



GREEN DEVELOPMENT

THE NATURE AS THE PRIMARY ECOSYSTEM

BENEFITS OF NATURAL RESOURCES

WATER AS A PRICELESS WEALTH

LOW CARBON, EFFICIENT AND INCLUSIVE GREEN
DEVELOPMENT

GOAL 6. Promote an environmentally friendly green development, maintain balance of ecosystem, ensure an environmental sustainability, creat conditions for present and future generations to reap its benefits, and improve the quality of human life.



THE NATURE AS THE PRIMARY ECOSYSTEM

OBJECTIVE 6.1. Accounting and protect the value and benefits of natural capital and maintain a balance of primary ecosystems.

THE OBJECTIVE'S STAGES OF IMPLEMENTATION AND EXPECTED RESULTS

STAGE I (2021-2030)

The period to determine the value and carrying capacity of Mongolia's natural capital and ecosystem services, increase their worth, and evaluate economic benefits.

1. Set the reserves of natural resources, value and carrying capacity of ecosystem services and update their valuation.
2. Put important ecosystems, including freshwater resources and headwaters area of river, streams under special protection, and protect pristine nature.

STAGE II (2031-2040)

The period to support ecosystem services and increase its benefits and accessibility.

1. Renew the value, reserves and carrying capacity of Mongolia's natural capital and ecosystem services and increase their efficiency.
2. Protect unique and valuable ecosystems, and maintain pristine nature and ecosystem service sustainability.

STAGE III (2041-2050)

The period to maintain the ecosystem balance by pursuing a policy of proper using and preserving natural resources based on their value, resources, renewability, restorative and carrying capacity.

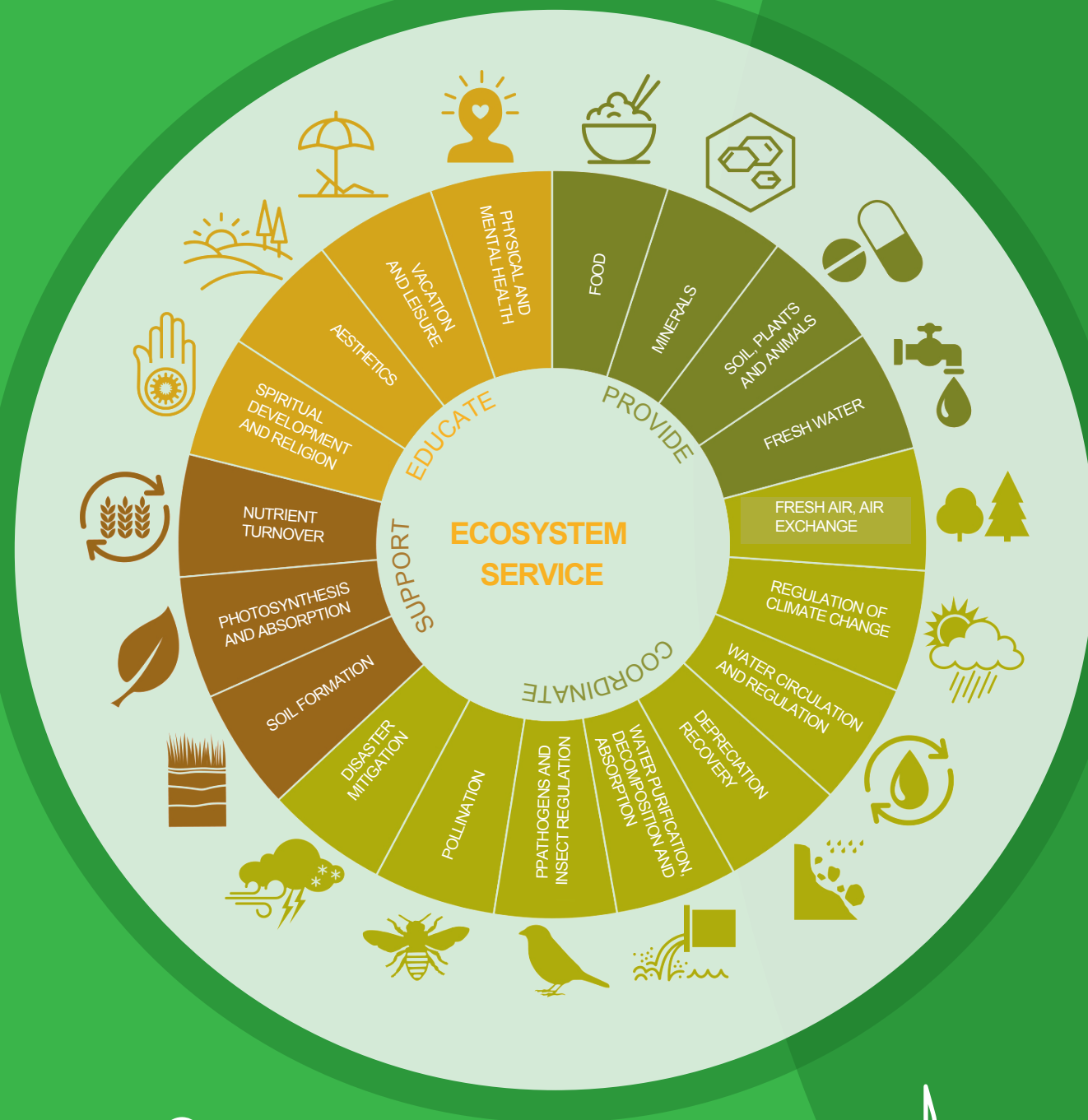
1. Maintain environmental sustainability and the balance of ecosystems.
2. Expand the network of national protected areas and make a valuable contribution to the maintenance of global ecosystem services.

