were very low in water and comparatively low in air and humans. High concentrations of short-chain chlorinated paraffins in human milk and HCB (hexabromocyclododecane) in air were obtained but need confirmation.⁷⁹²

Another publication presents results from monitoring POPs in the environment (air, soil and water), in foodstuffs and humans in Mongolia (2017–2019). Dioxin-like polychlorinated biphenyls (dl-PCB) were detected in 100 per cent of the samples analysed (N=28). Legacy chemicals, such as PCB, hexachlorobenzene, dichlorodiphenyltrichloroethane (DDT) and hexachlorocyclohexanes had high amounts. Further, high amounts of lindane, α -hexachlorocyclohexane, DDT and its transformation products were found in soil samples.⁷⁹³

Mercury

The impacts of mercury on human health duly depend on the forms of mercury, concentration and exposure pathways. Most compounds of mercury affect the nervous system, the central nervous system, kidneys and lungs, and they can cause brain damage, as well as affect the foetus in a pregnant woman and thus result in nervous system anomaly and disability of children.

A national mercury emission inventory was conducted under the framework of the Minamata Initial Assessment for Mongolia in 2019.⁷⁹⁴ A total of 93,468 kg of mercury is emitted and released per year in Mongolia. About 96.3 per cent of this release was from primary metal production, and 1.5 per cent from extraction and use of fuels/energy sources. Mercury-added products (thermometers, switches, relays, light bulbs, batteries etc.) release 0.7 per cent, waste deposition/landfilling and wastewater treatment 0.6 per cent, cement and lime production 0.4 per cent, waste burning 0.3 per cent, and manometers and gauges with mercury, laboratory chemicals and equipment with mercury 0.2 per cent. Of the total amount, 76 per cent of mercury was released to soil, 16 per cent to air, 2 per cent to water, whereas 4 per cent went to by-products and impurities, 1 per cent to general waste and 1 per cent to sector-specific treatment/disposal.

The usage of mercury in mining and processing is prohibited by the Order No. 135 of the then Minister of Environment in 2008. The Government has approved the National action plan for reducing mercury pollution caused by artisanal and

⁷⁹¹ Mongolia (2022a).

⁷⁹² Surenjav (2022).

⁷⁹³ Surenjav (2023).

⁷⁹⁴ UNEP (n.d. b).

small-scale gold mining by 2019 Government Resolution No. 317 to reduce and eliminate the use of mercury and mercury compounds in artisanal and small-scale gold mining and processing.

In Mongolia, 60,000 workers are employed in the sector of ASGM – one-third of the rural workforce – producing 46 per cent of the country's gold output and supporting the livelihoods of 180,000 people. UNEP and UNIDO have launched a project on Contribution Toward the Elimination of Mercury in the Artisanal and Small-Scale Gold Mining Sector: From Miners to Refiners. The project will help reduce harmful mercury emissions and protect the health and well-being of the millions of men, women and children working in the industry in Mongolia and the Philippines.⁷⁹⁵ Recommendation 15.8 (a) of the First EPR of Mongolia on the adoption of a draft strategy on mining has not been implemented and remains valid.

The negative impact on health of living near a mining area (heavy metal emission, dust...) is well known and demonstrated by studies.⁷⁹⁶ However, it is not presented how the authorities aim to monitor the health status of the most vulnerable (children, pregnant women) in parallel with reducing emission and population exposure and awareness. Recommendations 15.8 (b) and (c) of the First EPR on carrying out a survey on the health impacts of mining and the implementation of action against pollutant emission are not implemented.

About 1.2 per cent of healthcare facilities have no health care waste management service (0 per cent in urban areas, 6.2 per cent in rural areas).

Lead

According to WHO, young children are particularly vulnerable to the toxic effects of lead and can suffer profound and permanent adverse health impacts, particularly on the development of the brain and nervous system. Lead also causes long-term harm in adults, including increased risk of high blood pressure, cardiovascular problems and kidney damage. Exposure of pregnant women to high levels of lead can cause miscarriage, stillbirth, premature birth and low birth weight.⁷⁹⁷

The Mongolian population is exposed to lead in concentrations that can have health impacts.⁷⁹⁸ However, there is no specific health survey in Mongolia dealing with lead poisoning. There is no specific lead monitoring on environmental exposure or child blood and no specific actions conducted to limit lead exposure.

Lead paint is a major source of childhood lead exposure (wall paint, toys...). In Mongolia, as of February 2025, no regulation has been established to limit the amount of lead in paints used for household and decorative purposes has been issued. According to the IPEN network, among a total of 56 cans of solvent-based paint for home use representing 25 different brands produced thirty-nine out of 56 analysed solvent-based paints (70 per cent of paints) were lead paints. They contained lead concentrations above 90 parts per million (ppm, dry weight of paint). Moreover, 11 paints (20 per cent of paints) contained dangerously high lead concentrations above 10,000 ppm. As of 2025, only one out of the 56 paints provided information about lead on its label indicating that "lead is harmful to health".⁷⁹⁹

In 2022, UNICEF conducted a small-scale biomonitoring study to determine toxic metals in the blood of 507 young children (1–5 years old) associated with air pollution exposure in 3 provinces and 2 districts of Ulaanbaatar. Almost 21.4 per cent of the study participants spend their day exposed to air pollution levels that exceed permitted levels. Lead concentration exceeds the limit of 3.5 µg/dL in 67 per cent of children from the Bayanzurkh district of Ulaanbaatar, 58 per cent of the children from Gobi-Altai, 58 per cent of the children from Khan-Uul, 40 per cent of the children from Bayankhongor and 3.0 per cent of children from Umnugovi *aimag*, respectively and 10.6 per cent of blood samples revealed the existence of mercury.⁸⁰⁰ Although the sample size is small, the results reinforce the need to identify sources of metal exposure and take prompt prevention and treatment measures, especially for sensitive population (children and pregnant women).

Another study shows that lead exposure remains common in Mongolia especially in peri-urban areas of Erdenet and Darkhan where nearly 30 per cent of the children have blood lead levels above the current reference value of 5 µg/dL.⁸⁰¹ Despite the phase-out of leaded gasoline in Mongolia, many children are still presenting with relatively elevated BLLs that may be unsafe for them. Authors underline the fact that children in the *ger* districts are socioeconomically disadvantaged

⁷⁹⁵ planetGold (2018), UNEP (2019a).

⁷⁹⁶ Surenbaatar (2021).

⁷⁹⁷ WHO (2024a).

⁷⁹⁸ ECE (2018).

⁷⁹⁹ Zorig Foundation (2017).

⁸⁰⁰ UNICEF (2023d).

⁸⁰¹ Erdenebayar (2019).

and disproportionately exposed to lead, and consequently face a increased risk of behavioural problems among children.⁸⁰² Recommendation 15.7 (d) of the First EPR of Mongolia on developing measures to reduce children's exposure to lead was not implemented.

Asbestos

Asbestos exposure and related diseases are not monitored or registered. No monitoring of the presence of asbestos fibres is carried out in public buildings such as schools or medical centres. The Safety Instruction for Asbestos Removal Work was approved by the National Committee of Occupational Safety and Hygiene in February 2020. This document recommends safety practices in asbestos removal work including personal protection measures, isolation of work areas, training of workers, health surveillance and exposure assessment. Power plants still use asbestos.⁸⁰³ There is a policy in Mongolia prohibiting the import and use of asbestos, but there are no data or information on how and to what extent it is implemented. Recommendations 15.7 (a), (b), (c) and (e) of the First EPR on collecting information, carrying out studies, developing legislation and developing a waste management system, both for asbestos and for lead, are not implemented.

Occupational health and safety

From 2018 to 2022, Mongolia recorded 213 fatal injuries, 765 serious non-fatal injuries and 646 minor injuries in a total of 1,624 workplaces, affecting workers of various ages. Standardized procedures and enhanced enforcement are not implemented consistently across all sectors. As of 2020, 2,961 people diagnosed with work disability due to occupational diseases are under active surveillance. By sector, mining and extraction represented 2,137 people or 72.2 per cent, which is the highest percentage.

The law requires medical check-ups and medical monitoring for all employees; however, the number of hospitals in charge of this is limited and it is not possible to provide medical monitoring for all employees. The Occupational Health and Safety Centre provides medical monitoring only in Ulaanbaatar. Four private companies have an agreement for medical monitoring of workers.

The informal sector also presents a challenge. Herders represent a population at risk due to their hard-working conditions and their health status. The Government is working to implement stricter supervision and improve working conditions as well as medical monitoring.

A risk assessment must be carried out at the workplace to ensure the safety of working conditions and to determine necessary specific medical monitoring. A national database on risk assessment and companies is being developed.

In line with the Occupational Health and Disease Policy of the Mongolian Mining Corporation (MMC), the mining companies have to identify positions that are exposed to occupational hazards according to regulatory requirements. The company also focuses on the prevention of infectious diseases and occupational illnesses, especially among the site-based employees. In addition, the company staff work to increase awareness and knowledge of disease and hazard prevention through training and awareness campaigns. A 24/7 stand-by medical team (a medical doctor and a nurse) and rescue teams work on-site to ensure that any accidents and emergencies are responded to as quickly as possible. MMC also provides free medical examinations for its employees, including annual examinations and occupational health examinations.⁸⁰⁴

According to UNICEF, 15 per cent of children (16 per cent boys and 13 per cent girls) aged 5 to 17 perform child labour. Women of working age in Mongolia are 15 per cent less likely than working-aged men to be in the labour force. In 2022, women earned 25 per cent less than men and dedicated twice as much time as men on unpaid household activities (an average of 3.5 hours per day). While the gender wage gap can be partly explained by factors such as sectors of employment and years of work experience, about 40 per cent of the wage gap remains unexplained.⁸⁰⁵

Workers in vulnerable employment are the least likely to have formal work arrangements, social protection and safety nets to guard against economic shocks; thus, they are more likely to fall into poverty. Vulnerable employment among women was 35.5 per cent and among men was 41.2 per cent in Mongolia in 2022. The rate of vulnerable employment is higher for men but lower for women in Mongolia compared to the average rate in East Asia and the Pacific.⁸⁰⁶

⁸⁰² Erdenebayar (2019).

⁸⁰³ Erdenebayar (n.d.).

⁸⁰⁴ MMC (n.d.).

⁸⁰⁵ World Bank (2024b).

