STeP EcoLab

GAP ANALYSIS

ON THE REGULATORY FRAMEWORK OF THE SUSTAINABLE TEXTILE PRODUCTION AND ECO-LABELLING IN MONGOLIA

| Environment and Security Center of Mongolia |

| Batbayasgalan M., Telos LLC |

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Suite No. 12, Bld No. 1, Bayanzurkh Distriict
Ulaanbaatar, Mongolia

Tel +976 11 459125

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ABBREVIATIONS

1. ADB – Asian Development Bank
2. ALAMGaC - Agency for Land Administration and Management, Geodesy and Cartography
3. AVSF - Agronomes et Vétérinaires Sans Frontières
4. BAT - Best Available Techniques
5. CAF - Clean Air Fund
6. CDM - Clean Development Mechanism
7. CEPA – Classification of Environmental Protection Activities and Expenditure
8. CHP - combined heat and power plants
9. CITES – Convention on International Trade in Endangered Species of Wild Fauna and Flora
10. CMS - chemical management system
11. CNDS - Comprehensive National Development Strategy
12. COFOG – classification of the functions of government
13. CSCP - Collaborating Centre for Sustainable Consumption and Production
14. CWWTP - Central Wastewater Treatment Plant
15. DEIA – Detailed Environmental Impact Assessment
16. EBRD – European Bank for Reconstruction and Development
17. EC – European Commission
18. ECE – United Nations Economic Commission for Europe
19. ECCF – Environment and Climate Change Fund
20. EE - Environmental education
21. EIA – Environmental Impact Assessment
22. EIC – Environmental Information Centre
23. EITI – Extractive Industries Transparency Initiative
24. EMP – Environmental Management Plan
25. EMS - environmental management system
26. ERC - Energy Regulatory Commission
27. ESCM - Environment and Security Center of Mongolia
28. EU - European Union
29. FDI – foreign direct investment
30. FMO – Netherlands Development Finance Company
31. GASI – General Agency for Specialized Inspection
32. GCF - Mongolian Green Credit Fund
33. GDP – Gross Domestic Product
34. GGI - Global Green Growth Institute
35. GHC - greenhouse gas
36. GMO – Genetically Modified Organism
37. GOTS – Global Organic Textile Standard
38. HCFC - hydrochlorofluorocarbon
39. IFOAM – International Federation of Organic Agriculture Movements
40. ILO – International Labor Organization
41. INDC - Intended Nationally Determined Contribution
42. IRENA – International Renewable Energy Agency
43. IWRM - integrated water resources management
44. LEED - Leadership in Energy and Environmental Design
45. LMO – Living Modified Organisms
46. MAK - Mongolian Alt Corporation
47. MAP 21 - Mongolian Action Programme for the 21st century
48. MBA - Mongolian Bankers' Association
49. MCC – Millennium Challenge Corporation
50. MCUD – Ministry of Construction and Urban Development

51. MDG – Millennium Development Goals
52. MECSS – Ministry of Education, Culture, Science and Sports
53. MEGDT – Ministry of Environment, Green development and Tourism
54. MET – Ministry of Environment and Tourism
55. MFALI-Ministry of Food, Agriculture and Light Industry
56. MFST – Mongolian Foundation for Science and Technology
57. MSDV - Mongolia Sustainable Development Vision 2030
58. MWCA - Mongolian Wool and Cashmere Association
59. NAMEM – National Agency for Meteorology and Environmental Monitoring
60. NAPCC - National Action Programme on Climate Change
61. NAPUG - National Association of Pasture Users Group
62. NCCI- National Chamber of Commerce and Industry
63. NDA – National Development Agency
64. NEMA – National Emergency Management Agency
65. NGO – Non-Government Organization
66. NIP – National Implementation Plan
67. NOP - National Organic Program
68. NPOP - National Programme for Organic Production
69. NSO - National Statistics Office
70. ODA – official development assistance
71. ODP - ozone depletion potential
72. ODS - ozone-depleting substances
73. OECD – Organization for Economic Co-operation and Development
74. OEKO-TEX - International Association for Research and Testing in the Field of Textile and Leather Ecology
75. OSNAAG - Housing and Public Services Company
76. PAGE - Partnership for Action on Green Economy
77. PCB – polychlorinated biphenyl
78. PCDD – Polychlorinated dibenzodioxin
79. PM – Particulate matter
80. POPs – persistent organic pollutants
81. PPE – Personal protective equipment
82. PPP – public–private partnership
83. QMS – quality management system
84. RIAH – Research Institute of Animal Husbandry
85. SEA - strategic environmental assessment
86. SGK –
87. STeP EcoLab - Sustainable Textile Production and Eco-Labelling in Mongolia
88. SWITCH Asia II Programme
89. UN – United Nation
90. UNCCP – United Nations Conciliation Commission for Palestine
91. UNEP – United Nations Environment Programme
92. UN-REDD – United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
93. USDA - United States Department of Agriculture
94. USUG – Ulaanbaatar Water Supply and Sewerage Authority
95. VCP – Voluntary Code of Practice
96. XPC – extruded polystyrene

JUSTIFICATION

SURVEY OBJECTIVE

Sustainable Textile Production and Eco-Labelling in Mongolia (STeP EcoLab) project, funded by the European Union under SWITCH Asia II Programme, is being implemented by AVSF in partnership with the Collaborating Centre for Sustainable Consumption and Production (CSCP, Germany), Mongolian Wool and Cashmere Association (MWCA), Environment and Security Center of Mongolia (ESCM), National Association of Pasture Users Group (NAPUG) and the Mongolian Bankers' Association (MBA). Running for 4 years, it aims to guide the shift to sustainable textile production and consumption by leveraging the key drivers of sustainable consumption and production[1].

To introduce sustainable production, the legal context needs to be able to coordinate and orient local manufacturers and other stakeholders to reduce environmental and social impact of the production and ensure common understanding of the related parties.

Team of experts of the TELOS LLC conducted a Gap analysis of institutional and regulatory framework regulating the environmental and social Impacts of the Mongolian wool and cashmere Industry and developed recommendations for improving the project aimed to carry out analysis the regulatory framework regulating environmental and social impacts in the Mongolian wool and cashmere industry.

Following objectives were defined to reveal legal constraints and opportunities in the cashmere and wool production in Mongolia:

1. Review existing legislation system aimed to the green development to define legislative framework for the small and medium manufacturers in Mongolia
2. Look for international good practices and requirements, review international standards against state of cashmere and wool production in Mongolia
3. Study and analyze current situation of the cashmere production in terms of reduce environmental impact
4. Express legislative and regulatory gaps, essentials that face cashmere and wool producers and develop recommendation for the project team to improve, to familiarize adopt answer issues encountering cashmere and wool manufacturers

[1] *https://www.switchtogreen.eu//wordpress/wp-content/uploads/2019/03/7.-SWITCH-Asia-Active-Grant-Projects.pdf*

RESEARCH APPROACH

This research was conducted between June to November of 2019, including meeting with government officials, desk review of current policy and regulatory documents on green production and sustainable development in terms of wool and cashmere production, visited wool and cashmere product manufacturers to outline challenges toward environmental legislation and conducted questionnaire survey to collect quantitative and qualitative data for analysis.

The report consists of four chapters, where:

1. First chapter – desk review of legal and institutional framework for green production and sustainable development in Mongolia
2. Second chapter – reviewed documents related to economic leverages for green production
3. Third chapter – reviewed existing regulatory and institutional framework of wool and cashmere
4. Fourth chapter – reviewed state of development of the wool and cashmere production, environmental impact specifics, reveal point of view of manufacturers

ONE. LEGAL FRAMEWORK OF MONGOLIA ON GREEN PRODUCTION AND SUSTAINABLE DEVELOPMENT

1.1. FUNDAMENTAL STRATEGIC DOCUMENTS

1.1.1. EARLY YEARS

In the period from the 1990s to the early 2000s, the key policy documents outlining the country's development vision included the 1996 Development Concept of Mongolia, 1998 Mongolian Action Programme for the 21st century (MAP 21) and 2001 Regional Development Concept of Mongolia. MAP 21 was formulated on the basis of the outcomes of the 1992 United Nations Conference on Environment and Development and was the first document in the country based on the principles of environmental protection and reliance on domestic resources. As recognized by Mongolia's 2015 national report "Managing the Transition from the Millennium Development Goals to the Sustainable Development Goals", these early policy documents encountered many challenges in their implementation and failed to serve as a foundation for the governmental action programmes. This was for a number of reasons, including the focus on introducing market principles rather than development priorities, the Asian economic crisis, macroeconomic instability and structural deficiencies, and the absence of an integrated system for implementation, monitoring and evaluation of national development policy.

1.1.2. NATIONAL SECURITY CONCEPT

The National Security Concept[2] understands environmental security as a component of national security. It requires the country to apply the principles of meeting the basic human needs within the limits of renewable natural resources and using non-renewable or gradually renewable resources for the country's development as additional factors.

1.1.3. GD POLICY AND ACTION PLAN FOR THE IMPLEMENTATION OF THE GD POLICY /2016-2030/

In 2014, in response to the outcomes of the 2012 Rio+20 conference, Mongolia adopted the 2014 Green Development Policy[3]. The Policy aims to ensure that green development becomes one of Mongolia's fundamental development policies. It advocates for changing the current "Grow first and clean it up later" approach in order to improve the quality of living conditions by building inclusive economic growth and by increasing productivity based on the development of environmentally friendly and non-waste production.

In 2016, the Government adopted an Action Plan for the Implementation of the Green Development Policy for the period 2016-2030[4]. The Action Plan is a good effort to adapt the globally available knowledge on the green economy to Mongolia's reality. Based on the six strategic goals and 51 targets of the Policy, the Action Plan identifies 255 activities to be implemented in two stages - until 2020 and until 2030 (Table 1).

[2] *2010 Resolution of the State Great Khural No. 48*
[3] *2014 Resolution of the State Great Khural No. 43*
[4] *2016 Government Resolution No. 35*

Table 1. Strategic objectives of the Green Development Policy and activities of the Action Plan for the Implementation of the Green Development Policy for the period 2016-2030

Strategic objective 1: Promote resource-efficient, low- carbon production and consumption with an emphasis on waste reduction	70 activities in areas of renewable energy, energy efficiency, green building, transparency and accountability in extractive and processing industries, nature conservation, rehabilitation, environmentally sound advanced technologies and techniques and sustainable agriculture
Strategic objective 2: Maintain ecosystem balance and reduce environmental degradation while intensifying reclamation activities and environmental protection	63 activities in areas of ecosystem balance, utilization reserve of natural resources, environmental pollution, healthy and safe environment, climate change, desertification, land degradation and ecotourism
Strategic objective 3: Promote investment in environmental protection, human development and clean technology and leverage tax, credit and incentive mechanisms to finance the green economy	34 activities in areas of the green economy, finance, taxes, loans, leverages, suitable incentives, the introduction of advanced clean technology, investment and sustainable public procurement
Strategic objective 4: Promote green jobs, reduce poverty and promote the green lifestyle	36 activities in areas of green jobs, proper employment, livelihoods, adaptation to climate change, natural disasters, enhancing capacities and eco-friendly lifestyles
Strategic objective 5: Make education, science and technology and innovation accelerators of green development by promoting environmentally adapted style and cultural values	17 activities in areas of education, science, innovation, private investments in green technologies, environmental management standard ISO 14000, sustainable development and education for green development
Strategic objective 6: Plan and implement human settlement adapted to climate change, and natural resources carrying capacity	34 activities in areas of environmentally sound infrastructure, transportation network, “green”, “smart” cities and settlements that reduce environmental pollution, and a comfortable and clean-living environment

Activities listed in the policy have been analyzed towards green production for wool and cashmere sector. As seen on the chart, 29.68% of all activities closely related while 13.8% has by some means relation, and in total 43.49% of activities could be as related to the green production of wool and cashmere factories (Figure 1).

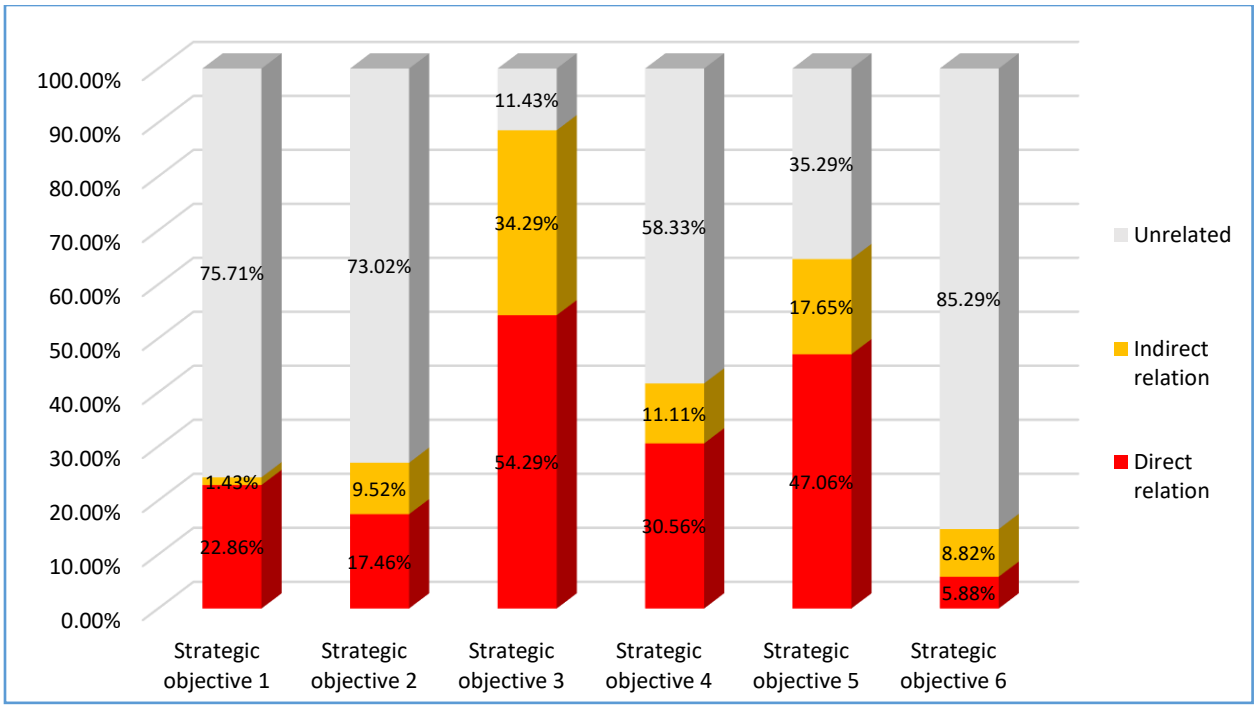

Figure 1. Analysis of activities to the Cashmere and Wool production

Activities are directed to enable legal context for green industry, where cashmere and wool production considered as industry that uses natural resource and have an environmental impact. In other words, the activities stated in the action plan aims to ensure the transition to green development growth model by using mechanisms such as valuing the benefits of and the rational use of natural resources, increasing productivity, green investment and green procurement, by the expansion of works and services directed at enhancing conservation of ecosystem balance and restoration, engraining environmentally friendly production and services, and promoting a green lifestyle.