ACTIVITIES TO BE IMPLEMENTED IN 2021-2030 OF THE OBJECTIVE

- 6.1.1. Improve regulations for the valuing of ecosystem services, update their ecological-economic values, and educate the public about ecosystem services, their value and importance.
- 6.1.2. Conduct a nationwide study of plant and animal distribution and reserves, update resource changes, and create conditions for proper management.
- 6.1.3. Regularly perform forest management operations and assess the reserves and condition of forest ecosystems.
- 6.1.4. Increase the service and value of unique ecosystems by expanding the area of freshwater resources, river headwaters, forest reserves and important areas for biodiversity, and conducting research to take the areas under state special protection.
- 6.1.5. Strengthen the infrastructure and material base of protected areas and implement appropriate protection management.
- 6.1.6. Introduce multifaceted environmental protection management and technical and technological advances, and improve the efficiency of protected area management.
- 6.1.7. Expand cooperation with foreign protected area administrations and introduce advanced management practices.
- 6.1.8. Develop eco-tourism based on the resources and capacity of protected areas.

SPECIAL PROTECTION OF ECOSYSTEM SERVICE

The mankind benefits from ecosystems. Ecosystem services include provisioning, regulating, cultural and supporting services.



Strictly protected area
13.7 million.ha

National Park
12.7 million.ha



21 percent (31.4 million hectares) of Mongolia's territory have been declared as protected natural reserves. 48.3 percent of river and lake resources and 39.1 percent of forest areas are also protected.

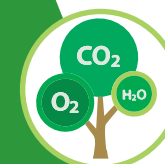


Natural Reserves
4.8 million.ha

National monument area
0.1 million.ha



Assuming that value of global ecosystem services is USD145 trillion per year, the benefits and returns on Mongolia's ecosystem of protected areas would be USD85 billion or MNT220 trillion per year. By 2050, additional 15 million hectares of protected areas will prevent losses of USD 8.7 billion a year.



Protected areas of 1.9 million hectares of forests absorb 12.2 million tons of carbon dioxide per year. The value of CO2 absorption will be MNT47.6 billion per year.



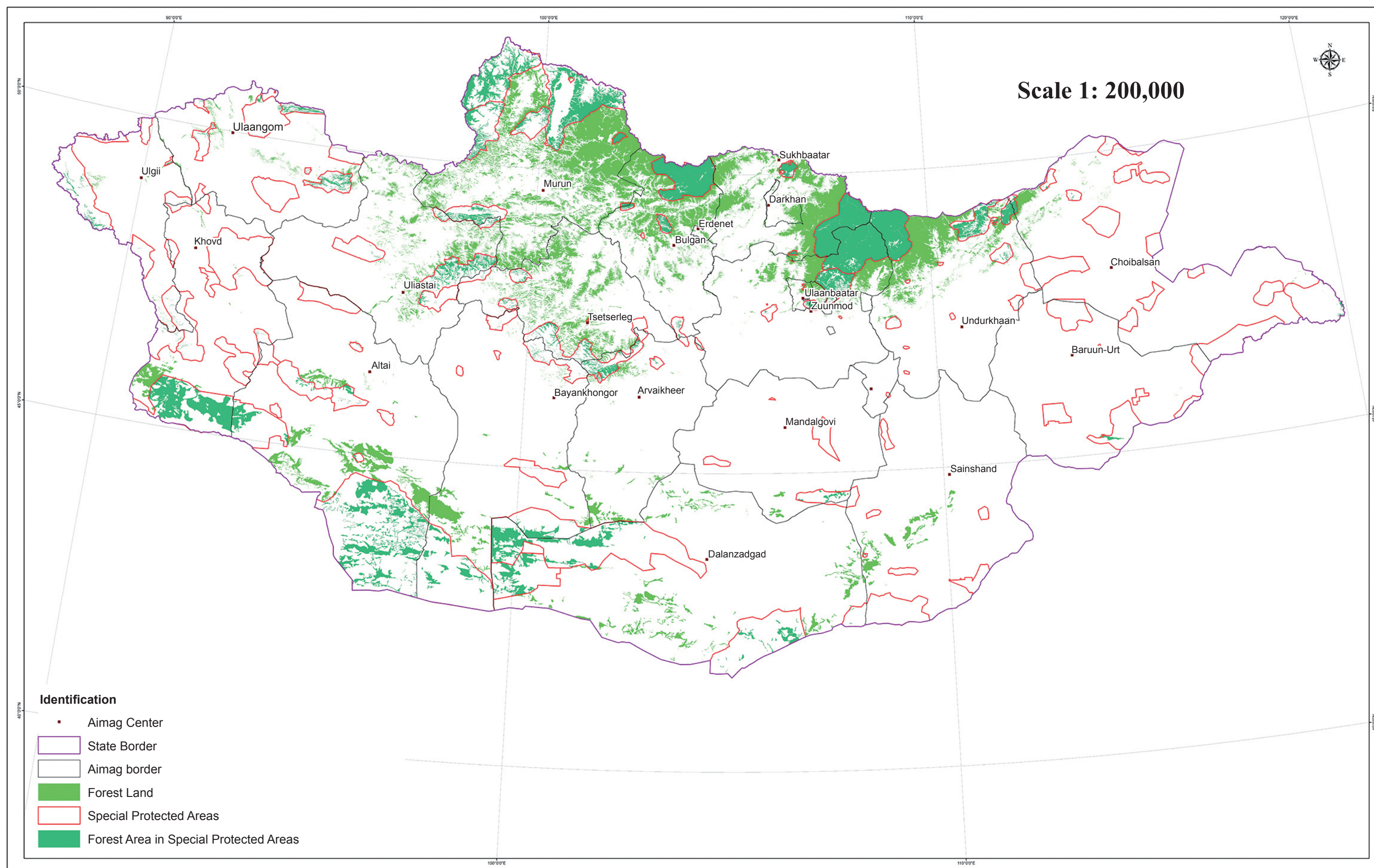
10,600 million m3 of water is generated annually from the sources of 6.4 million hectares of state protected rivers and lakes. The overall benefit is MNT22.9 trillion per year.