⁸⁰⁶ World Bank (Gender Data Portal: Mongolia).

In 2022, fatal occupational injuries among employees were 4.8 per 100,000 employees, of which the rate was 8.1 for males and 1.1 for females (SDG indicator 8.8.1 of SDG target 8.8 (Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants and those in precarious employment)). In 2017, the health worker distribution was 93.5 per cent female and 6.5 per cent male and in 2018, the distribution was 96.6 per cent female and 3.4 per cent male (SDG indicator 3.c.1 of the SDG target 3.c (Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States)).

Based on ILO calculations based on information from ILO textual sources, in 2022, the level of national compliance with labour rights (freedom of association and collective bargaining) based on ILO textual sources and national legislation (SDG indicator 8.8.2) was 0.15. Mongolia is a party to 21 ILO conventions, including those relevant to environmental health. Since 2017, Mongolia has ratified the Safety and Health in Mines Convention (No. 176). Recommendation 15.10 (g) of the First EPR of Mongolia was implemented. However, several ILO conventions on environmental health are not ratified by Mongolia, including the 1947 Labour Inspection Convention (No. 81); the 1969 Labour Inspection (Agriculture) Convention (No. 129); the 1960 Radiation Protection Convention (No. 115); the 1977 Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148); the 1979 Occupational Safety and Health Convention (No. 152); the 1986 Asbestos Convention (No. 162); and the 1990 Chemicals Convention (No. 170). Recommendation 15.10 (a), (b), (c), (d), (e), (f) and (h) of the First EPR of Mongolia were not implemented and remain valid.

Road safety

The 2023 WHO Global status report on road safety highlights that, despite notable progress since 2018 in reducing fatalities, 25 per cent of all road traffic fatalities occur in the Asia-Pacific region, representing in terms of absolute numbers, the second highest number of fatalities in the world on the road, right after South-East Asia. The region reported 15.4 deaths per 100,000 population due to road traffic crashes, three times higher than the European average of 5 deaths per 100,000.⁸⁰⁷

According to WHO, the mortality rate from road traffic injuries in Mongolia is 12 per 100,000 inhabitants.⁸⁰⁸ Road crashes represent one of the main causes of fatalities in the country, especially among young men. In 2013, the Ministry of Road and Transportation reported over 25,000 road accidents, with 550 of them tragically resulting in fatalities.

Road traffic deaths and injuries remain a major global health and development challenge. Road traffic crashes are the leading killer of children and youth aged 5 to 29 years and are the 12th leading cause of death when all ages are considered.

In 2022, there were 464 deaths registered due to traffic accidents, or 1.4 deaths per 10,000 population in Mongolia. Motorcycle passenger traffic accidents accounted for 24.7 per cent, and pedestrian traffic accidents accounted for 22.3 per cent. Men are 3.5 times more likely to die in traffic accidents than women.⁸⁰⁹ The death rate due to road traffic injuries (national SDG indicator 3.6.1) showed a decrease from 17.37 per 100,000 population in 2022 to 14 per 100,000 population in 2023. The death rate due to road traffic injuries (global SDG indicator 3.6.1) was 414 (or 12.4 per 100,000 population) in 2021.

Vulnerable road users such as pedestrians, cyclists and motorcyclists remain dangerously exposed. According to WHO, nearly 80 per cent of all roads assessed do not meet a minimum 3-star rating for pedestrian safety, and, as cyclist fatalities increase, just 0.2 per cent of all roads assessed have cycle lanes. This is especially concerning given that pedestrians and cyclists tend to be the most vulnerable road users and, in most countries, represent the economically most disadvantaged.⁸¹⁰

In Mongolia, the continuous growth of urban residents has resulted in a rapid increase in transport activities and private vehicle ownership. Offering safe alternatives to individual use of powered vehicles, such as by designing pedestrian and bicycle lanes, or by developing safe and clean public transport, is now crucial in Ulaanbaatar where over 50 per cent of the total population lives.⁸¹¹ In Ulaanbaatar, in 2020, 47.3 per cent of the population had convenient access to public transport (SDG indicator 11.2.1 of SDG target 11.2 (By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons)).

⁸⁰⁷ WHO (2023d).

⁸⁰⁸ Ibid.

⁸⁰⁹ NCPH (2023).

⁸¹⁰ WHO (2023d).

⁸¹¹ ECE (2024).

Extreme weather events

From 2021 to 2023, Mongolia experienced changing temperature patterns, becoming colder and drier, which worsened the *dzud*, an extreme winter phenomenon unique to Mongolia (see Chapters 15 and 16). Over the past decade, Mongolia has experienced a 1.5-fold increase in natural disasters, primarily due to climate change. The situation is exacerbated by poorly planned urban construction and blockage of watersheds, which slow water drainage due to the lack of proper drainage facilities in cities. In July 2023, a flood impacted 128,100 people across 31,600 households, causing power and water outages in over a thousand buildings, damaging more than 20 roads, and severely limiting access to basic services for children and families. The flood also heightened the risk of infectious and waterborne diseases due to overflowing pit latrines and inadequate hygiene practices.⁸¹²

In May 2023, violent storms hit western Mongolia, bringing heavy snow. In the mountainous areas, snow levels reached 80 to 120 centimetres, while steppe areas saw at least 40 centimetres, isolating about 350 households. These families could not take their livestock to pasture, exposing them to cold and malnutrition.

Ulaanbaatar faced flash floods due to heavy rainfall from July to mid-August 2023, marking the worst flooding in 60 years. On 5 August 2023, intense rains hit the central region, affecting two *ger* sub-districts in Ulaanbaatar and resulting in four casualties (two adults and two children).⁸¹³

Photo 17.2: Maikhan Tolgoi Ger tourist camp on the shore of Terkhiin Tsagaan Nuur



Photo credit: Sérgio Nogueira/stock.adobe.com.

⁸¹² UNICEF (2024b).

⁸¹³ IFRC (2024).

17.3 HEALTH RISKS ASSOCIATED WITH FOOD SAFETY AND NUTRITION AND INFECTIOUS DISEASES

Food safety

In 2021, there were 151 economic entities in the food sector (115 in 2018) that held a certificate of conformity, which is 41 organizations fewer or 37.3 per cent lower than in 2020. In 2021, there were 17 organizations (11 in 2018) that had introduced international quality control systems, among them, 12 (5 in 2018) that introduced food safety management systems, aligning with the ISO 22000 standard, and 5 (6 in 2018) engaged in Hazard Analysis & Critical Control Point.⁸¹⁴

In 2021, according to the Ministry of Food, Agriculture and Light Industry, there were 10,800 food service establishments and 15,962 retailers in the country. Most consumers are not concerned about the quality of processed food. Also, there is a lack of public awareness, knowledge and advocacy about nutrition, food safety and health benefits.⁸¹⁵

Until 2024, inspection and control of food quality and processing were performed by the General Agency for Specialized Inspection (GASI). After 2024, inspection and control activities were transferred to the relevant ministries (see Chapters 1 and 2). As of 2021, there were 74 accredited food testing laboratory units. In 2021, GASI's laboratories tested for 317,000 parameters including chemical toxicity, hygiene, radiation level and bacteriological concentrations, of which, 6,100 samples (1.9 per cent) did not meet Mongolian standards requirements. As of 2021, there are 683 national standards in effect in Mongolia, of which 273 or 40.0 per cent are substantially the same as international, regional and other countries' standards. In 2021, a total of 33,745 cases of violation (42,195 cases in 2020) were identified during GASI inspection, of which 72.1 per cent were addressed. Among the non-compliances, violations of hygiene and sanitation represented 23.4 per cent of total violations reported, internal control 19.8 per cent, storage and transportation 12.4 per cent, norms and standards for raw material and quality and safety of final products 11.9 per cent, norms for packaging and labelling 10.4 per cent, workplace, equipment and machinery operation 8.2 per cent, norms and standards for building and facilities 7.1 per cent, and technological norms and standards 6.7 per cent. In case of severe violation, food products may be confiscated, returned and removed from the market.⁸¹⁶

Aimag agriculture departments are in charge of food security and safety at the local level. Veterinaries have their own *aimag* department. The metropolitan agriculture department is responsible for food safety in Ulaanbaatar. In case of foodborne disease, the Ministry of Health and the food and safety division coordinate inspection to identify the causes of the contamination; samplings are taken and sent to the central laboratory for analysis. The central laboratory has branches in all 21 *aimags* and is specifically accredited.

In 2021, five foodborne disease outbreaks (defined as more than two persons experiencing same illness resulting from ingestion of common food) were reported, affecting 264 persons in total, of which 58 were hospitalized. No deaths were reported.⁸¹⁷ According to a 2022 FAO report, bacterial foodborne infections are often not reported accurately, and only extensive outbreaks of food-borne infectious diseases are reported and diagnosed.⁸¹⁸ Also, 554 cases related to bacterial food poisoning were registered in 2018 compared to 264 cases reported in 2021.⁸¹⁹

Genetically modified material (GMM) is regulated by law. GMM imports must be registered. However, the capacity of laboratories is limited for the detection of GMM and needs to be improved. The reference laboratory has the capacity to analyse pesticides. Results on pesticide concentrations in food products are not available.

Meanwhile, herders often purchase over-the-counter medicines, leading to uncontrolled use of drugs and antibiotics. Contaminated meat, milk or water, resulting from inadequate use of drugs or antibiotics, expose consumers to the risk of developing antimicrobial resistance. Antibiotics in meat products are under the responsibility of the veterinary department. As an additional safety measure, a vaccination certificate must be presented by herders before animal slaughtering. A particular problem is especially the contamination of natural water resources that poses a risk of zoonotic and helminthic infections.

⁸¹⁴ NSO (2023b).

⁸¹⁵ FAO (2022).

⁸¹⁶ NSO (2023b).

⁸¹⁷ Ibid.

⁸¹⁸ FAO (2022).

⁸¹⁹ NSO (2023b).

A 2023 FAO report stated that “Food safety control in Mongolia is often undermined by fragmented legislation, multiple jurisdictions and weaknesses in surveillance, monitoring and enforcement.”⁸²⁰ According to the 2022 FAO report, the national food control system and food safety standard enforcement are both inadequate.⁸²¹ The 2022 FAO report provides a summary of the main food system issues in Mongolia and highlights potential solutions for their sustainable and inclusive transformation. For food safety, authors recommend strengthening public health policy on food safety including improvement of public awareness of food safety and development of safety standards and quality control.