Key indicators for determining the transition towards green development include following:

- improved efficiency of natural resource utilization
- level of recycling
- green employment and the proportion of green procurement
- reduction of the ecological footprint of energy, water, greenhouse gas emissions
- goods and services per unit of production and services.

Since 2013, Mongolia participates in the Partnership for Action on Green Economy (PAGE), a mechanism to coordinate action of the United Nations system on green economy and assist countries in achieving and monitoring the SDGs. Under PAGE, specific efforts are applied in Mongolia on green development policy assessment; support for the adoption of green development indicators and measurements; green jobs; green buildings; sustainable public procurement; waste management; sustainable finance; green economy learning; and trade opportunities for Mongolia in a transition to a green economy.

1.1.4. SUSTAINABLE DEVELOPMENT GOALS / MILLENNIUM DEVELOPMENT GOALS

In 2005, the State Great Khural endorsed the MDGs[5] as development benchmarks for the country. In addition to eight global goals, Mongolia committed to a ninth MDG, strengthening human rights and fostering democratic governance. The country has defined 24 targets covering the nine goals and clearly designated institutional responsibilities for each goal. In 2008, the MDGs targets and indicators were revised[6].

Mongolia incorporated the MDGs into the 2003 Economic Growth and Poverty Reduction Strategy and the 2008 MDGs-based CNDS, designed for the period 2008-2021.

According to Mongolia's 2015 national report "Managing the Transition from the Millennium Development Goals to the Sustainable Development Goals", goals to reduce child mortality, improve maternal health and combat HIV/AIDS, and the target to develop new information and communications technologies and build an information society, have been achieved. Although Mongolia could not halve its poverty rate, it succeeded in reducing it by one third. Goals to halve the poverty rate, reduce the youth unemployment rate, reduce the prevalence of tuberculosis and protect the environment, especially in reducing air pollution in urban settlements such as Ulaanbaatar, have not been achieved.

1.1.5. MONGOLIA SUSTAINABLE DEVELOPMENT VISION 2030

The 2008 Comprehensive National Development Strategy (CNDS) for the period 2008-2021 was the first long-term policy document. The MDGs were strongly embedded in the CNDS. The CNDS included eight priority directions, 124 strategic goals and 523 activities. It had a strong emphasis on citizens' participation, partnerships among stakeholders and governmental accountability.

The CNDS was meant to be implemented in two stages (2007-2015 and 2016-2021). However, in 2016, it was repealed with the adoption of the 2016 Mongolia Sustainable Development Vision 2030 (MSDV-2030). The MSDV will be implemented in three phases: 2016-2020, 2021-2025 and 2026-2030. It includes a vision and objectives for sustainable economic development, sustainable social development, environmental sustainability and governance for sustainable development.

The MSDV's strategic area Sustainable economic development focuses on agriculture, tourism, mining, industry, energy and infrastructure, favorable business environment and the macroeconomic sector.

Table 2. Selected objectives and targets on environmental sustainability under MSDV 2030

Objective	Targets for 2020	Targets for 2030
Increase the drinking water supply that meets health standards, and improve the	Ensure that 80 per cent of the population is supplied with safe drinking water, and 40 per cent of	Ensure that 90 per cent of the population is supplied with safe drinking water, and 60 per cent of the population

[5] *2005 Resolution of the State Great Khural No. 25*
[6] *2008 Resolution of the State Great Khural No. 13*

availability of sanitation and hygiene facilities.	the population uses improved sanitation and hygiene facilities.	uses improved sanitation and hygiene facilities.
Adopt environmentally friendly advanced technologies, and reduce the emission of carbon dioxide from production and consumption.	Reduce greenhouse gas emissions by 2 per cent by promoting renewable energy sources, introduce advanced technologies in liquefying and carbonating coal and shale, encourage the introduction of MNS ISO 14001 package standards of environmental management, and double the number of companies possessing "standards certificates".	Increase the manufacturing of products using high technologies and innovation, reduce greenhouse gas emissions by 14 per cent from the current levels, encourage the introduction of MNS ISO 14001 package standards of environmental management, and increase the number of companies possessing "standards certificates" tenfold.
Preserve the natural landscape and biodiversity, and ensure the sustainability of the ecosystem services.	Mitigate desertification, increase the area of specially protected areas to 25 per cent, and raise the forest cover to 8.5 per cent of the country's total territory.	Continue mitigating desertification, increase the area of specially protected areas to 30 per cent and raise the forest cover to 9 per cent of the country's total territory.
Improve the planning of cities and urban settlements, enhance the quality of and accessibility to infrastructure facilities and improve the quality of the environment and waste management systems.	Increase the area of green facilities in urban areas and settlements to 15 per cent of the total area, increase the amount of recycled waste to 20 per cent of total waste, and have no air pollution in Ulaanbaatar City.	Increase the area of green facilities in urban areas and settlements to 30 per cent of the total area, and increase the amount of recycled waste to 40 per cent of total waste.

1.1.6. LOCAL LEVEL STRATEGIC DOCUMENTS

In the capital city, the Green Development Strategic Action Plan for Ulaanbaatar 2020 was approved in 2016. It identifies seven goals: cleaner air, sustainable transport, improved solid waste management, water security, cleaner soil, participation in sustaining the environment and climate change resilience. Its measures aim to address specific problems of the capital city, e.g. to promote optimum usage of low- emission stoves and address sanitation in the ger areas, retrofit the central WWTP, enforce pretreatment of industrial waste on-site before release into the public sewerage system, relocate tanneries to the periphery of the city to decrease pollution of the Tuul River, improve the drainage system and enhance flood defense on the Tuul River.

1.1.7. STRATEGIC DOCUMENTS ON THE ENVIRONMENT BY SECTORS

CLIMATE CHANGE

The National Action Programme on Climate Change (NAPCC) (2011 Resolution of the State Great Khural No. 2) aims to promote capacity development and measures on adaptation to climate change. It addresses institutional, legislative, financial, capacity, education, public awareness and research aspects. The Programme also includes adaptation and mitigation strategies and measures for key socioeconomic sectors. In 2011, the Programme's implementation plan for the first phase (2011-2016) was approved. It focuses on strengthening national mitigation and adaptation capacities, setting up legal, structural and management systems and improving the community and public participation. In the second phase (2017-2021), climate change adaptation measures will be implemented and greenhouse gas (GHG) mitigation actions will be started. Key implementation approaches are to align climate change actions with the National Security Concept, sustainable development and green growth goals and to introduce progressively advanced scientific and environmentally sound techniques and technologies in GHG mitigation and climate change adaptation.

As of 2017, the Programme needs to be aligned with the targets of the Intended Nationally Determined Contribution (INDC). Implementation of the Programme is impeded by the lack of strong institutional mechanisms.

WATER

The 2016 MSDV places an emphasis on IWRM and includes a number of water-related targets, e.g. to ensure that, by 2030, 90 per cent of the population is supplied with safe drinking water and 60 per cent of the population uses improved sanitation and hygiene facilities. The Governmental Action Programme for the period 2016-2020 prioritizes support to the introduction of wastewater recycling technology; recycling wastewater to fit the greywater standards, enabling it to be used for the technological purposes of a sewerage system or watering green areas; accelerating the step-by-step renovation work of the central wastewater treatment plant (WWTP); and enabling the utilization of recycled wastewater and groundwater for industrial technology needs.

The key specific water-focused policy document is the Water National Programme[7], which has two phases (2010-2015 and 2016-2021). The strategic goals of the Water National Programme include:

- protection of Mongolia's water resources and conservation of their purity and natural replenishment;
- establishment of a comprehensive network for the monitoring of water resources and adoption of new management and information management technologies;
- creation of the conditions necessary for an accumulation of water resources, provision of drinking water meeting health standards, and improvement of the agricultural and industrial water supply;
- improvement of the use and management of water resources, development of the legislative and institutional environment so as to coordinate the multiple requirements for the use of water;
- capacity-building;

[7] *2010 Resolution of the State Great Khural No. 24*

- and fostering civil participation and the provision of the public with information on the protection and use of water resources using advanced technologies.

The 2012 Khatan Tuul National Programme and Action Plan[8] aims to protect and sustainably manage the Tuul River basin, which covers a total area of about 50,000 km^2 extending over seven districts of Ulaanbaatar and 37 soums of five aimags. The Tuul River, the main source of water supply for Ulaanbaatar, is heavily polluted by insufficiently treated and untreated sewage and sullage. Between 170,000 and 190,000 m^3 of improperly treated wastewater is discharged into the Tuul River daily.

The Programme is implemented in two stages (2012-2016 and 2017-2020) and includes measures to improve water quality and protect the river source, small rivers and streams flowing into the Tuul River.

The Action Plan of the Khatan Tuul National Programme for 2012-2016 includes activities on water supply, environmental protection, water quality monitoring, wastewater treatment technology upgrade, and reuse of treated wastewater.

All WWTPs in Ulaanbaatar, along the Tuul River, are to undergo technological innovations. The Programme provides for discontinuation of the exploitation of sand and gravel from the Tuul River and technical and biological rehabilitation.

The water-related measures of the 2017 National Programme on Reduction of Air and Environmental Pollution for the period 2017-2025 include: installing advanced and environmentally-friendly technology in sewerage systems in Ulaanbaatar's central WWTP and other settlement areas; moving tanneries, wool processing factories, vehicle markets and construction materials markets out of the city step by step; ensuring compliance with protection zone regimes at the Tuul River and its tributaries; and preparing for step-by-step resettlement of families living in flood-prone zones and near the dams.

WASTE

The majority of the waste collected in the country is sent for disposal. About 93.5 per cent of waste is disposed of by burial. The 2014 Green Development Policy calls for promoting sustainable consumption and production patterns, along with reduced waste generation.

The Waste Management Improvement Programme for 2014-2022[9] sets a number of targets on waste management, including the target of 12 per cent reuse or recycling to be achieved by 2022 against 4.4 per cent in 2013, and increasing the number of waste sites that meet the sanitary requirements from three in 2013 to 40 in 2022.

Phase I (2014-2017) focuses on improving the legal framework for the reduction of waste, capacity- development for infrastructure and financing, increased participation of communities and the private sector, and behavioural changes in the population. The development and adoption of the 2017 Law on Waste Management is one of the implementation outcomes. Phase II (2018-2022) is aimed at restoration of the environment from damage caused by contamination by waste and the establishment of a proper waste management system. The challenges for the implementation of the 3R (reduce, reuse, recycle) policies, among others, include the lack of an incentive system for

[8] *2012 Government Resolution No. 203*
[9] *2014 Government Resolution No. 298*

recycling, the current substantial role of the informal sector in the collection of recyclables, and the limited technological and financial capacity of the domestic recycling industry.

The specific waste-related targets of the 2016 MSDV are to increase the amount of recycled waste to 20 per cent of total waste by 2020 and to 40 per cent by 2030.

CHEMICALS

The National Implementation Plan (NIP) for the Convention on Persistent Organic Pollutants (POPs) (Stockholm Convention) was approved in 2006. Following the inclusion of new chemicals in the Convention, the national inventory was conducted in 2013. The NIP was updated in 2014[10]. The objectives of the updated Plan include reducing POPs release into the environment and further reducing adverse effects on human health, reducing PCDD/F releases from unintentional sources, and identifying and remediating sites contaminated by POP pesticides. An objective of the Plan is also to achieve a "PCB-free country". Activities will be implemented in two phases (2014-2020 and 2020-2030). Phase-out of the use of polychlorinated biphenyl (PCB)-containing equipment is expected by 2020.

ENERGY

About 98 per cent of the energy sector is State-owned; only renewable energy sources (primarily, wind) are privately owned. The sector is generally characterized by low energy efficiency and impacts on urban air pollution. The heating and electricity need in Ulaanbaatar are met by three existing coal-based combined heat and power (CHP) plants (CHP-2, CHP- 3 and CHP-4), with CHP-2 being the most polluting and requiring urgent closure. According to the Government, the supply-side situation is alarming due to the rapid growth in electricity and heating demand against the context of the ageing CHP plants.

The 2005 National Renewable Energy Programme (2005-2020) set the renewable energy targets of 3-5 per cent by 2010 and 20-25 per cent by 2020. The Programme is not considered valid at the moment as it was integrated into the 2015 State Energy Sector Policy[11].

The 2015 State Energy Sector Policy replaced the 2005 National Renewable Energy Programme and the 2007 National Programme for Integrated Energy System. It includes the following strategic goals:

- Ensure a secure and reliable supply of energy;
- Develop mutually beneficial relationships in respect of energy with countries of the region;
- Develop and improve the human resources capacity in the energy sector;
- Implement the transition of the energy sector to a private-sector-based, regulated and competitive market;
- Introduce innovation and advanced technology in the energy sector as well as energy efficiency and saving policy;

[10] *2014 Government Resolution No. 341*
[11] *2015 Resolution of the State Great Khural No. 63*

- Increase renewable energy generation and reduce adverse environmental impacts of conventional energy sources and GHG emissions from the energy sector.

The State Energy Sector Policy has included the following energy-related targets: a 20 per cent reduction of GHG emissions from the energy sector by 2020, and increasing the share of renewables in energy production to 20 per cent by 2023 (not by 2020 as in other documents) and to 30 per cent by 2030.

The 2014 Green Development Policy has stipulated energy-related targets as follows: reduce GHG emissions in the energy sector, through increased energy efficiency by 20 per cent in 2030, and by ensuring that the share of renewable energy used in total energy production is at 20 per cent by 2020 and 30 per cent by 2030.