Source: WWF 2016

Source: Ministry of Environment and Tourism,
World Wildlife Fund (2019)

Figure 6.2 Forest Area

FOREST AREAS





BENEFITS OF NATURAL RESOURCES

OBJECTIVE 6.2. Rehabilitate natural resources, reduce scarcity, create reproductive resources and pass on to future generations.

THE OBJECTIVE'S STAGES OF IMPLEMENTATION AND EXPECTED RESULTS

STAGE I (2021-2030)

The period to implement scientifically sound policies on environmental protection and sustainable use of natural resources, reduce resource scarcity through rehabilitation of degraded habitats, and enhance the resources for utilization.

1. Create exploited resources for utilization by protecting biodiversity, prevent scarcity through feeding the populaces and habitats, breed and cultivate useful species, and establish forest agro-parks.
2. Protect soil fertility and moisture, prevent land degradation and desertification, restore degraded and eroded land, and put them into commercialization.
3. Promote and raise public awareness of the environmental legislation, enforce standards and norms, and ensure citizens' participation in environmental protection.
4. Expand the environmental monitoring network, cadastre and database, and upgrade to cutting-edge equipment and technologies.

STAGE II (2031-2040)

The period to use technical and technological advances and innovations for environmental protection and prevent resource scarcity and environmental degradation.

1. Harness technological advances to protect, rehabilitate, cultivate biodiversity and feed their populaces and habitats, and prevent resource scarcity.
2. Identify and implement new and innovative ways to rehabilitate degraded and contaminated land, prevent land degradation and desertification, and increase soil fertility.
3. Create a smart integrated information system by expanding environmental monitoring networks and integrated electronic databases, and introduce technological advances.

STAGE III (2041-2050)

The period to rehabilitate and rationally utilize natural resources, and limit the use of finite resources.

1. Stop natural resource scarcity and environmental degradation, improve rehabilitation and reproduction measures and promote their optimal use.

2. Develop smart systems for environmental monitoring and information, and ensure their accessibility.

ACTIVITIES TO BE IMPLEMENTED IN 2021-2030 OF THE OBJECTIVE

- 6.2.1. Establish registers and databases of genetic resources and associated traditional knowledge, and specialized genetic resource funds, enrich funds, and support the development of biotechnology products.
- 6.2.2. Update the red list of fauna and flora, and identify and implement ways to protect endangered species.
- 6.2.3. Deliberately breed and cultivate vulnerable animals and plants, and reduce the pressure on their use directly from nature through the creation of forest agro-parks and zoning of exploited resources.
- 6.2.4. Prevent deforestation through afforestation, forest expansion, rehabilitation and forest protection measures, increase the land area covered by forests to 9 percent of total land area, and increase carbon dioxide absorption.
- 6.2.5. Strengthen the material base to ensure biosafety.
- 6.2.6. Reduce subsidies to businesses that negatively impact ecosystems and biodiversity, and encourage conservation activities that support ecosystem services.
- 6.2.7. Develop a vocational education system based on environmental science and advanced technologies.
- 6.2.8. Implement a national program to protect soil, reduce land degradation and combat desertification.
- 6.2.9. Implement the Green Jacket project, rehabilitate lands degraded by mining, agriculture, infrastructure, urban development and pasture use, make them reusable for commercial purposes, and increase user responsibility.
- 6.2.10. Increase the efficiency of decontamination, rehabilitation and protection of land and subsoil contaminated, degraded and disturbed by mining and industrial activities, and establish responsible activities.
- 6.2.11. Take care of the soil by abandoning traditional tillage technologies, introducing advanced agro-technical and efficient irrigation technologies, stopping new land cultivation, and cultivating only fallow lands.
- 6.2.12. Create a land payment system based on the principle of regional differentiation and hierarchy, limit the number of livestock in accordance with the capacity of pastures, and balance the pressure from use of pastures.
- 6.2.13. Implement policies of rational use and rehabilitation of land through land management plans and environmental management plans.
- 6.2.14. Regularly disseminate information on environmental legislation and traditional environmental protection through the media, and ensure citizen participation in environmental protection activities.

- 6.2.15. Provide the public with knowledge about environmental protection and traditional customs, and education for sustainable development in coordination with the activities of the Environmental Information Center and the National Institute of Nomadic Civilizations.
- 6.2.16. Disclosure of land management plans and their implementation to the public.
- 6.2.17. Renovate the Central Environmental Research Laboratory and expand the capacity of environmental pollution monitoring networks.
- 6.2.18. Improve and enrich an integrated environmental database, registration and cadastre of natural resource utilization using technological advances, introduce an electronic environmental licensing system and increase the speed and accessibility of information.
- 6.2.19. Improve the effectiveness of actions that intentionally affect the weather modification practices as cloud seeding.