Nutrition and food security

The Mongolian diet is dominated by meat and other livestock products, with a negligible intake of fruits and vegetables. Cereal consumption mostly includes home-grown wheat and imported rice. Although there are small regional variations in the overall composition of the national diet, the variations in quantities of food consumed are more notable with changing household income.⁸²²

The proportion of the population suffering from hunger (prevalence of undernourishment) was reduced from 6.9 per cent in 2017 to 2.5 per cent in 2022. The total population suffering from moderate or severe food insecurity declined from 218,700 people in 2019 to 179,100 people in 2022. The proportion of children under 5 years of age with stunted growth reduced was reduced from 8.4 per cent in 2017 to 6.1 per cent in 2022 (SDG indicator 2.2.1 of SDG target 2.2 (By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons). The proportion of children aged 0–59 months who were moderately or severely overweight slightly increased from 10 per cent in 2017 to 10.7 per cent in 2022 (SDG indicator 2.2.2). The proportion of women aged 15–49 years with anaemia increased from 14.1 [8.2–23.0] per cent in 2017 to 14.5 [7.4–26.0] per cent in 2019 (SDG indicator 2.2.3).⁸²³

17.4 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK

Legal framework

The Law on Health defines the state policy and basic principles on health and regulates the relations, collaboration work and responsibilities of organizations. It provides the right to primary health care, maternal and childcare and some public health services regardless of socioeconomic status and health insurance coverage. The Law on Radiation Protection and Safety aims to specify basic requirements for a healthy environment and protection of the population, both current and future generations, against exposure or potential exposure to radiation and for the safety of radiation sources. This law applies to all activities associated with mining and processing of radioactive ores in the territory of Mongolia.

In 2023, the Government approved resolutions on construction safety and fire prevention, No. 97 and 98. According to the construction materials department, 80 per cent of construction materials are imported and 1 per cent of imports are inspected. Conformity of the imported material is under the responsibility of customs authorities. The Law on Construction is being revised and was submitted to Parliament but then withdrawn because of the elections; it is expected to be resubmitted in the spring of 2025, which will lead to construction and material standards being improved.

The Law on Toxic and Hazardous Chemicals requires specially designed storage for toxic and hazardous chemicals and the “Occupational safety and health. General requirements for the storage of toxic and hazardous chemicals and products. MNS 6458: 2014” standard sets the requirements for the storage of toxic and hazardous chemicals (see Chapter 11).

The Law on Food aims to ensure food needs of the population, food safety and to regulate relations that arise between the Government, individuals and legal entities in connection with food production and services. The state administrative authority in charge of food issues exercises the following powers:

- Inform the public on the quantity and types of livestock and strategic food available in the current year considering food safety and supply.
- Establish requirements, procedures and standards for the technology of food production and service, as well as for hygiene and sanitation of raw materials of animal and plant origin.

⁸²⁰ FAO (2023a).

⁸²¹ FAO (2022).

⁸²² Ibid.

⁸²³ WHO (2023e).

- Implement policies on improving the nutritional value of food, increasing food production and introducing traditional and advanced technologies.
- Approve universal norms, instructions and requirements on hygiene, sanitation and safety of food production and production of its equipment.
- Establish norms of permissible sanitary levels for pesticides, medicines, fertilizers, radioactive substances, heavy metals, other chemical substances, microorganisms, food additives and other mixtures used in agriculture and food production, and to introduce such norms into the national standards.

The purpose of the Law on Living Genetically Modified Organisms is to regulate the production of genetically modified organisms, cross-border movements and the use of biosafety in the territory. It applies to living organisms such as animals, plants and their raw materials and products, regulating border inspection and quarantine measures, technology transfer, in accordance with national legislative acts.

The Law on Labour has introduced several positive changes in line with international standards. It has included a new provision prohibiting sexual harassment in the workplace, which was not reflected in any other laws of Mongolia except the Law on Promoting Gender Equality in 2011. It sets obligations for the employer to create a sexual harassment free work environment and include this provision in the internal rules of the organization as well as set up reporting and complaint resolution mechanisms within the organization. Also, the employer is obliged to ensure the atmosphere where there is no discrimination based on sex, age, sexual orientation and other characteristics, which will contribute to ensuring the rights of women and other diverse groups of people in the workplace. As part of the implementation of this Law, the National Human Rights Commission has approved regulations such as the “Guideline on creating the sexual harassment free workplace” and the “Guideline on reflecting the sexual harassment free workplace provision and the complaint resolution mechanisms in the internal rules of the organization.”⁸²⁴

The purpose of the Law on Occupational Safety and Health is to determine the state policy and principles on occupational safety and health, and to regulate the relationship with respect to the management and monitoring system of state organizations, to ensure the fulfilment of requirements and standards for occupational safety and health at the workplace and to create a safe and hygienic work environment for employed citizens.

The 2017 Order A/508 of the Minister of Health ensures the establishment of procedures for public health emergency preparedness and response management, sectoral and cross-sectoral coordination, and case management systems.

In 2011, the Minister of Health and the Chief of National Emergency Management Authority issued a joint order No. 07/27 to ban the purchase and use of mercury-containing thermometers, blood pressure sphygmomanometers and dental amalgam in health organizations.

The 2022 Order of the Minister of Health No. A/585 introduces mandatory health impact assessment in the EIA process. However, as of March 2025, the tool is not yet implemented. The implementation of Recommendation 15.5 (a) and (b) of the First EPR of Mongolia is ongoing.

Policy framework

Recognizing the critical importance of preventing and managing heart disease to health and development, the Sustainable Development Vision 2030 set a goal to reduce cardiovascular diseases mortality to 17.4 per 10,000 people by the end of 2020.⁸²⁵ According to the Vision 2050 Long-term Development Policy, the fundamental basis of Mongolia’s long term development policy is green growth, and the country’s economy and infrastructure will be developed based on its potential of natural resources and advantages of geographical location. The long-term development policy of Mongolia has nine fundamental goals and 50 development targets, focusing on economic growth and social development. Objective 2 aims to reduce factors affecting preventable maternal and child mortality by improving the quality and accessibility of reproductive health care services.

The 2016 State Policy on population Development for the period 2016–2025 aims to improve the safety of the environment for people to lead healthy and long lives, to provide sustainable population growth and to increase population and quality of family life.

⁸²⁴ Mongolia (2024b).

⁸²⁵ WHO (2020), UNFPA (2018).

According to WHO, the National Programme on Maternal, Child and Reproductive Health for 2016–2020 was successfully implemented, promoting a variety of approaches and improving the health standards for mothers and children.⁸²⁶

The 2017 State Policy on Health for the period 2017–2026 has eight key domains: public health, medical care, human resources, health financing, health technology, pharmaceuticals, information technology and management and health sector management, organization and transparency.

The 2017 National Programme on Infectious Disease Prevention and Control was approved to increase the participation of other sectors in strengthening the ability to monitor and prevent infectious diseases, organize response measures during outbreaks in a flexible, quality, accessible and prompt manner, and reduce the spread of infectious diseases by ensuring the financial stability of program implementation activities.

The objective of the National Programme on Prevention and Control of Non-communicable Diseases is to strengthen the prevention and reduction of risk factors, early detection and surveillance of diseases to reduce the prevalence of non-communicable diseases. The programme aims to establish a system of registration, information and monitoring of commonly occurring diseases and other relevant information and indicators for public health monitoring.

The National Communicable Disease Control Programme (2017 Government Resolution No. 11) aims to decrease the spread of contagious diseases by increasing the participation of other sectors in strengthening the capacity for flexible, high-quality, inclusive and rapid response to communicable diseases, and by ensuring financial sustainability of program implementation.

The Action Plan for the Implementation of the Environmental Health Programme in 2021–2024 include the goals of monitoring the quality of drinking water, establishing an online database and installing appropriate equipment to improve the quality of drinking water.

The 2017 Mongolia National Programme on Reduction of Air and Environmental Pollution provides a roadmap to decrease air pollutants by 80 per cent, prohibit the use of unprocessed coal anywhere except thermal power plants in Ulaanbaatar, and reduce air and environmental pollution by at least 50 per cent by 2025.

The 2017 National Multisectoral Action Plan on Combatting Antimicrobial Resistance (AMR) aims to promote rational use of antibiotics and prevention of the emergence and spread of AMR, improve surveillance of AMR and diagnostics, treatment of antimicrobial infections, and enhance the quality of hospital care and outcomes. The implementation of the first multisectoral action plan was assessed in 2022. According to the 2021 Global Health Security (GHS) Index,⁸²⁷ among the actions, 60 per cent were successfully implemented and 13 per cent were not achieved. The 2022 multisectoral national action plan on antimicrobial resistance for the period 2020–2025 aims to prevent and tackle antimicrobial resistance through improving surveillance in human and animal health sectors, controlling consumption, strengthening infection prevention and control, and increasing the knowledge and attitudes of the public, and human and animal health professionals to optimize the use of antimicrobials.

The National Action Plan for Reducing Mercury for the period 2019–2023 (2019 Government Resolution No. 317) aims to reduce pollution caused by artisanal and small-scale gold mining. This national action plan proposes 13 strategies and over 69 measures centred around four objectives which aim to eliminate the worst practices and harmful technologies, accelerate artisanal and small-scale gold mining sector formalization, protect the health of artisanal and small-scale miners, particularly women and children, and prevent exposure to mercury and increase access to information.⁸²⁸

The 2022 National Food Supply and Security Campaign aims to achieve self-sufficiency in 19 essential food products in five years (2022–2026) and transform Mongolia into a food exporting country.⁸²⁹ In 2023, the volume of vegetable harvest reached an unprecedented level, covering 80 per cent of domestic consumption.⁸³⁰

Cooperation with international organizations

The country programme of the United Nations population Fund (UNFPA) for the cycle 2023–2027 builds on the success of the previous programme and is guided by the evaluation recommendations, including to:

⁸²⁶ WHO (2022).

⁸²⁷ GHS (2021).

⁸²⁸ Mongolia (2019c).

⁸²⁹ WHO (2022a).

⁸³⁰ UNDP (2024b).