The 2016 Action Plan for Implementation of the Green Development Policy for the period 2016-2030 includes the following measures:

- Construct multi-purpose water reservoir complexes by building dams at larger rivers and lakes (550 MW on the Eg and Selenge River basins, 150 MW on Khovd River basin and 100 MW on Orkhon River basin);
- Decrease GHG emissions per capita and improve the efficiency of coal-fired power plants, through the implementation of advanced and clean technology requirements for the new coal-fired thermal and power plants, such as Baganuur, Thermal Power Plant 5, Mogoin Gol Power Plant;
- Reduce environmental pollution and emissions and meet the international standard requirements by systematically upgrading current coal-fired thermal power plants, heating and industrial furnaces;
- Implement a systematic energy audit and measures to reduce energy and heat losses.

The 2016 MSDV's energy sector targets are to increase the share of renewable energy in the consumption of total energy to 20 per cent by 2020 and to 30 per cent by 2030. The MSDV also aims to initiate preparation for a nuclear power plant and to begin using energy from the nuclear power plant by 2030. The energy efficiency targets of the MSDV are to reduce heat losses in buildings by 20 per cent by 2020 and by 40 per cent by 2030.

Another key objective of the MSDV is to ensure reliable access to energy to all, with the share of households using reliable electricity reaching 100 per cent in 2030 compared with 89 per cent in 2014.

The energy-related measures of the 2017 National Programme on Reduction of Air and Environmental Pollution for the period 2017-2025 include:

- Banning, step by step, the use of raw coal in urban centers (other than in thermal power plants);
- Encouraging the supply of improved fuel to ger areas;
- Expanding the production of improved fuel to substitute for raw coal;
- Providing 50-100 per cent discount for off-peak electricity consumption for ger district households with a 2-phase electricity meter;
- Supporting action for coal processing and enrichment and coal-to-gas production;
- Demolishing heat-only boilers in Ulaanbaatar;

- Developing and implementing an energy efficiency national programme and a gas supply master plan;
- Developing regulations, procedures and standards for the Energy Efficiency Law.

CONSTRUCTION SECTOR

The following table shows global and Mongolian policy goals related to the construction sector.

Table 3. Construction Related Goals in Mongolian Long-Term Policy

	Policy / Goals	Date adopted	Target	Implementation process
3.	Green Development Policy (2014-2030)	MET 2014	Target 3.1.2: To reduce building heat loss by 20% in 2020 and 30% in 2030 through the introduction of green solutions, energy-efficient advanced technologies and standards such as a construction evaluation system, energy audit and implementation of incentive mechanisms.	Works such as the introduction of a green construction evaluation system, development of a design for small green buildings in schools and kindergartens are in progress.
4.	Sustainable Development Goals (2015-2030)	UN-2015	Target 11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.	
5.	Mongolia Sustainable Development Vision 2030 (2016-2030)	Mongolian Government 2016	Target 6: To develop an urban green development standard; to create infrastructure in line with the green development model; to introduce a redevelopment plan in Ulaanbaatar and in other cities; to reduce building heat loss by 20% (2016-2020); to ensure adaption of a standard and to reduce building heat loss by 25% (2021-2025); create a healthy, secure, comfortable environment according to international standards; and reduce building heat loss by 40% (2026-2030).	
6.	Coordination of policies		Works are in progress to manufacture construction materials with technologies friendly to human health and the environment. Construction material industries making buildings with less heat loss, based on domestic resources are in operation. At the same time, a policy to cover the majority of the population with housing is continuing. Judging the above, policy coordination is relatively good.	

AGRICULTURE

The agricultural sector accounts for more than 14 per cent of GDP. The livestock subsector accounts for more than 80 per cent of agricultural production. Intensive livestock farming practices are not developed.

The 2010 National Mongolian Livestock Programme[12], operating in two phases (2010-2015 and 2016-2021), aims to: establish a favorable legal environment for sustainable development of the livestock sector; develop intensive livestock breeding, to increase productivity and economic efficiency; and, in conditions of climate change, reduce the risk of livestock breeding by improving degraded rangeland and improving feed production and supply. A special programme supporting intensive livestock farming was also in place[13] in the period 2003-2015.

The agriculture-related approaches to achieve the objectives of the 2014 Green Development Policy are to improve agricultural products' supply chains and networks, support the introduction of environmentally friendly storage and packaging technologies for agricultural products and increase the processing of raw materials such as leather, wool and cashmere. The 2016 Action Plan for the Implementation of the Green Development Policy for the period 2016-2030 envisages the development of a climate change adaptation strategy for the agricultural sector.

1.2. ENVIRONMENTAL LAWS

In the period 1994-2000, 17 environmental laws were adopted to lay down the foundations for environmental protection and sustainable use of natural resources. But, in 2012, a comprehensive revision of environmental legislation was undertaken: 18 laws were subject to the removal of duplications and contradictions, two laws were newly adopted, six laws were rewritten, eight laws were amended and 14 laws were repealed. The purpose of the revision was to improve the quality of regulation. The legislation was also aligned to international standards on a number of issues. Provisions on public participation in environmental decision-making were streamlined. Five laws regulating various user fees were substituted with the 2012 Law on Fees for Use of Natural Resources. Altogether, the environmental protection legislation includes 26 laws, about 370 standards and 75 acts of subsidiary legislation, which describe various rules and procedures.

1.2.1. LAW ON ENVIRONMENTAL PROTECTION

The 1995 Law on Environmental Protection addresses the responsibilities of various governmental authorities on environmental protection, environmental assessments, environmental monitoring, research and information, environmental protection measures, environmental inspection, the participation of citizens and NGOs in environmental protection, economic incentives, and fees and payments for the use of natural resources.

In 2012, amendments to the Law introduced the concept of environmental audit and required all entities whose activities involve the use of natural resources to undergo a mandatory environmental audit every two years. Since that time, the practical application of environmental audit has seen slow progress. Subsidiary legislation for environmental audit was approved in 2013[14]. About 25 environmental audit firms and 200 individual environmental auditors have been certified. However, companies try to avoid conducting an environmental audit and the capacity

[12] *2010 Resolution of the State Great Khural No. 23*
[13] *2003 Government Resolution No. 160*
[14] *2013 Order of the Minister of Environment and Green Development No. A-126, with two attachments, on the issuance of an auditor's license and on the methodology of the environmental audit*

of audit firms is an issue. The 2012 amendments also extended the provisions on liability for damage caused to the environment and amended penalties for violation of the Law.

1.2.2. ENVIRONMENTAL IMPACT ASSESSMENT

The Law on Environmental Impact Assessment was first adopted in 1998. A revised version was adopted in 2012. The 2012 Law regulates four types of assessment: (i) strategic environmental assessment (SEA) - to be conducted for policies, development programmes and plans; (ii) environmental baseline assessment - to be conducted during the development stage of all project proposals and development programmes and plans in order to establish the existing conditions and state of the environment of a territory; (iii) environmental impact assessment, consisting of general and detailed EIA - to be conducted for projects; and (iv) cumulative impact assessment - to be conducted to evaluate the effects of various projects implemented within a defined area or basin. Among these, SEA and cumulative impact assessment were new concepts introduced in 2012. As of mid-2017, practical application of SEA has not yet started. The cumulative impact assessment was done in two cases.

An environmental management plan is prepared as part of the detailed EIA (DEIA) development process. Such a plan should not only include measures to protect and restore the environmental conditions but also provide for monitoring of potential negative consequences that may arise during implementation of the project. The annual approval of environmental management plans is conducted by the Environment and Natural Resources Management Department of the Ministry of Environment and Tourism.

1.2.3. AIR PROTECTION

The revised 2012 Law on Air replaced the 1995 Law on Air. It addresses ambient air protection, pollution prevention, mitigation of emissions of air pollutants and its control. However, the Law is heavily focused on air quality in Ulaanbaatar and other cities, and there is less attention to industrial activities.

A Clean Air Fund established in accordance with the 2012 Law on Air focused on subsidizing cleaner coal fuel for the ger districts for use in stoves and subsidized air filters. The Fund was later abolished; provisions in the Law which related to the Fund were annulled in 2015.

The 2010 Law on Air Pollution Fees charges miners of raw coal, producers and importers of organic solvents, auto vehicle and self-propelled vehicle owners and owners of major stationary sources of air pollution with air pollution fees. It defines the limits of fees and exemptions.

1.2.4. WASTE AND CHEMICALS

The 2003 Law on Household and Industrial Waste governed the waste collection, transportation, storage and landfilling of household and industrial waste and reusing of waste as secondary raw materials. It was replaced with the 2012 Law on Waste Management, which introduced the 3R (reduce, reuse, recycle) approach. The 2012 Law was replaced with a new Law on Waste Management in 2017. The new Law covers regular solid waste and hazardous waste, except radioactive waste.

The country banned plastic bags with a thickness of 0.025 mm or less in the packaging of imported food in accordance with the 2009 Law on Limited Use of Some Plastic Bags (no longer valid). This ban was repealed in 2012 with the Law on Waste Management. However, the 2012 Law included a ban on usage of plastic bags of 0.025 mm or lesser thickness in trading service. With the approval of the 2017 Law on Waste Management, the ban on plastic bag usage was removed.

The 2000 Law on Prohibition of Importing, Transit and Export of Hazardous Waste (no longer valid) aimed to ensure implementation of the provisions of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. The Law prohibited the import of hazardous wastes to Mongolia for the purposes of use, storage, temporary holding or destruction. It also prohibited the transport of hazardous wastes across the borders of Mongolia. Export of hazardous waste was allowed through the mechanism of authorization. In 2012, the provisions of the Law on Prohibition of Importing, Transit and Export of Hazardous Waste were integrated into the Law on Waste Management.

The 1995 Law on Protection from Toxic Chemicals was replaced with the 2006 Law on Toxic and Hazardous Chemicals. The 2006 Law is now the major legal act governing the import, export, transboundary movements, production, transportation, storage, disposal, handling and monitoring of various toxic and hazardous chemicals. It stipulates, among other matters, a compulsory risk assessment for activities that involve chemicals. In 2007, the Government approved the List of Prohibited or Limited Use Toxic and Dangerous Chemicals in Mongolia (2007 Government Resolution No. 95). In 2009, the ministries responsible for environment and for health, and NEMA, approved the Procedures for Storage, Transport and Destruction of Dangerous and Toxic Chemical Materials (2009 Joint Order 28/40/29 (no longer valid)), later replaced with the Regulation for storage, transportation, use and destruction of dangerous and toxic chemical substances[15].

1.2.5. WATER

A revised 2012 Law on Water replaced the 2004 Law on Water, incorporating numerous amendments. The 2012 Law is firmly based on the IWRM approach. It also addresses hydrological exploration and research, water monitoring and research, protection zones, water use and permitting, the management of water infrastructure and measures to protect water resources in times of drought from desertification and desiccation. The Law defines self-monitoring requirements: all water users must have equipment installed to measure water use, and, where usage exceeds 50 cubic meters per day, users must install equipment that monitors use throughout their operations.

According to the 2012 Law on Water Pollution Fees, water pollution fees are to be paid for: (i) discharges of wastewater directly to nature within the permissible limits, meeting the wastewater standard requirements; and (ii) discharges of wastewater to a sewerage system, meeting the standard of permissible maximum content of polluting substances. The Law specifies the maximum and minimum amounts of fees, which are to be further specified by the Government for each basin, taking into account the volume and quality of the water resources. As of mid-2017, there is no implementation of this Law since no subsidiary legislation was adopted. Amendments to make the Law more realistic are under discussion.

The 2011 Law on Use of Water Supply and Sewerage System in Urban and Settlement Areas regulates the ownership and utilization of water facilities required to supply urban users with drinking water and to treat and dispose of their wastewater. This Law assigns the task of developing the legislation and policy on urban water supply and sewage disposal to the Ministry of Construction and Urban Development. It also establishes a new body, the Water Services Regulatory Commission. The Law requires protection and sanitary zone to be established around both centralized and decentralized drinking water sources.

[15] *2017 Joint Order 54/A/136/A/215*

1.2.6. ENERGY

The 2001 Law on Energy regulates the issues of energy generation, transmission, distribution, dispatching and supply, energy consumption and licensing for energy-related activities.

The 2007 Law on Renewable Energy provides the legal framework for the regulation of the generation and supply of renewable energy. The Law was amended in 2015 to strengthen public-private partnerships and create a market-oriented framework for the energy sector. According to the IRENA Renewable Readiness Assessment (2016), effective implementation of the Law remains a challenge, hampering the creation of the necessary conditions for renewable energy investment and development. For instance, feed-in tariffs introduced under the Law have faced two main obstacles: (i) limited duration of feed-in tariffs along with the lack of long-term price guarantees to reduce the risk associated with renewable energy investments - an issue addressed in the 2015 amendment to the Law; and (ii) currency risk. The IRENA report also highlights the need to conduct a grid assessment to ensure grid stability in the integration of variable renewables in the future. The Law stipulates the establishment of a special Renewable Energy Fund. Such a fund was established but does not exist anymore.

The 2015 Law on Energy Efficiency (also known as the Law on Energy Conservation) is the first law on this topic. It establishes the Energy Conservation Council; whose powers are to be exercised by the existing Energy Regulatory Commission (ERC). The Energy Conservation Council facilitates the implementation of state policy and legislation regarding energy conservation at the national level, formulates national programmes regarding energy conservation and grants licenses for energy auditors and energy managers. The Law uses the term “designated consumers” to refer to legal entities whose energy usage is above the energy consumption threshold. Each designated consumer is to be registered by the Council and has the obligations to conserve energy and use it efficiently, obtain an energy audit on its energy consumption, formulate and implement programmes regarding energy conservation and appoint an energy manager. The first group of designated consumers was announced by the Council on December 2016. Other consumers can obtain an energy audit voluntarily. The Council still has to formulate the regulations on support and incentives for citizens, legal entities and organizations that implement energy efficiency measures.