Figure 6.3 Natural Resources

WATER RESOURCES 564,800.0 MILLION M³/YEAR



RIVERS
6.13%



LAKES
88.53%



ICING
3.44%



GROUNDWATER
1.9%

FOREST AREAS	2016	2017	2018
FOREST COVERAGE	7.9	7.9	7.9
NON-FOREST AREA IN HECTARES	5,625.3	5,645.9	5,645.9
FOREST COVERAGE IN HECTARES	12,290.0	12,392.8	12,392.8
NATURAL FLORA	18,459.1	18,592.7	18,592.7

Figure 6.4 Natural Flora And Fauna

NATURAL FLORA			
	MUSHROOM	574 Species	1. Endangered 133 2. Rare 356
	ALGAE	2,003 Species	3. Appendix I and II to The Convention on International Trade in Endangered Species of Wild Fauna and Flora 8
	LICHEN	1,056 Species	4. Red List 2011 148
	MOSS	580 Species	5. Red List 2018 490 6. Native Species 120
	VASCULAR PLANTS	3,160 Species	7. Alien Plant Species 51 8. Ground Plants 438 9. Water Plants 186

AND FAUNA	
	In Mongolia, 513 species of birds, 141 species of
	mammals 21 species of reptiles, 6 species of amphibians,
	74 species of fish and more than 13,000 species of
	invertebrates are registered. The increase in the number
	of species in Mongolia in 2018 compared to 1998 and
	2017 is due to broader research and registration of
	many new species in Mongolia.



WATER AS A PRICELESS WEALTH

OBJECTIVE 6.3. Prevent water scarcity, accumulate surface water and create conditions to fully meet needs.

THE OBJECTIVE'S STAGES OF IMPLEMENTATION AND EXPECTED RESULTS

STAGE I (2021–2030)

The period to establish a tiered block tariff system for water resources, increase and protect the value of fresh water, and accumulate water resources.

1. Establish the principle of gradually increasing price and block tariffs for water resources, ensure payment for water consumption and increase its savings and reuse.
2. Improve a compliance with the regimes of water protection zones and sanitary zones of drinking water sources, and reduce water pollution and shortages.
3. Create natural ponds and underground reservoirs on natural landforms and riparian areas to collect precipitation, melted snow and ice water, and start construction of multi-purpose reservoirs with flow regulation on large rivers.
4. Provide the population with safe drinking water, intensify the search, exploration and mapping of water resources, expand the resource database to create favorable conditions for planning and management.

STAGE II (2031–2040)

The period to strengthen integrated water resource management, increase water storage, and improve its access and supply.

1. Optimize payments for water resources and water pollution, permit system and economic incentives, and promote a rational use and reuse.
2. Raise public awareness, attitudes and law enforcement of strategically valuable water resources and prevent water pollution and shortages.
3. Intensify the construction of natural ponds, reservoirs with flow regulation and underground water storage and transmission systems to increase water accumulation.
4. Expand groundwater research and introduce advanced technologies for their extraction, exploitation and rehabilitation.
5. Renovate and expand source facilities of water supply and provide at least 90 percent of the population with safely managed drinking water services.

STAGE III (2041–2050)

The period to get used to the controlled and rational use of natural and intentionally enriched resources.

1. Prevent water pollution and shortages by introducing water saving, waterless technologies and rational use, and improve their control.
2. Introduce a variety of advanced technologies to store water and increase resources.
3. Provide comprehensive information on water resources and water use, and fully address water supply issues.

ACTIVITIES TO BE IMPLEMENTED IN 2021–2030 OF THE OBJECTIVE

- 6.3.1. Complete metering of water consumption and improve the efficiency and economy of water use.
- 6.3.2. Develop and implement legal regulations for setting payments for water use on the the basis of the principle of increment depending on the volume of consumption, and redistributing payment revenues.
- 6.3.3. Increase the reuse and efficiency of industrial water and reduce the water footprint through water pollution charges and permitting processes.
- 6.3.4. Support the development of wastewater treatment and reuse of treated water.
- 6.3.5. Strengthen the implementation of water legislation, enforce the sanitary zone regime for water supply sources in the capital city and other cities and settlements, and take measures to prevent pollution and depletion of water resources by land acquisition.
- 6.3.6. Optimize the boundaries of Mongolia's water basins in line with the boundaries of administrative units, and strengthen the human resources of the basin administrations.
- 6.3.7. Implement integrated management plans of national and basin water resources and ensure water security.
- 6.3.8. Increase the number of surface water guards and groundwater measurement points to record groundwater resources, conduct proper use management and provide accurate information on changes and use of water resources.
- 6.3.9. Carry out a feasibility study and develop a design for creation of multi-purpose serial reservoirs with flow regulation on large rivers Selenge, Orkhon, Eg and Khovd in high mountainous areas within the framework of "Blue Horse" project, and commence construction of the facilities.
- 6.3.10. Create serial natural ponds and underground reservoirs to collect water from precipitation, melted snow and ice water using landforms and river diversion patterns.