- Ensure sustainable and uninterrupted delivery of family planning services at all levels of health care.
- Continue support to the National Centre for Maternal and Child Health to ensure sustainability of the interventions, including midwifery education, implementation of the mobile application programme, and replicating the success of telemedicine for maternal and child health.
- Strengthen institutional capacities to fully implement the national action plan on combating domestic violence and ensure budget sustainability and strengthen multisectoral cooperation and response to gender-based violence across the country.
- Support in-service and pre-service teacher training systems and mechanisms for comprehensive sexuality education.
- Sustain investments for adolescent and youth programming and scale up best practices.
- Strengthen the focus on marginalized groups left behind from current sexual and reproductive health services and reproductive rights.
- Support increased availability of disaggregated quality data for evidence-based policymaking.
- Complete investment cases to secure sustained political will and funding to fully achieve the three transformative results.

To strengthen the capacity to overcome COVID-19 impacts, the National Committee on Gender Equality in partnership with The Asia Foundation implemented the project on “Strengthening the women’s economic empowerment” during 2020–2024. This provided support to women and women’s groups to overcome the COVID-19 impacts on their lives and strengthen the capacity of women’s NGOs. A total of 8.0 million tugriks was provided to different initiatives such as “Women’s group to support the girls who collect trashes and classify them”; “Project to support the single headed mothers and adolescent girls to improve their personal hygiene and mental health through provision of psychological counselling and hygiene supply”; “Digital refresher and employment” project and others.⁸³¹

UNICEF is launching a project, funded by the Government of Japan, with the main objective of improving access to WASH services in flood-prone communities in nine districts of Ulaanbaatar city. The project’s main objectives include:

- Construction of 18 WASH facilities with sanitation system constructed in flood prone areas.
- Procurement of three heavy duty water pump for NEMA.
- Strengthening the capacity of health and education professionals and overall operation of NEMA and the State Emergency Committee under the Deputy Prime Minister’s Office for the nationwide systematic emergency response coordination.

The Ministry of Health and WHO in Mongolia jointly organized a roundtable meeting on the *Solutions for Health* initiative on 22 December 2023.⁸³² The meeting was attended by more than 50 representatives from different ministries and organizations. The *Solutions for Health* is an initiative jointly led by the Ministry of Health and the WHO in partnership with other sectors to address the complex and structural issues on the environment and climate change that impact the health and well-being of the population. The initiative puts health at the forefront, as the most compelling argument for multisectoral action to clean the environment and mitigate the impact of climate change. The *Solutions for Health* initiative calls for an urgent multisectoral action to protect the health and well-being of the population by addressing, and to the extent possible eliminating the environmental risk factors that impact health. The *Solutions for Health* initiative will serve as the convergence point of action across sectors to develop short-, medium- and long-term solutions to protect health and reduce or eliminate the social and health burden attributable to environmental issues, including air pollution, lack of access to safe water, sanitation and hygiene services, and housing. Health solutions will advance the following programmes and interventions:

- Strengthen national capacity for research and generation of evidence on vulnerabilities, impact of climate change and environmental pollution on health to guide policy and the formulation of short and long-term interventions.
- Establish an innovation hub and build capacity for innovation, adoption and dissemination of technologies around clean energy, housing, water and sanitation that are sustainable and adaptable to the context of Mongolia.

⁸³¹ Asia Foundation (2021), Altankhundaga (2023).

⁸³² WHO (2023f).

- Build resilient health systems to mitigate the impact of climate change and the environment (multi-hazard surveillance, regulations, standardization, capacity to manage diseases and health risks that are prevalent in Mongolia).
- Community empowerment and strengthening social capital to adopt and sustain solutions.

Institutional framework

Ministry of Health

The Ministry of Health provides quality and safe access to health care and services to every citizen. It aims to increase the average life expectancy of the population by improving the quality of life. The Ministry is responsible for developing and implementing laws, policies and strategies within the scope of the Minister of Health's duties. Further, it provides advice, information and professional support to the Minister and the Government on health issues. An operational strategy and organizational restructuring programme (2021 Resolution No. 231) of the Ministry of Health was carried out by the Government and the Minister of Health. All ministries prepare their action plan programme based on the national programme. The programme presents in detail, the operational strategy with priorities of activities and the general structure and organizational structure of the ministry with their main roles and functions. Since the dissolution of GASI (see Chapters 1 and 2), the Ministry of Health has an inspection department.

There are health departments in the 21 *aimags*. They have the same functions as the Ministry of Health on a local level, such as medical health care, health inspection, health insurance, drug and medical equipment control. They report to the Ministry. They are linked to the Ministry of Health by a local agreement of the *aimag* governor with the Ministry of Health. The latter undertakes audits of the governor's performance in accordance with a national agreement between governors and the Ministry of Health. The Governors' Council coordinates health across the heads of departments at the *aimag* level.

As of 2022, Mongolia had 4,652 registered health care facilities, including both public and private establishments. These facilities are further categorized into two main types: primary care and referral level centres. At the primary care level, health centres are responsible for serving communities in both rural and urban areas, with a primary focus on providing outpatient care services. These health centres are distributed throughout the country to ensure accessibility for all citizens. Depending on their location, health centres can be further classified into family health centres, village health centres or *soum* health centres. Referral hospitals are specialized health care facilities that offer a wide range of medical services including, in some instances, inpatient care. These hospitals are further categorized into *soum* general hospitals, provincial general hospitals and district general hospitals.⁸³³ However, the universal health coverage service coverage index decreased from 67 per cent in 2017 to 64 per cent in 2021 (SDG indicator 3.8.1 of SDG target 3.8 (Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all)).

The Department of Public Health Policy works with the Ministry of Environment and Climate Change on different subjects including climate change. The health impact assessment part of the environment impact assessment is performed by NGOs.

Ministry of Food, Agriculture and Light Industry

The mission of the Ministry of Food, Agriculture and Light Industry is to create conditions for providing the population with healthy, guaranteed, nutritious food, hygiene and consumer clothing and equipment by defining and implementing sector policies in a rational manner. This helps to develop the production and value chain of export-oriented products, to increase the competitiveness of the sector by increasing production income and productivity, and to sustainably increase the economic growth of the sector by improving competitiveness. Among the missions of the Minister of Food, Agriculture and Light Industry, the missions aimed at providing conditions for the population to consume healthy and safe food, to increase food supply and accessibility, to ensure food safety, to develop a system for food production, trade, food production and service sectors, to develop and approve short-term action plans, to develop and approve regulations, rules, procedures, methods, guidelines and legal documents, to manage and coordinate the implementation of laws, policies and plans, are worth highlighting.

The Ministry interacts with several organizations, among them the standardization agency for modernization, the Ministry of Education (school meal programme) and the Ministry of Health for public health related to food.

⁸³³ WHO (2024c), ADB (2023g).

Ministry of Family, Labour and Social Development

Following the 2024 election, the Ministry of Labour and Social Protection became the Ministry of Family, Labour and Social Development. The vision of the Ministry is to ensure human development by effectively implementing an interconnected comprehensive policy of population development, labour, vocational education and social protection. This should create a favourable environment for citizens to work and develop and improve social security. The labour inspection function was transferred to the Ministry starting from January 2023. Following this change, the Ministry established a new department to oversee and manage the labour inspection system as well as to develop and monitor labour inspection regulations. A total of 162 inspectors including labour, social protection and industrial hygiene inspectors were transferred to the Sectoral Inspection Department.⁸³⁴

Ministry of Environment and Climate change

The Ministry of Environment and Climate Change is responsible for developing and implementing national policies on environmental protection, climate change mitigation and adaptation, and sustainable natural resource management. The Ministry leads national climate change strategies, oversees environmental impact assessments (including health-related components), and coordinates the implementation of NDC and the National Adaptation Plan.

In response to the country's vulnerability to climate hazards such as desertification, extreme temperatures and air pollution, the Ministry collaborates with key sectors—particularly health, agriculture and infrastructure—to strengthen resilience and reduce climate risks. It works alongside the Ministry of Health to address the health impacts of environmental degradation, including air pollution-related illnesses and climate-sensitive diseases. While coordination mechanisms are emerging, formal intersectoral structures, such as joint task forces or integrated climate-health programmes, remain limited.

Nuclear Energy Commission

The Nuclear Energy Commission was newly established by 2008 Government Resolution No. 263 within the framework of the work of the Prime Minister of Mongolia. The functions of the Commission's Office were implemented by the Department of Nuclear Energy from 2009 to 2014. In 2015, Parliament approved the Law on Amendments to the Law on Nuclear Energy, and 2015 Government Resolution No. 72 "Revising the Composition and Rules of the Nuclear Energy Commission" establishing the Nuclear Energy Commission and its secretariat.

Centre for Health Development

The Centre for Health Development contributes to providing decision-makers with evidence and data for their analysis in the development of policies, legal documents, standards and guidelines for the health sector. Further that should support the implementation of policies for the development of the quality of health workers and health care services, to facilitate the transplantation of cells, tissues and organs and to implement relevant laws, regulations, orders and decisions to regulate outpatient appointment services at the national level.

The Centre is also responsible for the unified health statistic database. Hospitals, medical centres and all medical structures have to report diseases and health indicators to the health statistics database. The Centre for Health Development analyses and compiles data and publishes the annual health indicators report with the technical assistance of the WHO. Data from the unified health statistic database are integrated and used by the NSO, National Centre for Communicable Diseases (NCCD) and NCPH.

National Centre of Public Health

The National Centre of Public Health was newly reorganized in 2023. It is organized in four departments. Its research department is organized in four divisions. The research department provides evidence to policy makers, publishes research studies and conducts surveillance, provides information and spreads awareness for public health purposes to the population. NCPH uses data produced by several institutions: NAMEM for environment indicators, the Centre for Health Development for diseases, and the inspectors of the Ministry of Health for soil and water data.

National Centre for Communicable Diseases

The mission of the NCCD is to implement the International Health Regulations, introduce advanced technologies and innovations in the surveillance, prevention, diagnosis and treatment of infectious diseases, and continuously ensure the sustainable development, quality and safety of training, science, research and human resources. The NCCD conducts

⁸³⁴ UNDP (2024b).

communicable disease surveillance and oversees epidemic management. The strategic goals of the NCCD are to strengthen capacity for surveillance, prevention and response to pandemics, new and emerging infections and other infectious diseases that may impact health security. Further, they raise awareness about health prevention through health education, information, training and advocacy. They also ensure that the guidelines and instructions for medical care and services are strictly followed and continuously improved to guarantee quality and safety. The NCCD is also in charge of improving the quality and accessibility of diagnostics and testing; introducing and localizing advanced new technologies and innovations in medical care and services; strengthening human resource capacity and supporting social protection; and raising the level of scientific analysis and research to international standards. An additional task includes the investigation of foodborne diseases.