1.2.7. CONSTRUCTION SECTOR

There are about 20 pieces of legislation and about 1,000 normative documents in force in the construction sector today. Key legislations are shown in the following table:

Table 4. Overview of Key Legislations in the Construction Sector[16]

№	Law	Date adopted	Latest amendment date	Goals and Objectives
1.	Law on Construction	5 February 2008	2 July 2015	The objective of this law is to regulate relations concerning the development of construction design, manufacturing of construction materials, executing construction works and technical supervising. A revised version of the Law on Construction: 11.1.7. To implement GDPolicy and green

[16] *Source: www.legalinfo.mn*

				construction requirements: introduction of advanced technology, efficient planning of electricity, steam and water sources. Inclusion of these points in construction work principles and the legal support for green construction.
2.	Law on Urban Development	29 May 2008	26 November 2015	The objective of this law is to regulate relations of the state, economic entities, institutions and citizens, within the framework of the urban development policy of Mongolia, concerning issues such as population localization, settlement, and the creation of an appropriate development structure of comparatively independent development regions, and development of cities and dwellings according to the city development plan.
3.	Law on Housing	22 April 1997	23 January 2015	The objective of this law is to regulate relations concerning issues such as the definition of the mandate of state organizations, planning of housing, financing of activities for the development of housing, changing the purpose of public areas and operational issues of houses.

1.2.8. ENVIRONMENTAL CRIMES AND OFFENCES

Environmental crimes have long been part of the Criminal Code. The most common crimes refer to violations of forest, hunting, mining and forest fire protection legislation. There has been criticism that the Code's articles referring to polluting the air, polluting water and soil, and polluting the environment in general, have not been applied in practice.

Mongolia's new Criminal Code, adopted in 2015, includes chapter 24 on environmental crimes. In 2017, it was amended. The environmental crimes remained the same (environmental pollution, illegal mineral exploration and extraction, illegal activities with toxic and hazardous substances, radioactive waste and nuclear material, poaching, illegal logging, causing forest fires, etc.). However, the penalties (both fines and sentences) for poaching and illegal logging were increased.

Each environmental medium and sectoral law indicate violations and penalties. In May 2017, a new Law on Violation was passed that includes a chapter on environmental protection. The Law codified sanctions for all violations of laws that are not considered a crime.

1.3. ENVIRONMENTAL STANDARDS

The Mongolian Agency for Standardization and Metrology has approved about 370 standards related to the environment (Annexe 1).

Each standard may have mandatory and selective (voluntary) use. The 2003 Law on Standardization and Conformity Assessment (invalid since 21 December 2017) specify that standards relating to products that have an impact on public safety are mandatory. Various sectoral

laws refer to standards; e.g. the 1995 Law on Environmental Protection indicates that certain standards are to be set, specifically on the permissible amounts or levels of toxic and biological chemicals in the air, water and soil; noise, sound, vibrations, electric and magnetic pulses and other adverse environmental impacts; radiation; and chemicals in food products. Sectoral ministries are responsible for ensuring compliance with standards and for developing capacity in their application.

Emissions standards include the Thermal Power Plant Emission Guidelines (MNS 6298:2011) and the standard for Wastewater Discharge to Water Bodies (MNS 4943:2011). Another standard sets allowable limits of industrial wastewater composition before letting effluents into the public sewers and central wastewater treatment systems (MNS 6561:2015 Water Quality. Effluent water for sewerage network. General requirements).

Ambient environmental standards, including those for occupational safety, consists of the following national standards:

- Ambient Air Quality Standard MNS 4585:2016 (applies to urban and indoor air pollution);
- Water Quality Standard MNS 4586:1998;
- Drinking Quality Standard MNS 0900:2005;
- Maximum Permissible Level for Groundwater Polluting Substances MNS 6148:2010;
- Soil Quality Standard MNS 5850:2008;
- Urban Soil Sanitary Standard MNS 3297:1991;
- Workplace Atmospheres. Hygienic requirements MNS 0012-013:1991;
- Standard for Noise Levels in Residential and Civil Construction MNS 0012-1-009:1985;
- Occupational Safety and Health. Workplace environment, hygiene requirements MNS 4990:2015 (includes the presence of toxic substances in the workplace, for example);
- Occupational Safety and Health. General requirements for noise and safety MNS 5002:2000.

According to the clause 18.5 of the Law on Use of Water Supply and Sewerage System in Urban and Settlement Areas and the clause 3 of Government Decree No. 73 of 2018 the enterprises and organizations required to meet the standard of wastewater to be supplied to the central wastewater treatment plant and to introduce technology for pre-treatment and reuse of treated water. And the MNS 6561:2015 standard[17] principally defines allowable limits of pollutants in the industrial wastewater.

In addition to the above-mentioned standards, due to production specifics, the wool and cashmere production required to comply with the standard MNS 5563-2005 “Cashmere and wool processing industry. General requirements”, which have defined requirements of the following standards:

[17] *Water Quality. Effluent water for sewerage network*

- MNS 4943:2011 Water quality. Sewage water
- MNS 4288:1995 General requirements for selecting a site for wastewater treatment plants and treatment technologies and effectiveness
- MNS ISO 6279-1:2010 Water supply and Sanitation. Terms and definition-Vocabulary
- MNS 6561:2015 Environment. Water quality. Effluent water for sewerage network. General requirements.
- MNS 6230:2010 Identification of wastewater discharge point. General requirements
- MNS 5251:2008 Textiles. Industrial wastes. Tannery hair. Technical specification
- MNS 6390:2013 The primary treated effluent of wool and cashmere factory into the sewerage of central treatment plant. Technical requirements
- MNS EN 1091-1:2016 Vacuum Sewerage Systems Outside Buildings and Special Sewerage Systems. Part 1: Vacuum Sewerage Systems Outside Buildings

The technical requirement for the wastewater treatment plant is defined in numerous standards and should be recommended during the Environmental impact assessments:

- MNS 5924:2015 Pit latrine and sewage pit. Technical requirements
- MNS 6230:2010 Identification of wastewater discharge point. General requirements
- MNS ISO 6594:2001 Cast iron drainage pipes and fittings - Spigot series
- MNS ISO 8772:2008 High-density polyethene (HD-PE) pipes and fittings for buried drainage and sewerage systems – Specifications
- MNS EN 1091-1:2016 Vacuum Sewerage Systems Outside Buildings and Special Sewerage Systems. Part 1: Vacuum Sewerage Systems Outside Buildings
- MNS EN 12566-1:2011 Small wastewater treatment systems for up to 50 PT. Part 1: Prefabricated septic tanks
- MNS EN 12566-2:2011 Small wastewater treatment systems for up to 50 PT. Part 2: Soil infiltration systems
- MNS EN 12566-3:2011 Small wastewater treatment systems for up to 50 PT. Part 3: Packaged and/or site assembled domestic wastewater treatment plants
- MNS EN 12566-4:2011 Small wastewater treatment systems for up to 50 PT. Part 4: Septic tanks assembled in situ from prefabricated kits
- MNS EN 12566-5:2011 Small wastewater treatment systems for up to 50 PT. Part 5: Pretreated Effluent Filtration systems
- MNS BS 8525-1:2015 Greywater system. General requirements

Two selective standards on eco-labelling (Environmental Labels and Declarations MNS ISO 14021:2001 and MNS ISO TR 14025-2001) have been approved. A standard on corporate social responsibility (MNS ISO 26000:2012) has also been approved, though the practice is highly variable.

1.4. INSTITUTIONAL FRAMEWORK FOR THE ENVIRONMENT, GREEN ECONOMY AND SUSTAINABLE DEVELOPMENT

1.4.1. DIRECTLY RELATED INSTITUTIONS

MINISTRY OF ENVIRONMENT AND TOURISM[18]

The ministry responsible for environmental issues was formed in 1987 (1987 Resolution of the Great People's Khural of the Mongolian People's Republic No. 169). It has remained as a governmental body at the level of a ministry since that time. Such stability of the national environmental authority, in particular, it is functioning at the ministerial level, has been a positive factor for consistent development and implementation of environmental policies and legislation, and facilitated the integration of environmental considerations into sectoral policies and legislation.

Since 1987, the ministry has been responsible for practically all major environmental media and issues, such as air, water, forests, soil, desertification, nature conservation, biodiversity and protected areas, waste and environmental assessments. Since 1987, key changes to the mandate of the ministry responsible for environmental issues including:

- In 2002, the responsibilities on land management were taken away from the then Ministry of Nature and Environment, as the Agency for Land Administration and Management, Geodesy and Cartography (ALAMGaC) was established and the Land Administration Authority of the Ministry was transferred to ALAMGaC.

- The environmental inspection and enforcement functions were taken away from the ministry responsible for environmental issues in 2003 when GASI under the Prime Minister was established as an independent agency bringing together various thematic inspections.

- Responsibility for tourism was brought under the roof of the ministry responsible for environmental issues in 2008. In the period 2012-2014, tourism was taken away from the ministry responsible for environmental issues and given to the ministry responsible for culture. Since 2014, tourism is back with the ministry responsible for environmental issues. Governmental officials responsible for the environment and for tourism in the current Ministry of Environment and Tourism both see the added value of tourism responsibilities being in the ministry responsible for environmental issues, especially from the perspective of protected area management.

- The responsibilities for green development were added to the portfolio of the then Ministry of Nature and Environment in 2012 when it was renamed the Ministry of Environment and Green Development. "Green Development" was taken out of the official title of the ministry responsible for environmental issues in 2016 since the NDA was then formed. However, the responsibilities for green development stayed with the ministry.

[18] *Website: www.mne.mn; Phone: (+976-51) 261966*

- In 2012, the National Water Agency, which had existed since 2005 as an independent governmental implementation agency under the direct supervision of the ministry responsible for environmental issues and dealt with the implementation of state policy on the use, protection and restoration of water resources, including water permitting, was dismantled. Its functions were transferred to the Department for Policy Implementation and Coordination of the then Ministry of Environment and Green Development.

As of 2017, the mission of the Ministry of Environment and Tourism is to ensure the human right to live in a safe and healthy environment by facilitating cooperation among the State, citizens, private entities and other organizations for the preservation of the environment and sustainable development and implementation of the SDGs.

Since 2012, the ministry responsible for environmental issues has been assigned the status of a core ministry. Core ministry status means that a ministry's activities are cross-sectoral. The core ministry can ask non-core (sectoral) ministries to implement its decisions. The status of a core ministry is also possessed by the Ministry of Justice and Internal Affairs, Ministry of Finance, Ministry of Foreign Affairs, Ministry of Defense and Ministry of Labor and Welfare.

In 2017, 2,868 staff worked in the Ministry of Environment and Tourism together with its subordinated institutions. Of these, 121 staff worked in the central apparatus of the Ministry. One of the key issues for the Ministry is staff turnover. In recent years, due to frequent changes of government (on average every 18 months), most staff at both senior (minister, vice-minister, state secretary) and managerial (heads of departments and divisions) levels were replaced with every change of government, impeding the consistent development and implementation of policies on the environment and green development.

NATIONAL AGENCY FOR METEOROLOGY AND ENVIRONMENTAL MONITORING[19]

The National Agency for Meteorology and Environmental Monitoring (NAMEM) is the main state organization responsible for hydrological, meteorological and environmental monitoring and for hydrological and meteorological forecasting. Its functions include an early warning to prevent the impacts of natural disasters, especially on human health and livestock. Environmental monitoring was added to the mandate in 1976 when the former National Hydrometeorological Service under the Government became the Main Administration of Hydrometeorology and Environmental Monitoring.

Currently, NAMEM has the status of a government implementing agency and, at the same time, is placed under the Ministry of Environment and Tourism. The Director-General of NAMEM is appointed by the Cabinet of Ministers. Because it is a government implementing agency, NAMEM reportedly operates more independently than a traditional subordinated organization of the Ministry.

WATER BASIN ADMINISTRATIONS[20]

Mongolia aims to protect, regulate, and rehabilitate water resources according to world standards, which means to use and protect water resources based on management of water accumulation areas, according to natural renewable capability of the water bodies, rather than on administrative units.

[19] *Website: www.mofa.gov.mn; Phone: (+976-51) 262271, 263237*
[20] *Website: www.mne.mn, MET, River Basin Management Division*

According to the Law on water the MET sets the maximum level of potential exploitable ground and surface water resources and the water basin shall have a basin administration and shall be responsible for providing professional management of the basin administration designated by the MET.

Mongolia has 29 water basins covered by 21 water basin administrations with 208 staff in total. The functions of water basin administrations are to develop a water basin management plan and coordinate its implementation, carry out a water inventory at basin level, set up water supply and wastewater removal points in the basin area, maintain a sub database of water basin information, provide information to the public and propose the establishment of a water basin council.

MINISTRY OF ENERGY[21]

The Ministry of Energy is in charge of development and implementation of policies and legislation on energy, including power generation, grid development, district heating and thermal power plants, renewable energy and clean coal technologies. Energy efficiency is not part of its mandate but is a responsibility of the ERC.

MINISTRY OF CONSTRUCTION AND URBAN DEVELOPMENT[22]

The main responsibilities of the Ministry of Construction and Urban Development include the development and implementation of policies and legislation on the construction sector, urban development, land use management, the building industry, building materials, housing and public utilities.

GENERAL AGENCY FOR SPECIALIZED INSPECTION[23]

The General Agency for Specialized Inspection (GASI) under the Prime Minister (reporting directly to the Deputy Prime Minister) was established in 2003 as an independent agency bringing together various inspections. Prior to that date, thematic inspections were part of the responsibilities of relevant ministries.

The scope of work of environmental inspectors includes the enforcement of legislation on forests, flora and fauna, biodiversity, water, soil, air and other issues covered by 26 environmental laws. All inspectors have to undergo professional certification.

1.4.2. OTHER INSTITUTIONS

STATE GREAT KHURAL[24]

The State Great Khural (Parliament) approves laws and some national strategic documents related to environmental issues. Some laws vest quite important environmental competences with the State Great Khural. For example, the Law on Water as revised in 2012 assigns as responsibilities of the State Great Khural the determination of fees for water use and water pollution and the decision on the adjustment of the flow of major rivers. The State Great Khural has a Standing Committee on Environment, Food and Agriculture and a Standing Committee on Social Policy, Education, Culture and Science. The latter has a subcommittee on the SDGs.

[21] *Website: http://energy.gov.mn; Phone: (+976-51) 263051*
[22] *Website: https://mcud.gov.mn; Phone: (+976) 7600 3333 /1126/*
[23] *Website: http://inspection.gov.mn; Phone: (+976-51) 264786*
[24] *Website: www.parliament.mn Phone: (+976-51) 267016*

NATIONAL DEVELOPMENT AGENCY[25]

The NDA under the Prime Minister was established in August 2016. It is responsible for development policy planning as guided by the 2016 MSDV. It provides advice to the Government on investment policies, foreign investment policies, concessions and public-private partnership policy. It coordinates the work on SDGs implementation and monitoring.