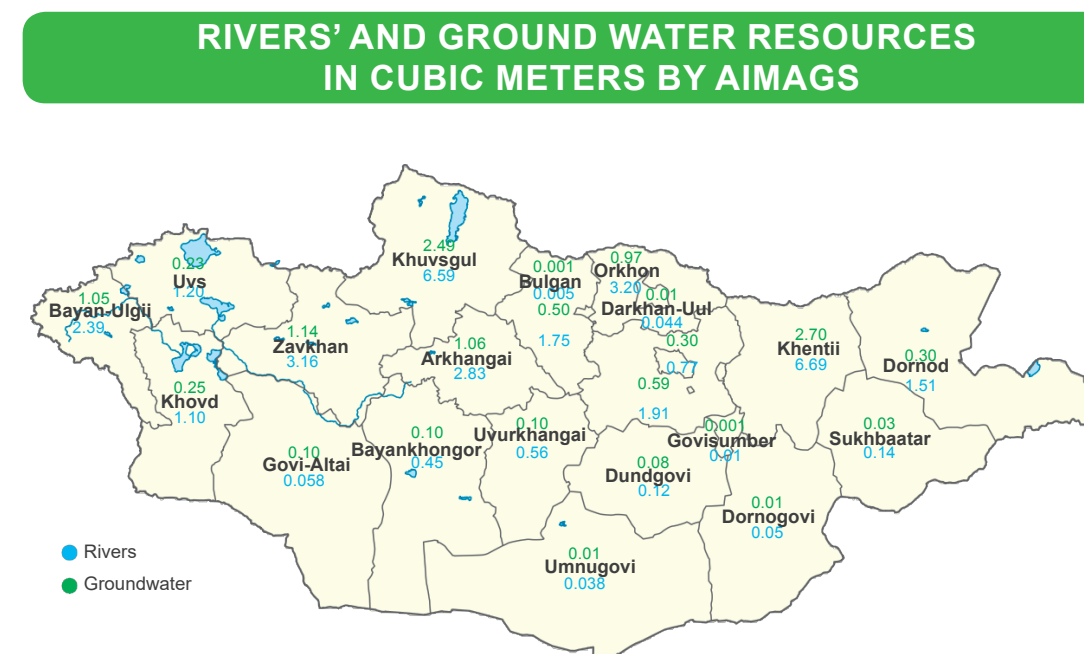
- 6.3.11. Introduce methods and technologies for increasing and restoring water resources in the Gobi and steppe regions through the construction of anti-flood dams, water intake wells and infiltration ponds near groundwater aquifers
- 6.3.12. Introduce the practice of augmenting and recharging groundwater aquifers with rainwater within the framework of environmental and social responsibility of business entities and organization
- 6.3.13. Identify and certify the sources of water supply for the urban population and their resources through medium-scale hydrogeological mapping, search and exploration of sources.
- 6.3.14. Extend and newly build facilities for water supply sources and increase the number of people provided with adequate drinking water.

Table 6. Estimated Water Consumption by Aimag by 2040

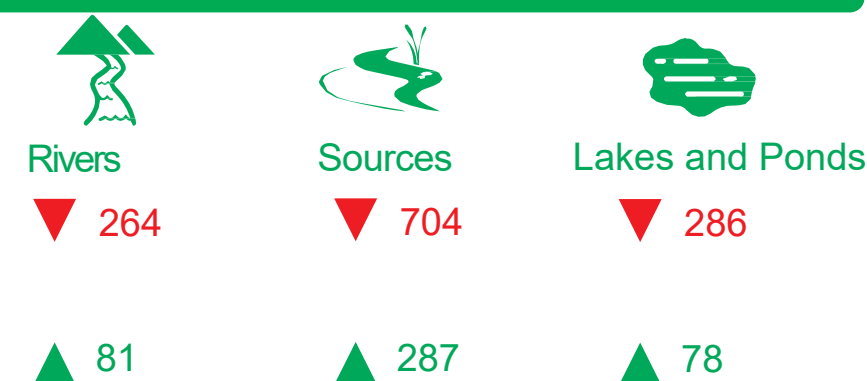
Aimag	Estimated Water Consumption by Aimag by 2040							
	Water Consumption by Households	Public Utilities, Service, Tourism, and Green and Development	Production	Other Industries, Energy, Construction, Roads and Transportation	Mining and Processing	Livestock Sector (pastoral and farming)	Irrigated Area	Total
Mongolia	215.4	56.2	28.7	130.7	211.1	388.6	845.5	1,876.2
Bayan-Ulgii	5.90	1.83	0.14	1.20	0.85	11.30	5.31	26.5
Govi-Altai	2.00	0.32	0.22	0.24	0.00	21.20	3.43	27.4
Zavkhan	2.20	1.01	0.24	1.91	0.24	20.10	4.21	29.9
Uvs	4.00	1.07	0.26	0.65	0.14	16.60	26.66	49.4
Khovd	4.10	0.09	0.14	0.00	0.00	18.50	8.09	30.9
Arkhangai	3.30	2.97	0.01	10.08	55.90	32.80	12.11	117.2
Bayankhongor	4.50	1.07	0.01	0.87	4.92	27.20	1.53	40.1
Bulgan	1.60	0.57	0.04	0.42	0.10	20.30	54.12	77.2
Orkhon	8.20	0.00	1.15	0.00	0.00	0.30	5.08	14.7
Uvurkhangai	4.80	0.32	0.53	0.00	0.00	34.40	17.93	58.0
Khuvsgul	5.30	2.24	0.27	1.10	0.27	33.20	24.85	67.2
Govisumber	1.00	0.00	0.00	0.00	0.00	2.90	0.15	4.1
Darkhan-uul	6.60	0.00	1.18	0.00	0.00	1.70	38.38	47.9
Dornogovi	4.30	0.66	5.07	0.00	62.94	11.40	0.62	85.0
Dundgovi	1.40	1.67	0.01	3.56	6.66	21.10	0.35	34.8
Umnugovi	3.30	1.36	0.00	3.85	9.19	14.60	1.59	33.9
Selenge	5.00	0.00	3.41	0.00	3.35	9.30	325.60	346.7
Tuv	2.00	1.52	0.10	17.23	8.95	28.90	184.05	242.7
Dornod	4.20	0.19	0.08	1.32	27.08	12.60	62.75	108.2
Sukhbaatar	3.00	0.00	0.02	0.00	0.00	20.30	16.41	39.7
Khentii	2.30	1.99	0.01	12.00	19.23	27.80	49.48	112.8
Ulaanbaatar	122.80	37.31	15.79	76.25	11.27	2.30	2.83	268.5