National Centre for Zoonotic Diseases

The National Centre for Zoonotic Diseases (NCZD) is dedicated to reducing human morbidity and mortality by minimizing the risk of infection. Its mission includes conducting surveillance, implementing control measures and developing early warning and response strategies for natural foci and zoonotic diseases, all grounded in scientific research. NCZD carries out zoonotic investigations to trace patient contacts and determine the source of transmission, whether from animals, soil, or other environmental factors. In coordination with the NCCD, it provides medical recommendations and plans further investigations.

NCZD has 14 branches at the local level. The branches conduct field surveillance and monitoring for plague, anthrax and tick-borne diseases. The NCZD collects data from its branches and produces the annual report of the NCZD which is sent to the Ministry of Health.

The NCZD has developed cooperation with the Ministry of Health and the Minister of Food, Agriculture and Light Industry while cooperation with the Ministry of Environment and Climate Change is not in place. An intersectoral committee with the Ministry of Environment and Climate Change, the Ministry of Health and Ministry of Food, Agriculture and Light Industry was not established.

Monetary valuation of environmental impact on human health

Air pollution impacts total income and productivity mainly through two channels: (a) increased absenteeism among adults, either due to illness or to care for sick family members, and (b) a decline in productivity while on the job, as air pollution impairs cognitive function.⁸³⁵

The investment case study estimates that ambient air pollution causes 2,839 deaths annually and results in economic losses of 905 billion tugriks, accounting for 2.4 per cent of the country's GDP. In comparison, household air pollution, primarily from cookstove use, leads to over 4,300 deaths each year and economic losses of 3.9 trillion tugriks, representing 7.6 per cent of GDP. According to the study, by investing now in proven interventions: to replace coal based cookstoves with electric or gas, convert power plants, reduce open fires and reduce road transport pollution, will avert 2.3 trillion tugriks in economic losses and save over 11,000 lives by 2025.⁸³⁶ The welfare costs of premature deaths from exposure to lead were reported at over one per cent of GDP in 2019.⁸³⁷

A report on a study performed by UNICEF and the Zaigal Institute carried out in 2019 presents the direct and indirect costs of winter-seasonal air pollution due to employee absenteeism in the private sector. The results of the study show that the combined direct and indirect hidden costs of absenteeism identified as being related to wintertime air pollution are significant for both employees and employers in the private sector in Ulaanbaatar. The major drivers of direct cost to employees identified were health-care expenses, including doctor visits, medication, hospitalization and transportation, in addition to loss of earnings. Although the employees surveyed were evenly divided by gender, it was found that the cost of illness-related absences was disproportionately higher for female workers, especially those with young children. The major hidden cost drivers for employers were the number and human capital costs of employee absences. The study showed that nearly US\$7.5 million was lost due to air pollution-related absenteeism over the previous five years among the private companies participating in the study. This loss represents a US\$1.4 million annual indirect loss to the Mongolian economy due to air pollution.⁸³⁸

⁸³⁵ Economist Impact (2022).

⁸³⁶ UNDP (2024c), UNDP (2024).

⁸³⁷ CEIC (n.d. a).

⁸³⁸ UNICEF (2020a).

17.5 ASSESSMENT AND RECOMMENDATIONS

Assessment

Since 2017, significant improvements have been observed in health indicators. However, disparities in these indicators persist depending on the regions and *aimags*. Action is needed at the local level to assist populations whose health inequalities are the most marked. Differences in life expectancy at birth also exist depending on gender, with women at the national level expected to live on average almost 10 years longer than men. The COVID-19 pandemic highlighted the fragility of this progress and the need for continued vigilance from the public authorities to maintain the progress achieved and to sustain actions aimed at reducing the causes of mortality. This includes exogenous factors such as behaviours unfavourable to health like eating habits, violence and tobacco use. Further, environmental factors like air and water quality must be considered.

Since 2017, mortality from communicable diseases, except during the COVID-19 pandemic, has tended to decrease, and the main cause of death in Mongolia is attributable to non-communicable diseases. However, Mongolia remains a country with a high tuberculosis burden. The COVID-19 pandemic exacerbated TB detection. In relation to TB, antibiotic resistance emerges as a growing issue. Mongolia is implementing its multisectoral action plan on antibiotic resistance (2017–2022 and 2022–2025) to combat this challenge. The concept of antibiotic resistance encourages reflection on the One Health approach. FAO and other institutions support the initial works of the One Health approach in Mongolia due to its multisectoral nature. This approach is particularly relevant for Mongolia, where zoonotic diseases are a major concern in pastoral culture. Moreover, food security and safety are closely linked to this topic. However, Mongolia remains in the early stages of the One Health approach.

According to WHO, Mongolia has one of the highest mortality rates due to NCDs across the Western Pacific region. Several factors contribute to the development of NCDs, such as dietary and lifestyle habits, livelihoods and living environments. Diseases of the respiratory system are the second leading cause of NCD morbidity, highlighting the impact of air pollution, which is one of the major environmental exposure problems in Mongolia. The most affected area is Ulaanbaatar, in which nearly 50 per cent of the Mongolian population lives.

Progress has been made in the quality of data collection, but data and interpretations are not being adequately utilized. Data reports with analytical interpretation are not accessible. The National Centre for Public Health has developed a database and a system for data collection on environmental indicators to monitor and evaluate the relationship between environmental factors and human health. An annual report on environmental health indicators is produced; however, information on data collection and validation prior to inclusion in the database is not available. In addition, no scientific statistical analyses of the data are undertaken, and no studies on the impact of the environment on population health are carried out to identify the main health concerns or to formulate proposals for decision-makers to reduce exposure and improve population health.

Air pollution remains a major concern in Mongolia especially in Ulaanbaatar. The impact of air pollution on health is significant and has been demonstrated by scientific studies. Authorities are taking actions to reduce air pollution exposure; however, the geographical position of Ulaanbaatar and its past and current urban development exacerbate pollution effects. Measures are being implemented to reduce pollutant emission from coal use, but they remain insufficient. Although the population is aware of the issue, behavioural change is difficult as daily activities such as cooking and heating still rely on outdated technologies. Emissions from different sources increase the population's exposure to indoor and ambient air pollutants. WHO and other organizations have issued recommendations to combat the health effects of air pollution in Mongolia, some of which have been implemented. However, regulations and policies remain weak in preventing new pollutant emissions during and after the construction of new buildings, houses and *gers*, and there is a lack of a comprehensive approach to urban development. The "Healthy City" approach was developed in Mongolia with the establishment of a Healthy Cities Network involving multi-sectoral actors. However, since 2018, no action has been reported by this network, and its effectiveness remains unclear.

Since 2017, preventive measures have been developed and implemented in kindergartens and schools such as replacing raw coal and old stoves, and introducing electric heating. Although some assessments have been carried out, no systematic data are available concerning indoor air quality monitoring in kindergartens, schools or healthcare buildings.

No data on chemical emissions from construction materials, homes or public buildings are available. Lead exposure is not investigated, although lead emissions are documented. Lead in batteries, paint and mineral extraction remains common. Some scientific studies have showed elevated lead concentrations in Mongolian children's blood. Lead exposure has deleterious effects on children's health. Blood testing for lead poisoning is an efficient method but is not sufficiently

developed. Environmental investigations to identify and remove or neutralize the causes of the exposure and to carry out lead testing on exposed populations or families are not always undertaken. Since 2017, there have been no data on lead or asbestos, and their impacts on the health of the Mongolian population have not been assessed. The negative impact of living near mining areas on health is well known and has been demonstrated by studies, but no strategy on mining and health has been approved.

Due to the lack of relevant data, waterborne and foodborne diseases cannot be properly assessed, as reporting and registration are often incomplete. Results of drinking water quality monitoring are not available. Drinking water sold through water kiosks is transported in uncontrolled ways, such as in containers previously used for other purposes, meaning the initial quality of the water cannot be guaranteed. In *ger* districts and rural settlements, the population relies on water wells without quality control, and the absence of sanitation systems can affect water quality, leading to bacterial or viral epidemics. Similar epidemic and parasitic risks occur when surface water is used without adequate treatments. These risks increase during floods, as previously observed in *ger* districts. Nevertheless, with the support of international organizations, Mongolia has made progress in implementing water, sanitation and hygiene measures in schools, kindergartens and health facilities, and these actions continue. Water, sanitation and hygiene remain major public health issues in Mongolia.

Food security and safety are on the Government's agenda. The issue is heightened by climate change and its impacts. Norms and control on food safety and traceability, including chemical limits, are not fully implemented. Eating and nutritional habits are among the factors contributing to the development of non-communicable diseases. Public awareness of healthy eating practices remains limited. Mongolia has developed programmes to improve the nutrition of some families and, in particular, children.

As of March 2025, several ILO conventions on environmental health have not yet been ratified by Mongolia.

Recommendations

Most of the recommendations of the First EPR of Mongolia remain valid.

Climate change and health

Recommendation 17.1:

The Government should:

- (a) *Integrate health considerations into the climate change related policy documents;*
- (b) *Strengthen the climate-resilience of health systems by identifying and addressing climate-sensitive health risks, including air pollution, vector-borne diseases and food- and water-borne illnesses;*
- (c) *Support the implementation of the One Health approach as a cross-cutting framework to address the interconnected risks of climate change, environmental degradation and zoonotic diseases;*
- (d) *Enhance climate and health data integration, monitoring and early warning systems to inform risk reduction, public health interventions and policy planning.*

Action in public health

Recommendation 17.2:

The Government, in cooperation with academic institutions, should:

- (a) *Carry out studies on the health impact of environmental factors to determine actions in public health;*
- (b) *Develop a register of diseases related to environmental exposures;*
- (c) *Carry out investigations of cases of these diseases to identify and remove the exposure sources;*
- (d) *Ensure that environmental and health impact assessments are carried out and their conclusions are respected;*
- (e) *Integrate environmental health aspects into urban planning.*

National environmental health policy

Recommendation 17.3:

The Ministry of Health should develop and implement a national policy document on environmental health.