NATIONAL EMERGENCY MANAGEMENT AGENCY[26]

The National Emergency Management Agency (NEMA) under the Prime Minister (reporting directly to the Deputy Prime Minister) was established in 2003. It develops legislation and strategies on disaster protection, evaluates disaster risk and implements activities on disaster prevention, reduction and preparedness. It organizes search and rescue work. A Disaster Research Institute under NEMA is responsible for carrying out multi-hazard risk assessments.

AGENCY FOR STANDARDIZATION AND METROLOGY[27]

The Agency for Standardization and Metrology under the Prime Minister (reporting directly to the Deputy Prime Minister) approves all national standards and represents Mongolia in international standardization within ISO.

ENERGY REGULATORY COMMISSION[28]

The ERC, directly accountable to the Government, is an independent regulatory authority. It was established under the 2001 Law on Energy. According to the Law on Energy, the ERC issues operational licences to energy companies involved in the generation, transmission and distribution of electrical power, monitors compliance with licence conditions, develops a methodology, and reviews and approves the tariffs.

An important part of its mandate is energy efficiency. In accordance with the 2015 Law on Energy Efficiency (also known as the Law on Energy Conservation), a specialized unit was established in the ERC to implement energy efficiency policies. In 2017, the ERC signed a memorandum of understanding (MoU) with the Global Green Growth Institute to work on improving energy conservation.

WATER SERVICES REGULATORY COMMISSION[29]

The Water Services Regulatory Commission was established in 2012 based on the 2011 Law on Use of Water Supply and Sewerage System in Urban and Settlement Areas. Its main duties are to define water and wastewater service tariffs and to issue special licenses to legal entities.

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[25] *Website: www.nda.gov.mn; Phone: (+976-51) 263333*
[26] *Website: www.nema.gov.mn; (6976-11) 325726, 265726, 262315*
[27] *Website: www.masm.gov.mn; Phone (+976) 70185289, 70185427*
[28] *Website: www.erc.gov.mn; Phone: (+976-11) 320126*
[29] *Website: www.usug.ub.gov.mn; Phone (+976) 70157016, 70157066, 70157064, 70157018 /109/*

NATIONAL RENEWABLE ENERGY CENTRE[30]

The National Renewable Energy Centre was created in 2005 under the Ministry of Energy. With the restructuring of the Government, the Centre was changed into a State-owned self-financed entity under the supervision of the State Property Committee.

BUSINESS COUNCIL OF MONGOLIA[31]

The Business Council of Mongolia has an Energy and Environment Working Group whose mission is to use a multi-stakeholder approach to promote environmentally sound business practices, as well as to exchange the latest information and developments in the energy sector.

1.5. REGULATORY AND COMPLIANCE ASSURANCE MECHANISMS

1.5.1. FUNDAMENTAL POLICY AND LEGAL FRAMEWORK

The country's permitting and licensing system is continuing to evolve, bringing in additional environmental media and additional pollutant sources and environmentally damaging activities.

A number of state policies and programmes are relevant to regulatory and compliance assurance mechanisms, including the 2016 MSDV-2030. Two of the principles of environmental sustainability in the Vision are: to promote the participation of local residents and people at large to ensure environmental sustainability; and to develop and enforce environmental rehabilitation at international standard level. For the period 2021-2025, the aim is to encourage the introduction of MNS ISO 14001 on environmental management systems and increase fivefold the number of companies possessing a certificate for this standard; for the period 2026-2030, the aim is to increase tenfold the number of companies possessing certificates. All the identified principles of governance for sustainable development are relevant: ensuring implementation of stable state policies through consistent activities and strengthening intersectoral coordination; judiciously complying with the principle of "the rule of law"; ensuring transparency in administration; decentralizing and ensuring the participation of all stakeholders in decision-making; and judiciously enforcing ethics in the public sector and eliminating corruption.

More generally, it can be observed that the proper application of environmental assessment tools is a precondition to achieving the sustainable development envisioned in this document.

The National Quality Programme[32] was adopted in 2016 to ensure that all necessary standards are developed and accreditation provided in support of the MSDV-2030.

The first two strategic objectives of the 2014 Green Development Policy are dependent upon a proper assurance of regulations and compliance: promote resource-efficient, low-carbon production and consumption with an emphasis on waste reduction; and maintain ecosystem balance and reduce environmental degradation while intensifying reclamation activities and environmental protection. One of the measures foreseen for the first objective is the introduction of environmental standards and norms consistent with international standards and an increase in the results and quality of environmental assessment while promoting competitiveness and increased productivity. The

[30] *Website: www.energy.gov.mn Renewable energy division, Phone (+976) 62263065, 62263057, 62263081*
[31] www.bcmongolia.org 11-317027
[32] *2016 Government Resolution No. 344*

Green Development Policy also foresees promoting the introduction of MNS ISO 14000 in legal entities and the introduction of good practices of efficient production and consumption.

The 2016 Action Plan for Implementation of Green Development Policy 2016-2030 envisages for the period 2017-2019 that the ministries responsible for justice and environment, using funds from the state budget, will strengthen the capacity of regulatory entities, police forces and the judicial analysis center to combat environmental crimes, which will require substantial resources.

The comprehensive revision of the country's environmental laws in May 2012 included, among other actions, the revision of some regulatory and compliance assurance mechanisms. However, a number of implementing regulations are still lacking for the environmental legislation passed in 2012. Two particular omissions have been highlighted above. The MET does not issue air pollution permits for major stationary sources of air pollution. Although the revised 2012 Law on Water provides for the issue of wastewater discharge permits, the permits are not issued and fees for wastewater discharge are not collected in the absence of the subsidiary legislation on this issue. The legislation is otherwise comprehensive but continually evolving, which may itself pose problems to the authorities and the regulated entities.

The 2012 Law on Environmental Impact Assessment has been complemented by extensive subsidiary legislation:

- 2013GovernmentResolutionNo.374 provides general procedures for SEA, cumulative impact assessment and EIA;
- 2014 Ministerial Order No. A-03 provides procedures for public participation in EIA;
- 2014 Ministerial Order No. A-04 provides procedures for managing the Environmental Protection and Rehabilitation Guarantee Fund;
- 2014Ministerial Order No. A-05 provides for procedures related to EMPs;
- 2014 Ministerial Order No. A-117 provides, in support of the relevant procedures, methodological guidance on SEA, cumulative impact assessment, baseline study, general and detailed EIAs, and EMPs;
- 2013Ministerial Order No. A-126 provides a general methodology for environmental auditing.

The 2016 Law on Hygiene expanded the EIA approach to the health sector and introduced health impact assessment, which can be triggered by the general EIA.

Licenses are required for the following activities:

- the import, sale or export of Ozone depleting substances;
- the production of dangerous or toxic chemicals during manufacturing;
- the emission into the atmosphere of polluting substances not covered by existing standards;
- engaging in preparing a detailed EIA report;
- the import, selling or export of dangerous or toxic chemicals;
- plant protection products;

- the exploration or mining of minerals; and oil production.

Permits are required for, among other things: the use of water; the discharge of wastewater (not in effect); the drilling of a borehole or the digging of a well or channel; air pollution by certain sources (not in effect); the operation of waste disposal sites, landfills and recovery activities; the collection, transportation, recycling, disposal and export of hazardous waste; the export, import, transboundary movement, use, trade, production and disposal of hazardous and toxic substances; the use of flora and animal resources; and the carrying out of activities that use natural resources have been subject to EIA.

No integrated pollution prevention and control mechanism that would resemble that provided under EU Directive 2008/1/EC concerning integrated pollution prevention and control (the IPPC Directive) is in place.

1.5.2. INSTITUTIONAL FRAMEWORK

MINISTRY OF ENVIRONMENT AND TOURISM

The Ministry of Environment and Tourism is the state central administrative organization in charge of nature and the environment and plays the leading role in the application of regulatory and compliance assurance instruments on the environment, including several forms of environmental assessment, permitting, licensing, management and audit. At the subnational level, the aimag and capital city environment and tourism departments take on this role according to the magnitude of the activity subject to control. For example, a general EIA is carried out by the Ministry of Environment and Tourism or the aimag or capital city governor's office (environment department), depending on the list in the Annexe to the Law on Environmental Impact Assessment. That same authority later approves the EMP for the proposed project and grants the permission to go ahead with the project.

The Environment and Natural Resources Management Department of the Ministry handle environmental assessment and audit, as well as forest, water, protected areas and the land cadaster. It also hosts the Professional Council on EIA. The Professional Council on EIA includes representatives of ministries responsible for mining, construction and urban development, agriculture, health, roads and transport, and education, GASI, an institute within the Academy of Sciences and the State University of Mongolia; no NGOs are present.

GENERAL AGENCY FOR SPECIALIZED INSPECTION

GASI is responsible for inspections and enforcement, together with numerous other actors (police, prosecutor's office, rangers, courts, etc.). GASI cooperates with sectoral ministries for training and other matters. Originally, the environmental inspection was the responsibility of the Ministry of Environment and Tourism, but that responsibility was transferred to GASI when it was established as a dedicated inspection agency in 2003.

GASI responsible for the certification of the staff of internal audit and evaluation units in each of the ministries. At one point it refused to renew certificates because of its dissatisfaction with internal audit reports, this being cited as an indicator of its independence.

In GASI's Division of Environment, Geology and Mining Inspection there are 14 inspectors, including the Director General, of whom seven inspectors work on environmental and tourism issues. For the capital city, there are eight environmental inspectors in the governor's office and 16 environmental inspectors in total in the nine duuregs (districts).

OTHER INSTITUTIONS

The main functions of the Agency for Standardization and Metrology are standardization, certification and the establishment of national measurement standards. The Agency executes product and service quality certification and provides training on and certification for quality and environmental management systems. The Agency is responsible for emissions and ambient pollution standards, as well as for product standards. The Agency also undertakes accreditation, for example of environmental laboratories under the Ministry of Environment and Tourism and GASI. Accreditation is undertaken in cooperation with relevant sectoral ministries.

At the capital city level, environment and tourism departments play various roles. The reports of planned audits for activities involving the use of natural resources are submitted to the aimag environment and tourism department; unplanned audits may be initiated by the aimag governor. Aimag authorities have a role in the water use permitting process for water usage below 50 m^3 a day.

The soums play a weaker role. Nonetheless, the EIA procedures require engagement with soum authorities. Soum authorities also play a role in local-level monitoring, certification and permitting of forestry, hunting and fishing, within limits set at higher levels, and permitting of wastewater discharges.

Under the 2017 Law on Waste Management, a number of authorities, including at the local level, monitor waste management activities.

1.5.3. PERMITTING AND LICENSING ARRANGEMENTS

WATER AND WASTEWATER

According to the 2012 Law on Water, a permit is required by a water user. For drilling a borehole or digging a well or channel, the prospective water user must submit an application to the aimag (or capital city) environmental authority, which registers the well or borehole and issues the permit.

Which organizations constitute the responsible authorities for permission to use water depends on the volume to be used for the purpose of energy, water transportation and utilization (**Error! Reference source not found.**); one exception is that, for a centralized domestic water supply, the responsible organization seeks the consent of the Ministry of Environment and Tourism and water use permission from the water basin administration.

Table 5. Approval and permitting authorities for water use and wastewater permits

	Approval authority	**Permit authority**
Water use per day (m^3)		
Over 100	Ministry of Environment	Water basin administration
Between 50 and 100	Water basin administration	Provincial or capital city environmental authority
Less than 50	Provincial or capital city environmental authority	District governor
Wastewater per day (m^3)		

Over 50	Ministry of Environment	Water basin administration
Less than 50	Water basin administration	District governor

The prospective water user is required to provide with its request, among other information: the location of the water source to be used; the amount of water to be used daily and its purpose; and, for water use exceeding 100 m^3 per day, EIA documents. Additional documentation is required in an application for mineral water use.

For withdrawals exceeding 100 m^3 per day, the Ministry of Environment and Tourism assesses available water resources, for example, to check whether there is a risk of groundwater depletion. The issuance of the permit itself and the signing of a contract with the water user is done by the State-owned enterprise, Mongol Us ("Mongolian Water"). In other instances, the contract is between the water basin administration, the aimag authorities and the water user.

Water use permits are granted for 10 years (previously 15 years), with the right to an extension of five years if the user fulfils the contractual obligations; permits are reviewed every five years to reassess whether any changes are needed.

The Law on Water specifies the number of elements to be included in the water utilization contract, including measures to be taken to protect water resources and prevent water depletion and pollution. For water use over 50 m^3 per day, the water user's obligations include, in accordance with the Law on Environmental Protection, to install a water meter, employ a water utilization manager and obtain permission to remove wastewater and treat polluted water up the standards[33].

A wastewater permit is required according to the Law on Water, but no secondary legislation has been adopted by the Government, so no permits are issued. Furthermore, fees are not collected as secondary legislation has not been developed for the 2012 Law on Water Pollution Fees. The MET is now working on secondary legislation. However, the Law also needs amendment and the draft law is under consultation with the other ministries; the amendment would reduce fee rates and introduce incentives for wastewater treatment. In principle, the water basin administration is responsible for issuing permits if the amount of wastewater exceeds 50 m^3 per day or the wastewater is contaminated with specific substances. For amounts less than 50 m^3 per day, the permit is supposed to be issued by the soum governor. Pollution fee rates are set for low-density substances, organic substances, minerals, heavy metals and toxic substances.

WASTE

Under the revised 2017 Law on Waste Management, aimag and capital city governors give permission for operating a waste disposal site, landfilling and recovery activities and should approve a local regulation for this permitting. This permission to operate a waste disposal site covers household and industrial waste, but not hazardous waste.

Under the law, the Ministry of Environment and Tourism gives permission, whether temporarily or not, to legal entities and organization for the collection, transportation, recycling, disposal and export of hazardous waste.

[33] *MNS 4943:2011 for Wastewater Discharge to Water Bodies; MNS 6561:2015 Water Quality. Effluent water for sewerage network. General requirements - which states the allowable limits of industrial wastewater discharged to sewers and central wastewater treatment systems*

Permits, other than those of a temporary nature, are issued initially for a year, then extended by five years if the tasks are executed satisfactorily, and thereafter by 10 years. An expert committee on waste management in the Ministry issues assessments and recommendations to the Ministry related to the issuance of such permission. The Ministry is also responsible for defining selection criteria for such legal entities and organizations. The Law on Waste Management also provides for the Ministry to permit the export of hazardous waste subject to a number of conditions.