Source: Ministry of Construction and Urban Development, National Development Agency, JICA, Comprehensive Plan for National Development (2020).

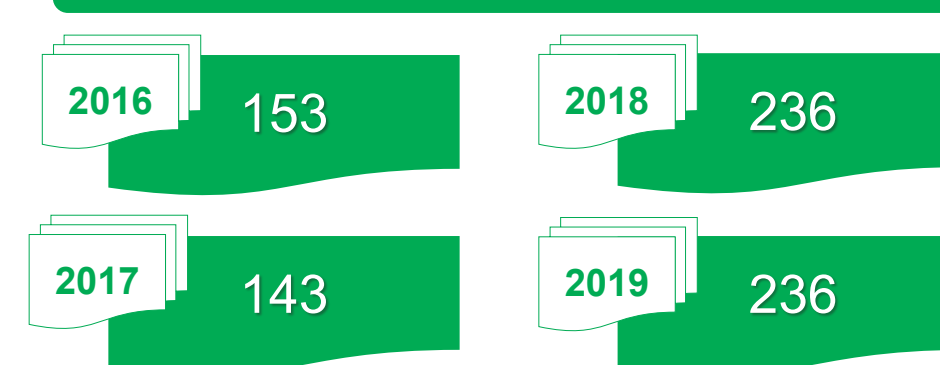
Figure 6.5 Rivers' and Ground Water Resources in cubic meters by Aimags



NUMBER OF DRY AND FULL RIVERS, SPRINGS, LAKES AND PONDS



NUMBER OF REHABILITATED WATER SOURCES AND SPRINGS





LOW CARBON, EFFICIENT AND INCLUSIVE GREEN DEVELOPMENT

OBJECTIVE 6.4. Contribute to international efforts to mitigate climate change by developing a low carbon, productive and inclusive green economy.

THE OBJECTIVE'S STAGES OF IMPLEMENTATION AND EXPECTED RESULTS

STAGE I (2021-2030)

The period to establish and develop a national green financing institution, and promote environmentally friendly, efficient, clean technologies and efficient use.

1. Increase the consumption and production productivity by introducing environmentally friendly, efficient and advanced technologies, and develop a circular economy to save natural resources
2. Reduce greenhouse gas emissions in energy, agriculture, construction, transport, industry and waste management sectors and increase carbon removal.
3. Strengthen adaptation and resilience to climate change and reduce potential risks.
4. Support and develop a national green financing mechanism based on public-private partnership, and finance environmentally friendly green projects and programs using international financial instruments.
5. Implement a integrated 3R management of waste reduction at the source, reuse and recycling, and increase the amount of waste recycling by putting it into economic circulation

STAGE II (2031-2040)

The period to develop smart consumption and productive production, and increase internal and external sources of climate green financing.

1. Develop environmentally friendly, zero-waste smart consumption and productive production, and increase resource savings and returns.
2. Reduce national greenhouse gas emissions and increase carbon absorption within the new Climate Change Agreement.
3. Update and implement a national program to reduce negative effects of climate change, and reduce disaster risks.
4. Increase and effectively use the national green financial institution and international funding.
5. Implement an integrated waste management, introduce zero waste technologies in construction, road and transportation sectors, and completely recycle and reuse waste.

STAGE III (2041-2050)

The period to continuously strengthen adaptation to climate change and improve sustainable production and consumption.

1. Promote environmentally friendly sustainable production and smart consumption, and disseminate the concept of green development.
2. Implement measures for climate change mitigation and become climate neutral.
3. Implement an integrated waste management to improve its economic efficiency establish controlled landfill facilities in urban areas.
4. Improve the quality and availability of sanitary facilities and provide the entire population with safely managed sanitary facilities.