Health and water

Recommendation 17.4:

The Ministry of Health, in cooperation with the Ministry of Environment and Climate Change and the Ministry of Urban Development, Construction and Housing, should:

- (a) Continue implementing water safety plans;*
- (b) Broaden access to safe drinking water and sanitation in all schools, kindergartens and health care facilities;*
- (c) Raise awareness among the population about the risks of pollution and good practices regarding water use.*

Health impact of air pollution

Recommendation 17.5:

The Government should:

- (a) Continue and reinforce efforts to combat air pollution, especially in Ulaanbaatar;*
- (b) Develop and implement actions to reduce population exposure to indoor and outdoor air pollution;*
- (c) Raise awareness of the population on air pollution and on good practices to reduce air pollution.*

Health impact of environmental factors

Recommendation 17.6:

The Government should:

- (a) Strengthen the regulation and control of construction materials in order to restrict hazardous substances in construction materials;*
- (b) Carry out a study on hazardous chemicals, asbestos and lead exposure on public health, including occupational exposure;*
- (c) Develop legislation and measures to eliminate the use of asbestos and of lead in paint;*
- (d) Develop measures to eliminate children's exposure to asbestos and lead;*
- (e) Develop waste management for asbestos and lead.*

Mining and health

Recommendation 17.7:

The Government should update and adopt the draft strategy on mining and health and implement it.

Chemicals safety

Recommendation 17.8:

The Government should implement actions and a risk-reduction policy to reduce chemical exposure of the population.

Occupational health

Recommendation 17.9:

The Government should:

- (a) Enforce occupational health legislation in small and medium enterprises;*
- (b) Promote the carrying out of risk assessments at workplaces and adapt medical checks of employees accordingly.*

ANNEXES

ANNEX I:

Status of implementation of recommendations
of the First EPR of Mongolia

ANNEX II:

SDG targets addressed in the Second EPR of Mongolia

ANNEX III:

Participation of Mongolia in multilateral environment-related
agreements

ANNEX IV:

List of laws used in the Second EPR of Mongolia

ANNEX V:

Sources

ANNEX I

STATUS OF IMPLEMENTATION OF RECOMMENDATIONS OF THE FIRST EPR OF MONGOLIA

The table below presents an overview of the status of the recommendations of the First Environmental Performance Review of Mongolia (2018). A detailed assessment of the status of their implementation is integrated in relevant chapters.

The First EPR of Mongolia formulated 85 recommendations, comprising a total of 230 recommendations including sub-recommendations. Of these 230, 106 sub-recommendations (46 per cent) have been implemented (64 sub-recommendations) or partially implemented (42 sub-recommendations), 21 (9 per cent) are currently in progress and 103 (45 per cent) have not been implemented. Recommendation 2.5 (c) is no longer relevant. Overall, Mongolia has an implementation rate of 55 per cent when considering recommendations that have been implemented, partially implemented or are in progress.

The status of implementation of EPR recommendations is considered as follows:

- Implemented: the recommendation has been addressed and integrated into national policies, legislation or practices.
- Partially implemented: the recommendation has been acted upon to some extent.
- In progress: actions to implement the recommendation have begun and are underway.
- Not implemented: no substantial steps have been taken to address the recommendation.

In some cases, elements of recommendations categorized as “not implemented” or “partially implemented” have been reflected to varying degrees in the new EPR recommendations. The reviewed country is encouraged to take action to implement the recommendations from the previous EPR and to continue monitoring their implementation, in addition to implementing the recommendations made in the current EPR.

Legend:

- ✓ Implemented
- ● Partially implemented
- → In progress
- ✗ Not implemented

Chapter 1: Policymaking, legal and institutional framework

Recommendation	Chapter	Recommendation	Chapter
1.1 (a) – ✓ Implemented	1	1.3 (d) – ✗ Not implemented	1
1.1 (b) – ● Partially implemented	1	1.4 (a) – ✓ Implemented	2
1.1 (c) – ● Partially implemented	1	1.4 (b) – ✓ Implemented	2
1.1 (d) – ● Partially implemented	1	1.4 (c) – ● Partially implemented	2
1.1 (e) – ● Partially implemented	1	1.4 (d) – ✓ Implemented	2
1.1 (f) – ● Partially implemented	1	1.4 (e) – ✓ Implemented	1
1.2 (a) – ✗ Not implemented	1	1.4 (f) – → In progress	2
1.2 (b) – ✗ Not implemented	1	1.4 (g) – ● Partially implemented	2
1.2 (c) – ✗ Not implemented	1	1.5 (a) – ✗ Not implemented	2
1.2 (d) – ✗ Not implemented	1	1.5 (b) – ✗ Not implemented	2
1.3 (a) – ✗ Not implemented	1	1.5 (c) – ● Partially implemented	2
1.3 (b) – ✗ Not implemented	1	1.6 – ✗ Not implemented	1
1.3 (c) – ✗ Not implemented	1		

Chapter 2: Regulatory and compliance assurance mechanisms

Recommendation	Chapter
2.1 (a) – ✓ Implemented	2
2.1 (b) – ✓ Implemented	2
2.2 (a) – ✓ Implemented	2
2.2 (b) – ✓ Implemented	2
2.2 (c) – ✓ Implemented	2
2.2 (d) – ✓ Implemented	2
2.2 (e) – ✓ Implemented	2
2.2 (f) – ✓ Implemented	2
2.3 (a) – ✓ Implemented	2
2.3 (b) – ✓ Implemented	2

Recommendation	Chapter
2.4 – ● Partially implemented	2
2.5 (a) – ✓ Implemented	2
2.5 (b) – → In progress	2
2.6 (a) – ● Partially implemented	2
2.6 (b) – ✓ Implemented	2
2.6 (c) – ✓ Implemented	2
2.7 – ● Partially implemented	2
2.8 (a) – ✓ Implemented	2
2.8 (b) – ✓ Implemented	2

Chapter 3: Greening the economy

Recommendation	Chapter
3.1 (a) – → In progress	3
3.1 (b) – ✓ Implemented	3
3.1 (c) – ✗ Not implemented	3
3.2 (a) – ● Partially implemented	3
3.2 (b) – ✓ Implemented	3
3.3 (a) – → In progress	3
3.3 (b) – → In progress	3
3.3 (c) – → In progress	3

Recommendation	Chapter
3.3 (d) – → In progress	3
3.4 (a) – → In progress	3
3.4 (b) – → In progress	3
3.4 (c) – ● Partially implemented	3
3.5 – ✗ Not implemented	3
3.6 (a) – ✓ Implemented	3
3.6 (b) – ● Partially implemented	3
3.6 (c) – ✓ Implemented	3

Chapter 4: Environmental monitoring and information

Recommendation	Chapter
4.1 (a) – ✗ Not implemented	4
4.1 (b) – ✗ Not implemented	4
4.1 (c) – ✗ Not implemented	4
4.1 (d) – ✗ Not implemented	4
4.2 (a) – ✗ Not implemented	4
4.2 (b) – ✗ Not implemented	4
4.2 (c) – ✗ Not implemented	4

Recommendation	Chapter
4.2 (d) – ✗ Not implemented	4
4.3 (a) – ✗ Not implemented	4
4.3 (b) – ✗ Not implemented	4
4.4 (a) – ✗ Not implemented	4
4.4 (b) – ✗ Not implemented	4
4.4 (c) – ✗ Not implemented	4

Chapter 5: Access to information, public participation and education

Recommendation	Chapter
5.1 (a) – ● Partially implemented	5
5.1 (b) – ✗ Not implemented	5
5.1 (c) – ● Partially implemented	5
5.2 (a) – ● Partially implemented	5
5.2 (b) – ✗ Not implemented	4
5.3 (a) – ● Partially implemented	5
5.3 (b) – ✗ Not implemented	5
5.3 (c) – ● Partially implemented	5

Recommendation	Chapter
5.3 (d) – ✗ Not implemented	5
5.3 (e) – ✗ Not implemented	5
5.3 (f) – ✗ Not implemented	5
5.4 – ✗ Not implemented	5
5.5 (a) – ✗ Not implemented	5
5.5 (b) – ✗ Not implemented	5
5.6 (a) – ✗ Not implemented	5
5.6 (b) – ✗ Not implemented	5

Chapter 6: Implementation of international agreements and commitments

Recommendation	Chapter
6.1 (a) – ✗ Not implemented	8
6.1 (b) – ✗ Not implemented	8
6.1 (c) – ✗ Not implemented	8
6.1 (d) – ✗ Not implemented	8

Recommendation	Chapter
6.2 (a) – ✓ Implemented	8
6.2 (b) – ✗ Not implemented	8
6.3 – ✓ Implemented	8

Chapter 7: Implementation of Rio conventions

Recommendation	Chapter
7.1 – ● Partially implemented	8
7.2 (a) – ✓ Implemented	1
7.2 (b) – ✓ Implemented	8
7.2 (c) – ✓ Implemented	8
7.3 (a) – ✓ Implemented	8
7.3 (b) – ✓ Implemented	8

Recommendation	Chapter
7.3 (c) – ✓ Implemented	8
7.4 (a) – ✓ Implemented	7
7.4 (b) – ✓ Implemented	7
7.4 (c) – ✗ Not implemented	8
7.5 – ● Partially implemented	8

Chapter 8: Air protection

Recommendation	Chapter
8.1 (a) – ✓ Implemented	9
8.1 (b) – ✓ Implemented	9
8.1 (c) – ✗ Not implemented	9
8.2 – ✓ Implemented	9
8.3 – → In progress	9

Recommendation	Chapter
8.4 (a) – ✗ Not implemented	9
8.4 (b) – ✗ Not implemented	9
8.5 – ✓ Implemented	9
8.6 – ✓ Implemented	9
8.7 – ● Partially implemented	9

Chapter 9: Water management

Recommendation	Chapter
9.1 (a) – ✗ Not implemented	10
9.1 (b) – ✓ Implemented	10
9.2 (a) – ● Partially implemented	10
9.2 (b) – ● Partially implemented	10
9.2 (c) – ● Partially implemented	10

Recommendation	Chapter
9.3 – ✓ Implemented	10
9.4 (a) – ✓ Implemented	10
9.4 (b) – ✓ Implemented	10
9.4 (c) – ✓ Implemented	10
9.4 (d) – ✓ Implemented	10