HAZARDOUS SUBSTANCES

In conformity with the 2006 Law on Toxic and Hazardous Chemicals, the Ministry of Environment and Tourism issues authorizations for the export, import, transboundary movement, use, trade, storage, production and disposal of hazardous and toxic substances. A 2009 Joint Order by the MET and Minister of Foreign Affairs, No. 334/104, sets out the requirements for the issuance of permits in more detail, with certain activities, such as production, storage and sale, being subject to detailed EIA. **Error! Reference source not found.** shows the number of such permits issued in the period 2008-2014; there would appear to be a gap in the data in 2011.

A 2017 Joint Order by the Deputy Prime Minister, the MET and the Minister of Health, No. 54/A/136/A/215, sets out the requirements for the storage, transportation, use and disposal of chemical waste.

Table 6. Permits for hazardous and toxic substances, 2008-2014, number

	2008	2009	2010	2011	2012	2013	2014	Total
Use	59	72	268	4	224	171	243	1 041
Export	0	0	1	0	1	10	6	18
Import	73	84	315	4	143	198	236	1 053
Sale	17	24	76	0	33	76	95	321
Production	0	1	5	0	4	6	3	19
Transboundary	0	0	3	0	0	1	0	4
Others	76	90	340	4	255	241	330	1 336

A list of hazardous and toxic substances is maintained jointly by the MET and the Ministry of Health. The lists of import and export permits generally do not specify the substance being imported or exported; there may be security and safety reasons for not doing so but the public interest in transparency would seem to be greater.

OZONE-DEPLETING SUBSTANCES

The revised 2012 Law on Air requires licensing procedures for ODS. The 1999 Government Resolution No. 104 provides procedures for issuing licenses for the import, manufacture, sale and use of ODS. Licenses are issued by the Ministry of Environment and Tourism, with the opinions of the health and sanitary inspectors of GASI. There are no long-term publicly available data on ODS licenses. The Ministry website provides a list of 206 licenses issued in the first half of 2016 for the import of equipment containing ODS, primarily refrigerators, freezers and air conditioners; the list identifies the number of items licensed for import and the fees paid (which are per certificate, irrespective of the number of items).

1.5.4. ENVIRONMENTAL IMPACT ASSESSMENT, INCLUDING PUBLIC PARTICIPATION

EIA has its origins in Mongolia in 1987 when the ministry responsible for environmental issues was established and the system of environmental expertise, similar to the one used in the Soviet Union, was introduced. Environmental expertise, in its original form, had numerous weaknesses, including that it was a pro forma technical exercise that excluded the public except in the unlikely case that the public was able to undertake its own parallel expertise. That system was replaced in Mongolia in 1995 by EIA, which was further elaborated in 1998, revised in 2001 and much strengthened in 2012 in a revised 2012 Law on Environmental Impact Assessment.

The current legislation defines four forms of environmental assessment: SEA of policies, programmes and plans; environmental baseline assessment (or baseline study) to establish existing conditions and the state of nature and the environment of a territory in which a project, programme or plan is to be implemented; cumulative impact assessment of a collection of projects planned in a particular area or water basin; and general and detailed EIA of a project. In 2016, a health impact assessment was introduced by revision of the 2012 Law on Hygiene and by reference to the Law on Environmental Impact Assessment.

The scope of the Law on Environmental Impact Assessment is very broad, as it covers any new, renovated or expanded activity that uses natural resources and is of a type listed in an Annexe to the Law, irrespective of its magnitude. For example, the types listed include light industry, petrol stations, green spaces and parks. Quantitative thresholds are used only to distinguish responsibility between national and local authorities (e.g. hotel capacity being more or less than 50 beds and power plants of more or less than 1 MW capacity).

The Law on Environmental Impact Assessment established a Professional Council on EIA within the Ministry of Environment and Tourism to review the reports and recommendations generated by SEA, cumulative impact assessment and detailed EIA. The Council meets at least once per month to discuss detailed EIA reports and issue conclusions.

GENERAL ENVIRONMENTAL IMPACT ASSESSMENT

A general EIA - a screening and scoping mechanism - is carried out by the Ministry of Environment and Tourism or the aimag or capital city governor's office (environment and tourism department), depending on the list in the Annexe to the Law on Environmental Impact Assessment. The absence of screening criteria or thresholds for all project types increases the workload of all concerned. Numerical threshold magnitudes of planned activities would allow a more rapid determination that smaller projects do not need detailed EIA. The absence of screening criteria or thresholds also creates uncertainty as to which authority is responsible.

The project implementer has to apply for a general EIA by providing a brief description of the project, a technical and economic feasibility study, working drawings, a baseline environmental assessment, the written opinion of the relevant soum governor and other related documents. An assessment expert appointed by the relevant authority has 14 working days (with the possibility of one extension of 14 days) to evaluate the documentation and provide their formal opinion as to which of the following outcomes applies:

- The project should not be permitted and is rejected on the grounds that it is likely to cause considerable harm to the environment by virtue of its proposed technology, technique and activities; that it is absent from land management plans; or that its activities are inconsistent with state policy, the outcomes of a SEA or relevant legislation.

- The project may be implemented without a detailed EIA but subject to specific conditions.

- The project requires detailed EIA, in which case the objectives, areas, scope and duration of the work for the detailed EIA are specified.

DETAILED ENVIRONMENTAL IMPACT ASSESSMENT

A detailed EIA is carried out by an authorized entity on behalf (and at the cost) of the project implementer. The detailed EIA includes an environmental management plan (EMP), consisting of an environmental protection plan and a monitoring programme, as well as a number of elements such as a risk assessment if required on the opinion on the general EIA; a description of objectives, scope and indicators of restoration measures and details of ex-situ conservation measures for projects; and a record of consultations made with the local authority and community likely to be affected by the proposed project. In addition, procedural guidelines adopted in 2014[34] require the consideration of alternatives, one of the most important elements in preparing EIA documentation.

The assessment expert, appointed by the relevant authority that carried out the earlier general EIA, has 18 working days to appraise the quality of the detailed EIA. If necessary, the chief assessment expert of the Ministry may appoint a team of assessment experts to do an appraisal of the detailed EIA report; s/he may also extend the appraisal period once by 18 days. The Ministry decides whether the project should go ahead based on the detailed EIA report and the opinions of the assessment expert and the Professional Council who have appraised the quality of the report.

The number of entities licensed to undertake a detailed EIA, further to the Law on Environmental Impact Assessment, is high, at about 200. In the period 2012-2016, there have been, on average, 211 detailed EIA reports each year. Many of the entities are unlikely to conduct an EIA in a given year and cannot, therefore, be considered experienced. In contrast, the Law on Environmental Impact Assessment requires that an entity licensed to conduct detailed EIA focus its main activity on conducting detailed EIAs. In addition, there is a common perception that EIAs are frequently "copied and pasted" and that the quality of assessment is inadequate; the procedure is seen as a hurdle, not an opportunity to improve projects and their sustainability and efficiency. This leads to the conclusion that the criteria or method for licensing needs improvement or that more thorough evaluation of the quality of EIAs is needed, which is not possible with the current staffing resources.

ENVIRONMENTAL MANAGEMENT PLAN

The authority that performed the earlier general EIA approves the EMP for the proposed project and grants the permission to go ahead with the project. Further requirements regarding the EMP are set out in the Law on Environmental Impact Assessment, including the deposit of a guarantee for the implementation of the EMP. The deposit is made into an account opened by the Ministry of Environment and Tourism in the case of mining, smelting and processing of minerals and chemical and coke-chemicals production; for other projects the deposit is placed in an account opened by the soum governor's office.

Every year, before the year begins, the project holder submits an annual workplan, including EMP, to the MET and related Government organizations. When the year ends, the project holder submits an annual report on actual activities, including for EMP implementation.

A working group for on-site review and evaluation of the Environmental Management Plan fulfilment is established according to the direction on developing, controlling and reporting of the EMP[35]. Clause 4.3. of the directive defines

[34] *Ministerial Order No. A- 117 of the MET*
[35] *Ministerial Order No. A-168 of the MET*

the composition and working period of the working group. However, in the practice, responsible inspectors of the GASI perform planned and unplanned inspections on the legal compliance of business entities and involves responsible specialists of the MET for exceptions.

PUBLIC PARTICIPATION

Public participation is provided for in the Law on Environmental Impact Assessment and in the required procedures for public participation in EIA. At the general EIA stage, the local authorities at the aimag or capital city level must make information available to the local public. The general EIA procedure explicitly requires the written opinion of the relevant soum governor. However, the procedure of general EIA has to be completed within 14 days (which can be extended by 14 days).

At the detailed EIA stage, while drafting the EIA report, the entity performing the assessment has to organize consultations with and formally seek comments from the local authority, the community that is likely to be affected by the project and local residents living in the area where the proposed project is going to be implemented. The EIA report includes a record of the consultations. Here the opportunities for public participation are more generous, with up to 30 working days for members of the public to comment in writing or verbally (Law on Environmental Impact Assessment). The procedures for public participation require that there be a focus on livelihood and social issues, participatory assessment methods are applied (without further precision) and a public meeting (or public hearing) be held.

The methodological guidelines on EIA[36] require that a nontechnical summary be included using a style of language that is accessible to the general public. However, it is not required that the summary be issued separately in a format that would attract public interest. The public is generally presented with a very large and impenetrable tome, though there are good- practice exceptions. In addition, the Law on EIA requires that certain technical, technological and business-related information be kept confidential by the entity carrying out the EIA and this provision is reportedly applied broadly by some developers.

In addition, despite the good intention of the procedures to maintain a focus on livelihood and social issues in EIA, the impacts on livelihoods, notably in rural areas around mining sites, are of particular concern. There are frequent reports that affected people, having land use or possession rather than ownership, are not provided with technically and economically feasible resettlement alternatives when affected by economic development that has been subject to a detailed EIA procedure, especially where the impact has been indirect or induced by the development and people have not been recognized as being affected.

Once completed, the detailed EIA report and the comments received have to be submitted to the bagh meeting within 15 days. Generally, the bagh meets approximately monthly, though it may meet less frequently in rural areas in the winter. Public consultation must also continue during the first year of operation.

CUMULATIVE IMPACT ASSESSMENT

Cumulative impact assessment is a novelty introduced by the revised 2012 Law on Environmental Impact Assessment. The procedure is described in more detail in the Regulation approved by the 2013 Government Resolution No. 374. Cumulative impact assessment is to be conducted by the MET for a group of projects planned in

[36] *2014 Ministerial Order No. A-117*

a particular area or water basin in order to analyze their combined effects on the environment and human health. The report of a cumulative impact assessment has to address the intensity, magnitude and distribution of cumulative impacts, measures that may reduce cumulative impacts, estimated costs and options and estimated the damage to the environment, society and human health due to cumulative impacts. Public consultations are part of the cumulative impact assessment procedure.

1.5.5. COMPLIANCE ASSURANCE MECHANISMS

SELF-MONITORING AND REPORTING BY REGULATED ENTITIES

Self-monitoring is required according to the legislation for the different environmental media, as well as through the 2011 Government Resolution No. 311 on entities' self-monitoring, which foresee the designation of a person responsible for such work in an entity holding a permit or license.

The main mechanism for self-monitoring and reporting is provided through the EMP of the project that have had conducted EIA, where all legal arrangements are planned in detail and required for annual reporting for review to the MET to get approval for the next year. For example, the Law on Air foresees that internal monitoring points within a polluting entity form part of the national monitoring network, with the entity being obliged to provide emissions data to the authorities. Water users must install equipment to measure water use and, when exceeding 50 m^3 per day, install equipment that monitors use throughout operations and appoint a water use manager.

The EMP consists of an environmental protection plan and internal monitoring programme. The internal monitoring programme addresses the monitoring and analysis of changes made to the environment as a result of the activity, reporting requirements, means of implementation, timeline and estimated budget.

With regard to implementation of self-monitoring requirements, the overall picture is that larger companies have dedicated units and the quality of self-monitoring reports is better, but SMEs struggle, making the mechanism into more deceiving and unnecessary bunch of paper to show in case of inspections. GASI inspectors can issue penalties for non-meaningful self-reporting.

NGO/CITIZENS MONITORING

Public oversight of the implementation of environmental legislation is performed by NGOs, community groups and citizens.

NGOs may monitor externally the implementation of an EMP. However, the ability of NGOs to monitor the implementation of the EMP is severely limited by the non-availability of such plans to the public, despite the requirement in 2014 Ministerial Order No. A-03 that they be publicly available on the Ministry's website. The 2012 Government Resolution No. 222 on the EITI also tasked the Minister with the public disclosure of annual EMPs.

In principle, NGOs, community groups and citizens can monitor and, as necessary, complain to the inspectors, courts, relevant administrative bodies or others if they discover possible non-compliance with licence and permit conditions. Further, NGOs whose charter purpose is to protect the environment are entitled to appeal to the courts claiming environmental damages. However, NGOs are severely limited by the resources, skills and knowledge available to them. Furthermore, the admissibility of evidence collected by NGOs has been called into question by the courts. State stamp duty on environmental cases is high for NGOs, thus discouraging appeal to the courts. Administrative cases are handled in administrative courts located in aimag capitals, thus limiting access for herders, for example.

There have also been questions raised regarding the impartiality of experts and the courts in cases initiated by NGOs and other public interest claimants.

ENVIRONMENTAL AUDIT

One of the major effects of the revision to the environmental protection legislation in 2012 was the introduction of a requirement for entities to commission an independent environmental audit every two years if their activities involve the use of natural resources. According to the 1995 Law on Environmental Protection, as amended in 2012, the reports of the planned audits for activities involving the use of natural resources are submitted to the aimag or capital city environment and tourism department. Unplanned audits may be initiated by the aimag governor or the MET.

In 2013, the MET adopted a general methodology for environmental auditing as Annexe 2 to Ministerial Order No. A-126. The methodology addresses both planned and unplanned audits. It also addresses the environmental audit of environmental legislation, state policy, national programme implementation, EIA and its implementation and other activities.