ACTIVITIES TO BE IMPLEMENTED IN 2021-2030 OF THE OBJECTIVE

- 6.4.1. Promote environmentally friendly, efficient use and advanced green technology through economic incentives.
- 6.4.2. Establish and implement legal environment on eco-payments aimed at reducing waste generation and recycling it for commercial purposes.
- 6.4.3. Promote environmentally friendly and economical green ideas, attitudes and practices such as sustainable green cities, green buildings, green lifestyles, and resource conservation.
- 6.4.4. Introduce resource efficient, environmentally friendly and advanced techniques and technologies to reduce pollution and waste, and support cleaner production and sustainable consumption through economic incentives.
- 6.4.5. Introduce MNS ISO14000 family standards of environmental management, maintain and strengthen the green certification system, and prove good practices of production and consumption.
- 6.4.6. Shift gradually public procurement to green procurement and create a private sector support system.
- 6.4.7. Implement the Paris Agreement, ensure the implementation of the NDC Mongolia, develop renewable energy, and reduce greenhouse gas emissions in the energy, agriculture, construction, transport, industry and waste management sectors.
- 6.4.8. Increase absorption of greenhouse gases through afforestation, protection of peatlands, restoration of degraded land and protection of vegetation cover.
- 6.4.9. Strengthen and digitalize the capacity of sectors to measure, calculate, inventory, verify and report greenhouse gas emissions.
- 6.4.10. Support and develop domestic manufacturers of green and energy efficient products in the construction sector.
- 6.4.11. Adopt and implement a national program on climate change adaptation

6.4.12. Study and develop a climate change risk insurance system.

6.4.13. Enhance early warning capacity for natural and weather disasters and install radar stations in at least five locations.

Figure 6.6 Climate Change

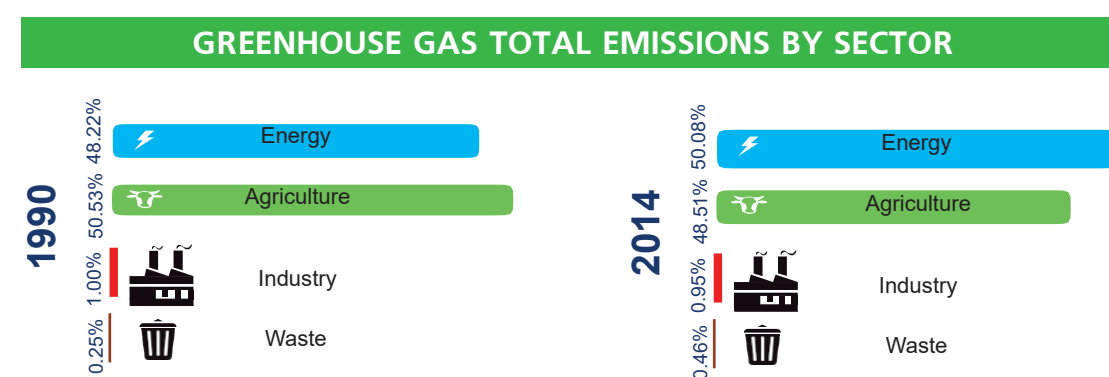
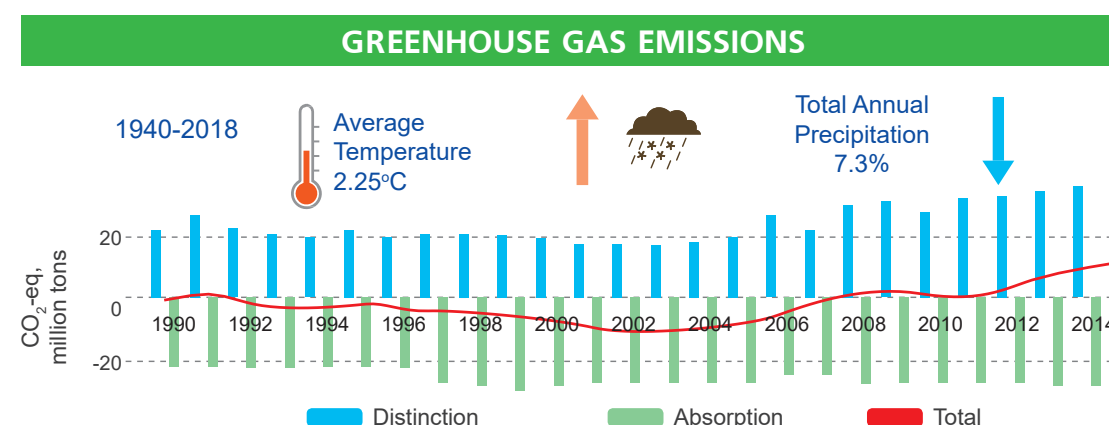
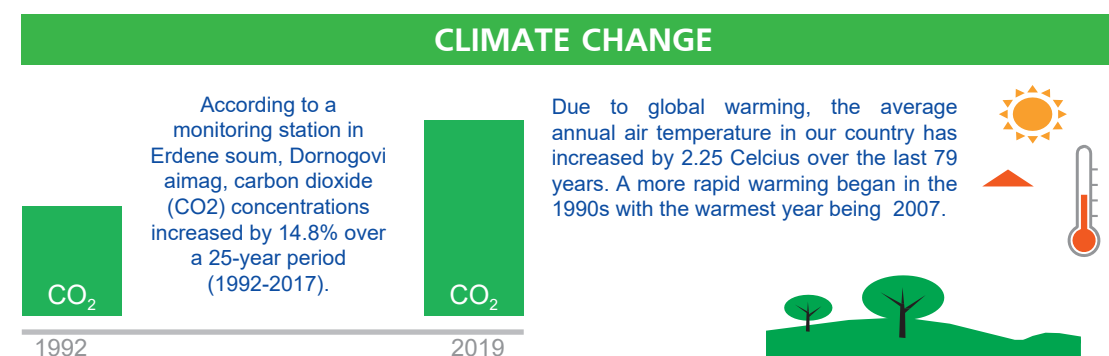
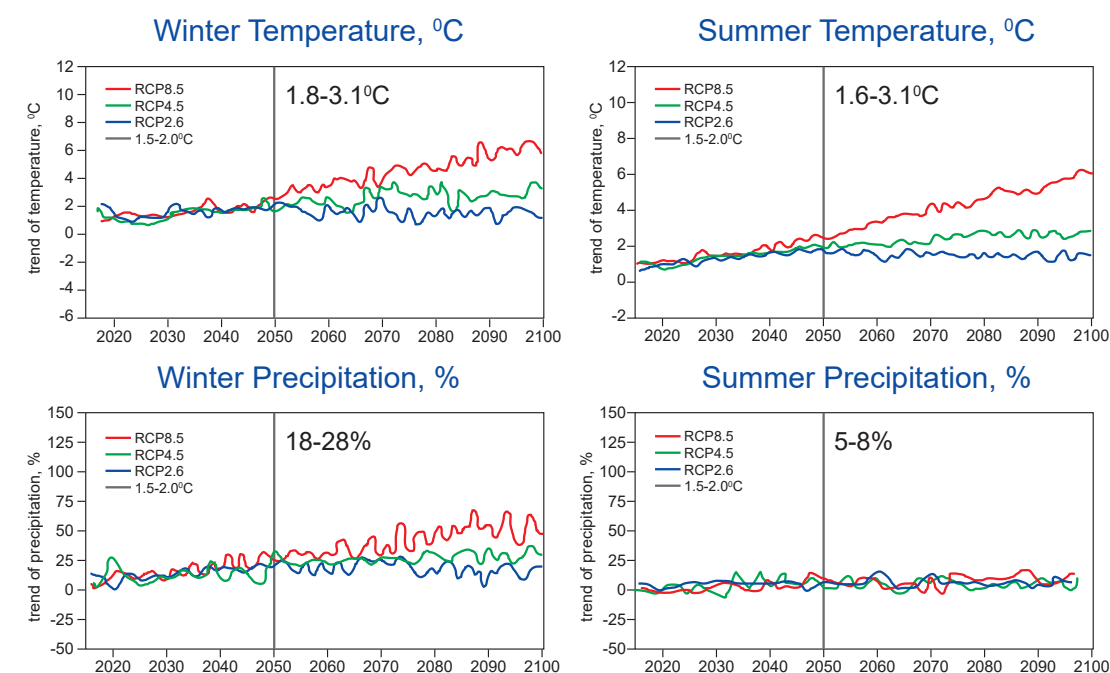