Chapter 10: Waste management

Recommendation	Chapter
10.1 – ✗ Not implemented	11
10.2 (a) – ✗ Not implemented	11
10.2 (b) – ✓ Implemented	11
10.2 (c) – ✗ Not implemented	11

Recommendation	Chapter
10.3 – ✓ Implemented	11
10.4 (a) – ✗ Not implemented	11
10.4 (b) – ✗ Not implemented	11
10.5 – → In progress	11

Chapter 11: Biodiversity and protected areas

Recommendation	Chapter
11.1 (a) – ✗ Not implemented	12
11.1 (b) – ● Partially implemented	12
11.1 (c) – ✓ Implemented	12
11.1 (d) – ✓ Implemented	12
11.2 (a) – ✗ Not implemented	12
11.2 (b) – ✗ Not implemented	12
11.3 (a) – ● Partially implemented	12
11.3 (b) – ● Partially implemented	12
11.3 (c) – ● Partially implemented	12
11.3 (d) – ✓ Implemented	12

Recommendation	Chapter
11.4 (a) – ✓ Implemented	12
11.4 (b) – ● Partially implemented	12
11.4 (c) – ✓ Implemented	12
11.5 – ● Partially implemented	12
11.6 (a) – ✗ Not implemented	12
11.6 (b) – ✗ Not implemented	12
11.6 (c) – ● Partially implemented	12
11.6 (d) – ✗ Not implemented	12
11.6 (e) – ✗ Not implemented	12
11.6 (f) – ✗ Not implemented	12

Chapter 12: Land management

Recommendation	Chapter
12.1 (a) – ✗ Not implemented	14
12.1 (b) – ✗ Not implemented	14
12.1 (c) – ✗ Not implemented	14
12.1 (d) – ● Partially implemented	14
12.1 (e) – ● Partially implemented	14
12.2 (a) – ✗ Not implemented	14
12.2 (b) – ✗ Not implemented	14

Recommendation	Chapter
12.2 (c) – ✗ Not implemented	14
12.2 (d) – ✓ Implemented	14
12.3 (a) – ✗ Not implemented	8
12.3 (b) – ✓ Implemented	14
12.4 – ✗ Not implemented	14
12.5 – ✓ Implemented	14

Chapter 13: Forestry and environment

Recommendation	Chapter
13.1 (a) – ● Partially implemented	13
13.1 (b) – ✗ Not implemented	13
13.1 (c) – ✗ Not implemented	13
13.2 (a) – ● Partially implemented	13
13.2 (b) – ● Partially implemented	13
13.3 (a) – ✗ Not implemented	13
13.3 (b) – ✗ Not implemented	13

Recommendation	Chapter
13.4 – ✗ Not implemented	13
13.5 (a) – ✗ Not implemented	13
13.5 (b) – ✗ Not implemented	13
13.5 (c) – ✗ Not implemented	13
13.6 (a) – ✗ Not implemented	13
13.6 (b) – ● Partially implemented	13

Chapter 14: Risk management of natural and technological/anthropogenic hazards

Recommendation	Chapter
14.1 (a) – ✓ Implemented	16
14.1 (b) – ✓ Implemented	16
14.1 (c) – ✓ Implemented	16
14.2 (a) – ✓ Implemented	16
14.2 (b) – ✗ Not implemented	16
14.2 (c) – → In progress	16
14.3 (a) – → In progress	16
14.3 (b) – ✓ Implemented	16

Recommendation	Chapter
14.3 (c) – → In progress	16
14.3 (d) – → In progress	16
14.3 (e) – → In progress	16
14.4 (a) – ✓ Implemented	16
14.4 (b) – ✓ Implemented	16
14.4 (c) – ✗ Not implemented	16
14.4 (d) – ● Partially implemented	16

Chapter 15: Health, food safety and environment

Recommendation	Chapter
15.1 – → In progress	17
15.2 (a) – ● Partially implemented	17
15.2 (b) – ✗ Not implemented	17
15.2 (c) – ✗ Not implemented	17
15.3 (a) – ✗ Not implemented	17
15.3 (b) – ✗ Not implemented	17
15.3 (c) – ✗ Not implemented	17
15.4 (a) – → In progress	17
15.4 (b) – → In progress	17
15.4 (c) – ● Partially implemented	10
15.4 (d) – ✗ Not implemented	17
15.5 (a) – → In progress	2, 17
15.5 (b) – → In progress	2, 17
15.6 (a) – ✓ Implemented	9
15.6 (b) – ● Partially implemented	2
15.7 (a) – ✗ Not implemented	17
15.7 (b) – ✗ Not implemented	17

Recommendation	Chapter
15.7 (c) – ✗ Not implemented	17
15.7 (d) – ✗ Not implemented	17
15.7 (e) – ✗ Not implemented	17
15.8 (a) – ✗ Not implemented	17
15.8 (b) – ✗ Not implemented	17
15.8 (c) – ✗ Not implemented	17
15.9 (a) – ✗ Not implemented	4
15.9 (b) – ✗ Not implemented	4
15.9 (c) – ✗ Not implemented	4
15.10 (a) – ✗ Not implemented	17
15.10 (b) – ✗ Not implemented	17
15.10 (c) – ✗ Not implemented	17
15.10 (d) – ✗ Not implemented	17
15.10 (e) – ✗ Not implemented	17
15.10 (f) – ✗ Not implemented	17
15.10 (g) – ✓ Implemented	17
15.10 (h) – ✗ Not implemented	17

ANNEX II

SDG TARGETS ADDRESSED IN THE SECOND EPR OF MONGOLIA

The Second EPR of Mongolia includes an assessment of 12 SDGs and 59 targets being reviewed in several chapters from different perspectives. In some cases, a comprehensive analysis of SDGs and targets is hindered by the lack of data and information.

SDG	Target		Chapter(s)
1 NO POVERTY 	1.4	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	10
	1.5	By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	16
2 ZERO HUNGER 	2.2	By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	17
	2.5	By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed	12
3 GOOD HEALTH AND WELL-BEING 	3.1	By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	17
	3.2	By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	17
	3.3	By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	17
	3.4	By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	17
	3.6	By 2020, halve the number of global deaths and injuries from road traffic accidents	17
	3.7	By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	17
	3.8	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	17
	3.9	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	10, 11, 17
	3.a	Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	17
	3.c	Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	17
4 QUALITY EDUCATION 	4.7	By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development	6

6 CLEAN WATER AND SANITATION 	6.1	By 2030, achieve universal and equitable access to safe and affordable drinking water for all	10, 17
	6.2	By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	10, 17
	6.3	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	10
	6.4	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	10
	6.5	By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate	8, 10
	6.6	By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	10
	6.b	Support and strengthen the participation of local communities in improving water and sanitation management	10
8 DECENT WORK AND ECONOMIC GROWTH 	8.1	Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries	3
	8.3	Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	3
	8.4	Improve resource efficiency in consumption and production	3
	8.8	Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	17
11 SUSTAINABLE CITIES AND COMMUNITIES 	11.2	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	17
	11.4	Strengthen efforts to protect and safeguard the world's cultural and natural heritage	8
	11.5	By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	16
	11.6	By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	9, 11
	11.b	By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels	16
12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	12.1	Implement the 10-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	8
	12.3	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	8
	12.4	By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	8, 11
	12.5	By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	11
	12.6	Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	2, 3
	12.7	Promote public procurement practices that are sustainable, in accordance with national policies and priorities	3
	12.8	By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	4, 6

	12.a	Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	3
	12.b	Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	3
	12.c	Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	3
13 CLIMATE ACTION 	13.1	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	7, 16
	13.2	Integrate climate change measures into national policies, strategies and planning	7
	13.3	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	6, 7
	13.a	Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	7
15 LIFE ON LAND 	15.1	By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	12, 13, 16
	15.2	By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	13
	15.3	By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	14
	15.4	By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development	15
	15.5	Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	14, 12
	15.8	By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	12
	15.a	Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems	12
16 PEACE, JUSTICE AND STRONG INSTITUTIONS 	16.3	Promote the rule of law at the national and international levels and ensure equal access to justice for all	5
	16.6	Develop effective, accountable and transparent institutions at all levels	5
	16.7	Ensure responsive, inclusive, participatory and representative decision-making at all levels	5
	16.10	Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements	5
	16.a	Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime	5
	16.b	Promote and enforce non-discriminatory laws and policies for sustainable development	5
17 PARTNERSHIPS FOR THE GOALS 	17.14	Enhance policy coherence for sustainable development	1

ANNEX III

PARTICIPATION OF MONGOLIA

IN MULTILATERAL ENVIRONMENT-RELATED AGREEMENTS

Year	Agreement	Year	Status
1958	(Geneva) Convention on the High Seas	1976	Ac
1968	(London, Moscow, Washington) Treaty on the Non-Proliferation of Nuclear Weapons (NPT)	1969	Ra
1971	(Ramsar) Convention on Wetlands of International Importance Especially as Waterfowl Habitat	1997	Ac
1971	(London, Moscow, Washington) Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-bed and the Ocean Floor and in the Subsoil thereof	1971	Ra
1972	(Paris) Convention concerning the Protection of the World Cultural and Natural Heritage	1990	At
1972	(London, Moscow, Washington) Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons, and on their Destruction	1972	Ra
1972	(London) International Convention on the International Regulations for Preventing Collisions at Sea	2002	Ac
1972	(Geneva) International Convention for Safe Containers		
1973	(Washington) Convention on International Trade in Endangered Species of Wild Fauna and Flora	1996	Ac
	1979 (Bonn) Amendment	1996	At
	1983 (Gaborone) Amendment		
1973	(London) Convention for the Prevention of Pollution from Ships (MARPOL)		
	1978 (London) Annex I on Prevention of Pollution by Oil	2003	Ac
	1978 (London) Annex II on Control of Pollution by Noxious Liquid Substances in Bulk	2003	Ac
	1978 (London) Annex III on Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form	2003	At
	1978 (London) Annex IV on Prevention of Pollution by Sewage from Ships	2003	At
	1978 (London) Annex V on Prevention of Pollution by Garbage from Ships	2003	Ra
	1997 (London) Annex VI on Prevention of Air Pollution from Ships	2007	Ac
1973	(Geneva) Convention concerning Minimum Age for Admission to Employment (ILO 138)	2002	Ra
1979	(Bonn) Convention on the Conservation of Migratory Species of Wild Animals	1999	Ra
1980	(New York, Vienna) Convention on the Physical Protection of Nuclear Material	1986	Ra
1981	(Geneva) Convention Concerning Occupational Safety and Health and the Working Environment (ILO 155)	1998	Ra
1982	(Montego Bay) Convention on the Law of the Sea	1996	Ra
	1994 (New York) Agreement related to the Implementation of Part XI of the Convention	1996	Ra
1985	(Geneva) Convention Concerning Occupational Health Services (ILO 161)		
1985	(Vienna) Convention for the Protection of the Ozone Layer	1996	Ac
	1987 (Montreal) Protocol on Substances that Deplete the Ozone Layer	1996	Ac
	1990 (London) Amendment to Protocol	1996	Ac
	1992 (Copenhagen) Amendment to Protocol	1996	Ac
	1997 (Montreal) Amendment to Protocol	2002	Ra
	1999 (Beijing) Amendment to Protocol	2008	Ra
	2016 (Kigali) Amendment to Protocol	2022	Ra