INSPECTIONS

Inspection activities are governed by the 2003 Law on State Supervision and Inspection and general guidelines. Sectoral laws and media-specific legislation commonly include references to monitoring and inspection activities and the role of GASI. Various types of inspection are carried out, both planned and unplanned (e.g. in response to a citizen's complaint), but also unannounced and preventative, or to provide recommendations or a baseline. Multi-sector inspections are carried out by GASI inspectors as GASI covers many sectors, such as food safety and agriculture, health, education and industrial safety.

Inspections are planned annually, quarterly and monthly. Before carrying out an inspection, a directive is drafted indicating the membership of the inspection team and what they will do on-site.

Since 2010-2011, a risk-based approach to the planning of inspections has been applied, though the same practice has yet to percolate down throughout the country. Inspection manuals and checklists are in use by GASI inspectors. The inspection checklist includes, among other matters, the verification of self-monitoring reports.

Other authorities are also engaged in monitoring the implementation of environmental requirements. Various authorities may monitor externally the implementation of an EMP of an activity that was subject to detailed EIA. For example, the local government is responsible for checking the implementation of environmental protection measures during mineral exploration. In addition, the authority that originally carried out the general EIA may require that an independent review be commissioned at the expense of the project implementer to review the project's performance in the implementation of the EMP, based on the findings of the external monitoring.

NON-COMPLIANCE RESPONSE

Each environmental medium and sectoral law indicate violations and penalties. In addition, in May 2017, a new Law on Violation was passed that includes a chapter on environmental protection, which addresses violations under above laws (desertification, implementation of CITES and the laws on EIA, air, water, fauna and flora, forests, subsoil and minerals and petroleum). The inspector assesses violation and, for administrative offences, issues a notice of violation to the perpetrator, who can acknowledge it or not. If a fine is imposed and the violator acknowledges the violation, the violator simply pays the fine within 14 days. Other possibilities include remediation of damage (if feasible) and immediate suspension of the license or permit (where human health is at risk). If the violator does not

acknowledge the violation, the matter is transferred to the prosecutor's office, with GASI continuing to provide evidence.

Certain offences are immediately treated as a criminal, such as the handling of hazardous and toxic chemicals for the purpose of a chemical weapon and terrorist act, or the improper use of toxic and dangerous substances, either through negligence or intentionally, that leads to serious damage to human health or the environment. The 2015 Criminal Code foresees fines, suspended sentences (probation) and imprisonment, with the most serious crime being forest arson. Previous studies, of wildlife crime, have revealed some variation of sentencing across the country, in different aimags, but generally speaking, limits on data availability prevent a thorough comparison.

With regard to air pollution, GASI has a number of powers, including to: limit or temporarily close operations if a major stationary source is exceeding the emissions standard and, as a result, threatening human health or damaging the environment; together with the police, limit the use of mobile sources exceeding the emissions standard and having a negative impact on air quality; and halt operation in the case of a repeated violation of the emissions standard and conditions set in the permit, or make proposals to alter the manufacturing process to the permitting authority, which must decide within 30 days.

With regard to hazardous wastes, the MET can suspend permission to conduct operations (collection, transportation, storage, processing and disposal) for up to three months if a waste management entity has violated the terms, requirements or duration of the permit; the permit can be cancelled if, among other reasons, the entity supplied forged documentation with its permit application or it fails to remedy violations of the permit.

1.5.6. ENVIRONMENTAL LIABILITY, INSURANCE AND COMPENSATION

Each of the environmental laws includes a provision on liabilities for breach of the provisions. In recent legislation, fines for violations are often expressed in terms of damage caused, or in multiples of the minimum monthly wage, in which case rates vary according to who the violator is, from individuals to officials to entities, and the multiplier is higher for more serious offences. The legal review in 2012 led to a step-change in the value of fines; for example, under the 1995 Law on Water, the administrative sanction for non-compliance was a fine of up to 200,000 tugriks, whereas the 2012 Law on Water includes stricter sanctions for non-compliance ranging from monetary fines of up to 7,020,000 tugriks to revocation of water use permits. In the case of a water use permit for industrial purposes, excess use of the resource now leads to increased fees of up to 50 per cent at the relevant tariff as a penalty. As well as standard fines may be imposed according to environmental damage under certain legislation.

For activities subject to EIA, the developer must pay compensation if an EIA is not carried out or EIA conditions are not complied with. If an EIA is carried out, but improperly and leading to environmental damage, the licensed EIA entity must pay compensation.

1.5.7. VOLUNTARY COMPLIANCE PROMOTION INSTRUMENTS

ENVIRONMENTAL MANAGEMENT SYSTEMS

MNS ISO 14001 on environmental management systems was first approved in 1998. The Agency for Standardization and Metrology accredits organizations that can issue ISO certificates, with two ISO 14001 certification bodies having been accredited. The National Chamber of Commerce and Industry reported that three companies had been certified MNS ISO 14001 so far, including a distillery and a food company. The MET suggested about 10 certificates had been

issued in total. The ISO Survey 2016 indicated four valid certificates being recorded in Mongolia in 2016. Impediments to the broader uptake of environmental management systems include organizational capacity, the cost (of international consultants) and the time to complete them. Given the Government's vision of broader uptake of ISO 14001, current efforts to promote it are not adequate.

ECO-LABELLING

Eco-labeling has a number of major benefits:

1. Informing consumer choice - Eco-labeling is an effective way of informing customers about the environmental impacts of selected products, and the choices they can make. It empowers people to discriminate between products that are harmful to the environment and those more compatible with environmental objectives. An eco-label makes the customer more aware of the benefits of certain products, for example, recycled paper or toxic-free cleaning agents. It also promotes energy efficiency, waste minimization and product stewardship.
2. Promoting economic efficiency - Eco-labeling is generally cheaper than regulatory controls. By empowering customers and manufacturers to make environmentally supportive decisions, the need for regulation is kept to a minimum. This is beneficial to both government and industry.
3. Stimulating market development - When customers choose eco-labeled products, they have a direct impact on supply and demand in the marketplace. This is a signal which guides the market towards greater environmental awareness.
4. Encouraging continuous improvement - A dynamic market for eco-labeled products encourages a corporate commitment to continuous environmental improvement. Customers can expect to see the environmental impacts of products decline over time.
5. Promoting certification - An environmental certification program is a seal of approval which shows that a product meets a certain eco-label standard. It provides customers with visible evidence of the product's desirability from an environmental perspective. Certification therefore has an educational role for customers, and promotes competition among manufacturers. Since certified products have a prominent logo to help inform customer choices, the product stands out more readily on store shelves. Coveting the logo may induce manufacturers to re-engineer products so that they are less harmful to the environment.
6. Assisting in monitoring - Another benefit of an official eco-labeling program is that environmental claims can be more easily monitored. Competitors and customers are in a better position to judge the validity of a claim, and will have an incentive to do so should a claim appear dubious.

Two selective standards on eco-labelling[37] have been approved. The 1998 Government Resolution No. 95 (no longer valid), providing rules for incentive measures for citizens, economic entities and organizations that adopt environmentally friendly technologies, was intended to encourage non-harmful products and approved a regulation on eco-labelling, but lacked criteria or indicators. The ministry responsible for environment set out "Rules on Ecolabel award to entities, organizations and individuals which manufacture environmentally friendly products and provide services" through the 2007 Ministerial Order No. 272. A technical committee on ecolabelling was established in the MET, including civil society representation, but no remuneration was paid for membership, leading to weak participation, and it was vulnerable to changes in Government. The National Chamber of Commerce and Industry

[37] *Environmental Labels and Declarations (MNS ISO 14021:2001) and MNS ISO TR 14025:2001*

(NCCI) studied ecolabelling practice in Western Europe and proposed to the Ministry that the Government not be involved in certification.

In 2017, new rules for incentives to citizens, economic entities and organizations that adopt environmentally friendly technologies were approved [38]. According to the new rules, citizens, enterprises and organizations will be acknowledged through a "green certificate" and their products and services will receive an eco-label. The document provides for criteria for the issuance of certificates and eco-labels. Applications will be made to the MET and will be considered by a commission consisting of representatives of governmental organizations, NGOs and consumer protection organizations. The commission is to be supported by a technical council.

The NCCI has an Eco product Development Council that reviews applications and decides whether to issue certification. According to the 2016 Law on Organic Food, only verification bodies can now issue organic product certificates and the NCCI has yet to be accredited and so cannot certify food products at present.

OTHER

No systematic effort is applied by the Government to promote resource efficiency and cleaner production among the business community.

Both the NCCI and the Business Council of Mongolia have engaged in efforts to increase efficiency in resource use by their respective members.

In addition, Mongolia's commercial banks have voluntarily adopted sustainable financing principles as part of due diligence before lending to projects in four key sectors: mining, construction, manufacturing and agriculture. The banks report on the application of these principles.

The Mongolian Sustainable Finance Association (MSFA) cooperates with the Sustainable Textile Production and Eco-Labelling in Mongolia (STeP EcoLab) project to support environmentally and socially sustainable operation of the wool and cashmere industry, to develop financial products to support increase of production and consumption of wool and cashmere products, improving legal environment, and the capacity of stakeholders. Within the scope of principles of sustainable financing of Mongolia, the MSFA planning to develop their 5th guideline in the textile sector with the support of the STeP EcoLab project. Thanks to guideline Banks that provide loans in the sector will need to adhere to the principles of Mongolia's Sustainable Financing principles and guidelines in this sector when evaluating new clients, projects and loans.

1.6. CHAPTER CONCLUSION

In this section we have reviewed fundamental policy documents on sustainable development and green production in terms of cashmere and wool production industry in Mongolia. By the desk review we have covered policy documents by long, medium- and short-term features and follow up regulations including sectoral laws, government resolutions, minitrial orders, ending with national standards and institutional structure to implement the above framework. Moreover, this included review of compliance assurance mechanisms to seek legal opportunities to justify on for green production.

[38] *2017 Government Resolution No. 290*

1. The current framework of the legal system on green production has no intended distinction on wool and cashmere production and should be considered as one of the sectors in light industry. However, the actual environmental legal framework focuses towards the transition to green development growth model using mechanisms such as valuing the benefits of and the rational use of natural resources, increasing productivity, green investment and green procurement, by the expansion of works and services directed at engraining environmentally friendly production and services, and promoting a green lifestyle. From this point of view, the wool and cashmere production considered as one of the sectors that need to be environmentally friendly with an industrial process that utilizes energy and resources efficiently, with reduced waste and without harm or risks to the environment.

2. Since 1987, Mongolia has developed an extensive legal framework on environmental protection. Environmental legislation has developed in a stable way and is largely consistent and coherent. Integration of environmental requirements into sectoral legislation is taking place and there are opportunities to further strengthen such integration on the basis of the recently adopted 2014 Green Development Policy and 2016 Mongolia Sustainable Development Vision 2030. However, implementation of environmental legislation is often delayed, with delays occurring in particular in the development and adoption of subsidiary legislation. Furthermore, enforcement of environmental laws and environment-related provisions in sectoral legislation often represents a serious challenge.

3. The stability of the national environmental authority, in particular, it is functioning since 1987 at the ministerial level, has been a positive factor for consistent development and implementation of environmental policies and legislation, and has facilitated the integration of environmental considerations into sectoral policies and legislation. One of the key issues, however, is staff turnover due to frequent changes of government.

4. The establishment of GASI in 2003 has allowed the separation of the policymaking and regulatory function from the control and enforcement function. Positive outcomes of the new system include more efficient use of resources and strengthening of the links between thematic inspectors. However, the insufficient level of cooperation between GASI and the Ministry of Environment and Tourism is a weak link in the new system.

5. A number of mechanisms for horizontal coordination on the environment and sustainable development exist at the national level, e.g. the National Committee for Reducing Air Pollution and National Water Committee. Inter-ministerial committees or councils are often created to address issues within the competence of several ministries. However, few coordination bodies incorporate other stakeholders (NGOs, businesses, MAS) along with governmental bodies, organizations and institutions. Little information about the activities of such bodies is made available to the public. The effective functioning of such bodies is impeded by the frequent changes of government, requiring renewal of the composition of such bodies. As a result, some bodies do not hold regular meetings. Strengthening the mechanisms for horizontal coordination on the environment and sustainable development is crucial for achievement by Mongolia of Target 17.14 (Enhance policy coherence for sustainable development) of the 2030 Agenda for Sustainable Development.

1. It is noticed that introduction of "Passive building[39]" and a "Green building rating system[40]" will create

[39] https://www.agpb.at/en/phtec_qingdao.htm

[40] *On April 13 of 2018 the MCUD, MET, ERC signed a memorandum of cooperation with the International Financial Corporation (IFC) on green building evaluation system implementation in Mongolia. As of today, there are established the Council for Green Building to create and develop national evaluation system in Mongolia, who is responsible for*

conditions for providing incentives and tax concessions to construction companies, meaning if buildings are energy efficient, saving water and using greywater, companies that built those buildings will get recognition, and enjoy certain tax relief on their next construction. This practice could be a good opportunity for the cashmere and wool production industry as well. In fact, green production and its evaluation system in Mongolia have certain progress only in the construction sector. Therefore, it would be a good opportunity to learn, practice sharing with relevant government and non-government organizations to get step-by guidance on the introduction of the system in the wool and cashmere industry.

2.

3. In general, it can be seen that most of the legal and institutional arrangements are in place to support regulatory and compliance assurance mechanisms. The legal framework is comprehensive, though it suffers from continual minor amendments.

4. Mongolia has accumulated extensive experience with EIA procedures. However, the EIA procedures are not seen by all parties as an opportunity to improve projects and their sustainability and efficiency, but as an administrative hurdle. EIA in practice is undermined by poor implementation by licensed entities and ineffective oversight. Public confidence in the EIA system is low, with a common perception that EIAs are frequently "copied and pasted" and that the quality of assessment is inadequate. The high number of entities licensed to undertake a detailed EIA - and perceived problems with quality - bring into question their experience and competence.

5. As a part of NAMEM, the EIC is potentially an important mechanism for providing information to the public and thus increasing public confidence in the measures being taken by the Government and the private sector to protect the environment. Moreover, the database could be a monitoring tool for professional and business entities in terms of environmental compliance. Unfortunately, there are substantial and important gaps in the datasets that are available and in the scope of the information covered. Because of the gaps, the EIC cannot be used as a management tool by the Ministry of Environment and Tourism and GASI at present. Therefore, it is highly recommended to strengthen and improve the database system and upgrade into more pragmatic level with public access.

integrated management of all green building activities. The Council will become an independent implementation institution of Mongolia's green building evaluation system. As a result of this cooperation, it will be possible to evaluate green building in Mongolia using the IFC's "EDGE" software for green building evaluation system based on the principle of improving the efficiency of new housing and public buildings and resource-savings. The "Green building" certificate for buildings will make a significant improvement in the development of resource efficient construction.