Figure 6.7 Seasonal Temperatures and Trends in Precipitation



6.4.14. Establish and develop a joint public-private national green financial system to finance environmentally friendly green projects and activities.

6.4.15. Strengthen an environmentally friendly and sustainable financial system, introduce sustainable business principles in the economic and social sectors, and increase the environmental and social responsibility of business units.

6.4.16. Bring the national green financial system (green bank, green bond, green exchange, green insurance) to a new level to develop environmentally friendly sustainable production, develop and promote smart consumption, and finance environmentally and socially friendly projects and activities.

6.4.17. Implement green projects and programs to develop renewable energy, reduce greenhouse gas emissions, reduce waste and increase efficiency of resource utilization through the United Nations Green Climate Fund and other international financial instruments.

6.4.18. Create and develop an electronic registration and information system for the registration of toxic and hazardous chemicals and control over their movements.

6.4.19. Develop waste segregation at the source and establish environmentally friendly waste recycling and waste-to-energy plants.

6.4.20. Build in stages standard landfills at centralized waste dumps and facilities for temporary storage and disposal of hazardous waste in Ulaanbaatar, regional centers and other cities and towns.

- 6.4.21. Support the development of environmentally friendly production facilities for the disposal and processing of solid waste in the construction, road and transportation sectors.
- 6.4.22. Extend and newly build wastewater treatment plants and increase the number of people provided with sanitary facilities that meet the requirements of standards.

- 6.4.23. Implement pilot projects to eradicate sewage sludge from treatment plants and ger areas in an environmentally friendly manner and disseminate best practices.

GREEN FINANCING FOR CLIMATE CHANGE

MONGOLIA IS EXTREMELY VULNERABLE TO CLIMATE CHANGE DUE TO ITS GEOGRAPHIC LOCATION, VULNERABLE ECOSYSTEM AND PEOPLE'S LIFESTYLE.

AVERAGE ANNUAL
TEMPERATURE FOR
THE LAST
70 YEARS



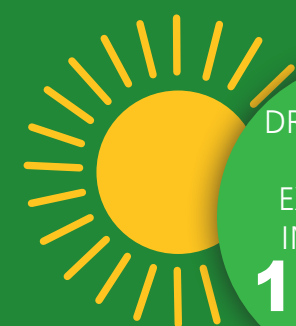

2.24°C
WARMING BY

2045-2060
AVERAGE
TEMPERATURE




2.0-2.5°C
WARMING IS TRENDS

BY 2045-2060 YEAR



DROUGHT FRE-
QUENCY IS
EXPECTED TO
INCREASE BY
10-25%



ZHUD (NATURAL
DISASTER IN WIN-
TER) FREQUENCY
IS EXPECTED TO
INCREASE BY
5-30%

Mongolia has adopted policy documents such as Mongolia's Green Development Policy and Mongolia's Nationally Determined Contribution to the Implementation of the Paris Agreement (NDC) aimed at developing three main pillars of sustainable development, including environment, economy and society. Targets and goals have been identified to tackle climate change. Within the above framework, the Government of Mongolia is actively cooperating with the United Nations Green Climate Fund (GCF).