<i>Year</i>	<i>Agreement</i>	<i>Year</i>	<i>Status</i>
1986	(Geneva) Convention Concerning Safety in the Use of Asbestos (ILO 162)		
1986	(Vienna) Convention on Early Notification of a Nuclear Accident	1987	Ra
1986	(Vienna) Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency	1987	Ra
1989	(Basel) Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1997	Ac
1992	(Rio de Janeiro) Convention on Biological Diversity	1993	Ra
	2000 (Montreal) Cartagena Protocol on Biosafety	2003	Ac
	2010 (Nagoya) Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization	2013	Ra
	2010 (Nagoya-Kuala Lumpur) Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety	2013	Ra
1992	(New York) United Nations Framework Convention on Climate Change	1993	Ra
	1997 (Kyoto) Kyoto Protocol	1999	Ac
	2012 (Doha) Doha Amendment to the Kyoto Protocol		
	2015 (Paris) Paris Agreement	2016	Ra
1993	(Paris) Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction	1995	Ra
1994	(Lisbon) Energy Charter Treaty	1999	Ra
	1994 (Lisbon) Protocol on Energy Efficiency and Related Environmental Aspects	1999	Ra
	1998 Amendment to the Trade-Related Provisions of the Energy Charter Treaty	1999	Ra
1994	(Vienna) Convention on Nuclear Safety		
1994	(Paris) United Nations Convention to Combat Desertification	1996	Ra
1995	(Geneva) Convention concerning Safety and Health in Mines (ILO 176)	2015	Ra
1998	(Rotterdam) Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	2001	Ra
1999	(Geneva) Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour (ILO 182)	2001	Ra
2001	(Stockholm) Convention on Persistent Organic Pollutants	2004	Ra
2001	(London) Convention on Civil Liability for Bunker Oil Pollution Damage	2011	Ac
2003	(Geneva) WHO Framework Convention on Tobacco Control	2004	Ra
2004	(London) Convention for the Control and Management of Ships' Ballast Water and Sediments	2011	Ac
2013	(Kumamoto) Minamata Convention on Mercury	2015	Ra
2015	Paris Agreement under the United Nations Framework Convention on Climate Change	2016	Ra

Ac = Accession; Ad = Adherence; Ap = Approval; At = Acceptance; De = Denounced; Si = Signature; Su = Succession; Ra = Ratification.

ANNEX IV

LIST OF LAWS USED IN THE SECOND EPR OF MONGOLIA

1992

- Constitution of Mongolia

Codes

1999

- Labour Code

2002

- Civil Code

2015

- Criminal Code

Laws

1988

- Law on Subsoil

1992

- Law on Tax of Transport Facilities and Vehicles of Mongolia

1993

- Law on Government
- Law on International Agreements
- Law on the Legal Status of Cities and Villages

1994

- Law on Special Protected Areas

1995

- Law on Environmental Protection
- Law on Natural Flora
- Law on Resolving Complaints made by Citizens against Civil Servants and State Bodies
- Law on Privacy of Organizations

1996

- Law on State and Local Property

1997

- Law on Hydrological, Meteorological and Environmental Monitoring
- Law on Land Fees
- Law on Non-governmental Organizations
- Law on Special Protected Area Buffer Zones
- Law on Statistics

1999

- Law on Cadastre Maps and Land Cadastre
- Law on Families

- Law on Housing
- Law on Housing Privatization
- Law on Condominium
- Law on Road Transport

2001

- Law on Energy
- Law on Radiation Protection and Safety

2002

- Law on Land
- Law on Civil Procedures
- Law on Allocation of Land to Mongolian Citizens for Ownership
- Law on the Procedure for Application of the Law on Allocation of Land to Mongolian Citizens for Ownership
- Law on the Regulation of International Trade in Endangered Species of Wild Fauna and Flora and Derivatives Thereof

2003

- Law on State Inspections
- Law on Standardization, Technical Regulation and Accreditation of Conformity Assessment
- Law on Regionalized Development Management and Coordination
- Law on Protection of Consumer Rights

2005

- Law on Petroleum Products
- Law on Public Procurement

2006

- Law on Excise Tax
- Law on Minerals
- Law on Toxic and Hazardous Chemicals

2007

- Law on Living Genetically Modified Organisms
- Law on Renewable Energy

2008

- Law on Occupational Safety and Health
- Law on Customs
- Law on Customs Tariffs and Customs Duties

2009

- Law on Nuclear Energy
- Law on Prohibition of Mineral Exploration and Mineral Mining at Headwaters of Rivers, Protected Zones of Water Reservoirs and Forest Fund Areas
- Law on the Regulation for Compliance with the Law on Prohibition of Mineral Exploration and Mineral Mining at Headwaters of Rivers, Protected Zones of Water Reservoirs and Forest Fund Areas

2010

- Law on Air Pollution Fees
- Law on Banking
- Law on Stamp Duties
- Law on Medicine and Medical Devices
- Law on Fiscal Stability

2011

- Law on Companies
- Law on Health
- Law on Promoting Employment
- Law on Promoting Gender Equality
- Law on Use of Urban and Rural Settlement Water Supply and Sewage Systems

2012

- Law on Animals
- Law on Air
- Law on Ensuring the Safety of Food Products
- Law on Environmental Impact Assessment
- Law on Fauna
- Law on Food
- Law on Forest
- Law on Hunting
- Law on Payment for Use of Natural Resources
- Law on Soil Protection and Prevention of Desertification
- Law on Water
- Law on Water Pollution Fees

2013

- Law on Investment

2014

- Law on Common Minerals
- Law on Petroleum
- Law on Index-Based Livestock Insurance

2015

- Law on Energy Efficiency
- Law on Legislation
- Law on General Administrative Procedures
- Law on Fire Safety

2016

- Law on Construction
- Law on Hygiene
- Law on Organic Food
- Law on State and Official Secrets
- Law on Administrative Court Procedure
- Law on Crop Production

2017

- Law on Animal Genetic Resources
- Law on Civil Service
- Law on Infringements
- Law on Investigation and Resolution of Violations
- Law on Livestock and Animal Health
- Law on Protection against Disasters

- Law on Waste
- Law on State Reserve
- Law on Waterway Transportation

2018

- Law on State Registration of Legal Entities
- Law on Supporting Teacher Development

2019

- Law on Special Government Funds
- Law on Corporate Income Tax
- General Law on Taxation

2020

- Law on Administrative and Territorial Units and Their Governance
- Law on Development Policy and Planning and its Management
- Law on Archives and Recordkeeping
- Law on the National Human Rights Commission
- Law on Livestock Tax

2021

- Law on Genetic Resources
- Law on Labour
- Law on Supporting Oil Refinery
- Law on the Legal Status of Human Rights Defenders
- Law on the Protection of Personal Information
- Law on Transparency of Public Information
- Law on Legal Status of Ulaanbaatar

2022

- Law on Permits
- Law on Public-Private Partnership

2023

- Law on Pre-school and General Education
- Law on Technical and Vocational Education and Training
- Law on Higher Education
- General Law on Education
- Law on Tourism
- Law on Reducing Traffic Congestion and Rehabilitating Ger Districts in Ulaanbaatar.
- Law on Procurement of Goods, Works, and Services with State and Local Funds

2024

- Law on Mongolia's Sovereign Wealth Fund
- Law on Plant Health and Plant Protection
- Law on Public Health Care and Services
- Law on Mitigating the Negative Effects of Climate Change on Traditional Livestock Husbandry
- Law on Fiscal Stability

ANNEX V

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Water Supply and Sewerage Authority of Ulaanbaatar City <https://usug.ub.gov.mn> Water Quality Information <https://usug.ub.gov.mn/mn/menu/13/%D0%A3%D0%A1%D0%9D%D0%AB-%D0%A7%D0%90%D0%9D%D0%90%D0%A0%D0%AB%D0%9D-%D0%9C%D0%AD%D0%94%D0%AD%D0%AD%D0%9B%D0%AD%D0%9B>

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Mongolia

Environmental performance reviews

Second review

The United Nations Economic Commission for Europe Environmental Performance Review Programme assesses progress made by individual countries in reconciling their economic and social development with environmental protection, and in meeting international commitments on the environment and sustainable development.

The Programme assists countries to improve their environmental policies by making concrete recommendations for better policy design and implementation. Environmental Performance Reviews help to integrate environmental policies into sector-specific policies such as those on agriculture, energy, industry, transport and health. Through the peer review process, the reviews promote dialogue among governments about the effectiveness of environmental policies, as well as the exchange of practical experience in implementing sustainable development and green economy initiatives. They also promote greater government accountability to the public.

The Second Environmental Performance Review of Mongolia takes stock of progress made in the governance and management of the environment since 2017. The Review covers legal and policy frameworks and regulatory and compliance assurance mechanisms. It focuses on green development, addresses climate change issues and evaluates the country's participation in international agreements. It also assesses Mongolia's efforts to integrate environmental considerations into its policies in the education, forestry, risk management and health sectors. Furthermore, the Review addresses issues of particular importance to Mongolia, including air protection, water management, waste and chemicals management, land management, dzud management, and biodiversity and protected areas. The Review includes an assessment of relevant targets of the 2030 Agenda for Sustainable Development and provides recommendations related to the achievement of Sustainable Development Goals.

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