TWO. ECONOMIC LEVERAGES

Over the past 25 years, Mongolia has transformed into a vibrant democracy, with triple the level of GDP per capita, increasing school enrolments, and dramatic declines in maternal and child mortality. With vast agricultural and mineral resources and an increasingly educated population, Mongolia is quickly moving toward its long-term development goals. At the same time Mongolia continues to face important environmental challenges, such as land degradation, air and water pollution.

Despite this challenging context, the country's commitment to alternative economic growth based on environmental sustainability and social inclusiveness remains firm. The Mongolian Government has made significant reforms in recent years. On 17 May 2012, the GoM enacted a series of revisions to its environmental laws. The new environmental legislation replaced 18 environmental laws with eight laws and two entirely new laws. All were subsequently ratified by the Mongolian Parliament in May 2012.

One of the big reforms was to make polluters liable to pay compensation for damage to the environment and natural resources. There is also now a requirement on any organization whose activities involve the use of natural resources to commission an environmental assessment audit every two years.

2.1. TAX SYSTEM FOR ECO-FRIENDLY PRODUCTION

The taxation system of Mongolia regulated by the General Law on Taxation, the Corporate Income Tax Law, the Value Added Tax (VAT) Law and Personal Income Tax Law. Engaging an extensive tax reform discussion over the past months, under Government's tax reform packages, the Parliament of Mongolia have revised above key laws substantially, and the new tax rules shall take effect on 1 January 2020.

We have reviewed above laws as fundamental documents to define articles for tax incentives in terms of environment protection and green production. According to the General Taxation Law, tax exemptions and depreciations are carried out by law only. Currently, more than 258 types of exemptions and depreciations are in effect in Mongolia[41].

2.1.1. GENERAL LAW ON TAXATION /2019.03.22/

Being as a fundamental law on taxation, the law expresses a legal basis for setting taxes, registration of taxpayers, tax imposition, reporting, collection, inspection, seizure, discounting, exemption, tax deduction and refund in Mongolia, and defines rights, obligations and liabilities of taxpayers under this law. As stated in the law taxable items include income, assets, goods, services, specific rights, land, its subsoil, natural resources, mineral reserves, air, soil and water pollution.

The law denies types of taxes, from which we have selected environment and green production related taxes for further analysis, and those are regulated by this law and the specific tax laws consequently.

- Corporate income tax
- Customs duty;
- Value-added tax

[41] www.legalinfo.mn

- Excise tax
- Pollution charges
    - Air pollution charge
    - Water pollution charge
- Natural resource use payments /water, springs, forest, wild animals/

The rates of above taxes may be assigned by the Government if the Parliament of Mongolia provide a special authority, except tax rates and amounts for natural resource use fee, which may be established by the Citizens' Representative Hurals of Aimags and the capital city in the limits set out in the law.

In the law, the definition "Payment" refers to the state budget from the state budget, land, natural resources, forest, plant, mineral resources, mineral resources, oil reserves, air, water, soil, pollution and hunting. monetary assets, while the "Tax base" refers to income, assets, goods, services, specific rights, land, its subsoil, natural resources, mineral reserves, air, soil and water pollution in determining tax amount or physical unit.

Tax exemptions and depreciations shall be in the following forms:

10.1.1. To deduct the paid tax;

10.1.2. Reduce the tax rate;

10.1.3. To exempt from income tax, property, goods, work, and services under the minimum level;

10.1.4. Tax exempt from taxpayer;

10.1.5. Tax deductible part of the taxable item;

10.1.6. Other types of tax legislation.

Tax exemptions and depreciations shall be regulated in detail by the tax law of the respective tax code and the procedure for granting exemptions shall be approved by the Cabinet member in charge of finance and budget issues.

2.1.2. CORPORATE INCOME TAX LAW /2019.03.22/

This law regulates the income tax and to regulate relations pertaining to the payment and reporting of the tax of corporates i.e. business entities and organizations.

In the law any donation for pollution reduction deemed to be as expenses deductible from taxable income, and following taxes shall be a subject for tax exemptions, such as:

- To use environmentally friendly resources, to reduce environmental pollution and waste, and income from the sale of environmentally friendly techniques and equipment, where the Government shall approve a list of technical equipment, products, works and services (22.5.3 and 22.6)[42]

[42] *As of December 2019, there are several resolutions of the GoM that defines the list of equipment that became a subject for customs tax and VAT, such as the list of energy efficient heating equipment, air purifiers (Government resolution 157. 2018) and the list of environmentally friendly equipment that ensures proper natural resource use, reduces environmental pollution (Government resolution 303, August 23 of 2013. See* ***Error! Reference source not found.****)*

- The taxable amount of income from the income of individuals, business entities and organizations that financed natural water quality and restoration of rivers and streams in order to increase the water resources of the area and provide reliable water supply (22.5.9);

It is recommended that for the wool and cashmere production sector, enterprises will need to follow existing list of equipment that has a subject for tax exemptions, and if there are equipment or technology that have not considered/listed in the existing list then proposals should be developed by the organization that represents their right to the respective government organization.

2.1.3. VALUE ADDED TAX (VAT) LAW /2015.07.09/

The purpose of this law is to regulate relations concerning imposition, budgeting, refund and reporting of value-added tax.

According to the law raw and washed and dehaired cashmere and leather exported (13.1.21) and research and production equipment and its accessories and spare parts for renewable energy are shall be exempt from tax, through the list approved by the Government (13.1.28 and 13.2).

2.2. POLLUTION CHARGES

2.2.1. WASTE WATER CHARGES

The 2012 Law on Water Pollution Fees (amended in 2019) introduced charges for pollution of water. Payers are individuals, economic entities and organizations that pollute water resources through a discharge of wastewater and by affecting water composition and quality by using water resources, including mineral water resources. The Law identifies five broad types of water pollutants and defines the minimum and maximum allowed tax rates (**Error! Reference source not found.**), which are all relatively low.

Table 7. Water pollution tax rates

Polluting substance	**Unit**	**Tugrik**	
		Minimum	**Maximum**
Total suspended solids	per kg	50	1000
Organic substance	per kg	50	1000
Minerals	per kg	20	400
Heavy metals	per kg	500	10000
Toxic substance	per g	1 000	10000

In the updated law on water pollution charges, following conditions shall be the exemption and ease of payment:

- The amount of waste water to be cleaned up to the water quality standard (8.1.1);
- The amount of waste water that cleaned, recycled and reused for initial production/factory (8.1.2.)

- If the cleaning of waste water using treatment facility up to the water quality standard is deemed or justified the exemption is valid for three years from the date of installation of the wastewater treatment facility (8.1.3.).

The secondary legislation for the implementation of this tax has been adopted in 14th of August 2019 by the GoM[43], entitled as "Amount of water pollution charge, list of entities justified for exemption, and procedures to allocate exemption rate".

The purpose of this regulation is to regulate relations concerning compensation, control of water pollution from the urban areas and the exemption of water pollution charges for the public-owned health, education, welfare services and water treatment organizations financed by the state budget.

2.2.2. SOIL POLLUTION

Mongolia does not apply pollution charges for soil pollution.

2.2.3. SOLID WASTE MANAGEMENT FEE

Local governments are responsible for the organization of waste collection and disposal services. These are operated by both municipality-owned and private sector companies, which are selected by public tender. In Ulaanbaatar, there are 19 waste collection companies, of which nine are owned by the private sector. The duties of the waste collection companies, as well as the payments for their services, are established in performance contracts with the lower local government levels, i.e. the nine districts in Ulaanbaatar and the soums in the aimags.

Fees to be paid by private households for waste collection services are set by each of the local governments. In Ulaanbaatar, the City Government regulates the fees, which are then formally approved by each of the districts. Up until 2013, the waste fee amounted to 2,000 tugriks (US$1) per month for residents of apartments, with the exception of the Sukhbaaatar district, where each household had to pay 2500 tugriks. The monthly fee for each household in the ger districts was also set at 2,500 tugriks. This is more than what had to be paid by most residents of the apartment areas and was supposed to reflect the more difficult collection of waste in the ger districts. These fees were already set in 2006. Revenues collected were insufficient to cover basic operating costs, also partly a reflection of the low bill collection rates. The resulting financial gap was partly covered by the city government budget, but this could not prevent a deterioration in the quality of waste services. There was notably a lack of funds for adequate maintenance of vehicles for waste collection and transport operated by the municipality-owned companies.

Against this background, the City Government of Ulaanbaatar revised the fees for collection and disposal of household waste in 2013[44], based on a methodology for calculation of waste fees developed by the MET. These fees are based on the calculation of collection and transportation costs (including items such as fuel, driver salaries, vehicle maintenance and repair) per ton of waste from the corresponding district to the landfill site. The more distant a household is from a dumpsite, the lower the waste charge per ton (Table 8). There is no gate fee for waste dumped

[43] *2019 Government resolution #316*
[44] *2013 City Council Resolution No. 12/45*

at the landfill; the annual operating costs of the three landfills, which amount to some 2 billion tugriks (US$0.83 million), are fully financed from the budget of the Municipality of Ulaanbaatar.

Table 8. Waste collection and disposal tariffs in Ulaanbaatar

Distance to landfill	tugrik/t	US$/t
1-10 km	3 000	1.24
11-15 km	2 700	1.12
16-20 km	2 300	0.95
More than 20 km	1 800	0.75

Source: 2013 Resolution of City Council of Ulaanbaatar, No. 12/45.
Note: Exchange rate: US$1 = 2,413.06 tugriks (average monthly exchange rate for May 2017).

The fees for waste services provided to business companies and other legal entities are set in direct contracts between the businesses and the waste collection companies. These fees are based on the type and size of activity and other indicators and they are collected by the district tax agency.

Total revenues from the waste collection services are allocated to the budget of the soum/district and are earmarked for the financing of waste management. Total annual revenues collected from waste fees paid by private households and legal entities fluctuated within a range of 12-13 billion tugriks (US$5.5 million-US$6 million) during the period 2014-2016. However, the annual solid waste management costs were much higher, averaging some 23 billion tugriks (US$10.7 million). The gap between revenues and costs was closed by a subsidy of some 10 billion tugriks (US$4.7 million) per year from the budget of the Municipality of Ulaanbaatar. This points to the enduring issue of financial sustainability of solid waste management services in Ulaanbaatar City.

2.3. NATURAL RESOURCE USE FEES

2.3.1. WATER ABSTRACTION FEES

The 2012 Law on Fees for Use of Natural Resources regulates charges for the use of forest resources, wild plants, animals and water. It stipulates that user fees are to be based on the ecological-economic value of each these resources. The concept of ecological- economic valuation of natural resources has been developed in Mongolia for the assessment of environmental damage and the amount of compensation to be paid by natural and legal persons who have caused this damage. In a more general way, the intention is to calculate a monetary value of the ecological and economic benefits derived from the volume, quality and use of natural resources. The development of appropriate natural resource valuation methodologies is a major challenge, given, notably, the technical knowledge that is required.

Direct water abstraction is subject to a water use fee, the main objective being to ensure sustainable use of water resources. Groundwater accounts for most of the water abstracted in Mongolia. The fees charged for water abstraction depend on the purpose of water use.

The Law on Water distinguishes between water consumers and water users. Water consumers are exempt from payment of water use fees, though, depending on the way they receive water, they will be charged a service fee for

water transport and distribution. The group of water consumers comprises citizens, economic entities and organizations who use water for non-profit purposes. This group also includes farmers and herders who use water for crop production and their livestock, though this is clearly an economic activity. With this exception, all entities in industry and other sectors that use water and water bodies for commercial purposes have to pay a water fee.

Water abstraction fees are, in principle, derived from the ecological-economic base value of water resources, which differs among the 29 water basins. The Tuul River basin has the highest base values for both surface water and groundwater. Most residents and enterprises, including the three power plants in Ulaanbaatar, depend on the water supplied from the Upper Tuul ecosystem, which therefore has a huge economic value. The process of installing water meters for all users is still ongoing.

The effective water use charge rates are set at the water basin level by local water authorities, taking into account the permissible range - as a percentage of base water values - for each water user group, which are specified in the 2012 Law on Fees for Use of Natural Resources and subsidiary legislation[45]. User fees in the Tuul River basin vary significantly among the various economic sectors (Table 9).

Revenues are allocated to the respective budgets of local government entities, which should spend no less than 35 per cent of these fee revenues on water management and protection; however, this does not happen.

Table 9. Fees for the direct abstraction of groundwater in the Tuul River basin

Purpose of water use	**tugrik/m^3**		**US $/$m^3$**
	2010	**2016**	**2016**
Drinking water	0	0	0
Water for livestock	0	0	0
Mining industry			
Mining and concentrating mineral resources	150	1 510	0.63
Enrichment of copper concentrate	150	1 322	0.55
Exploration drilling	100	1 510	0.63
Heavy industry	50	189	0.08
Light industry	50	94	0.04
Construction works; construction materials production	50	189	0.08
Alcoholic beverage production	50	189	0.08

[45] *2013 Government Resolution No. 326 and 2013 Government Resolution No. 327*

Bakery production	30	57	0.02
Power stations	30	71	0.03
Agriculture	30	94	0.04

2.3.2. WATER SUPPLY AND SANITATION FEE

The 2012 Law on Water and the 2011 Law on Use of Water Supply and Sewerage System in Urban and Settlement Areas establish the general legal framework for water supply and sewerage tariffs. Tariffs for water supply and sewerage services have been established for all cities and aimags by the Water Services Regulatory Commission since 2012. Tariffs are subject to review by the Authority for Fair Competition and Consumer Protection. Until 2011, municipal tariff committees were in charge of tariff setting.

In the capital, the Ulaanbaatar Water Supply and Sewerage Authority (USUG) has been mandated to provide water supply and sanitation services to the population, the business sector and other legal entities. USUG, which is fully owned by the Municipality of Ulaanbaatar, is also in charge of maintaining the water supply and sewerage infrastructure of the city. Given its limited capacities, USUG has outsourced part of the residential water supply to OSNAAG of Ulaanbaatar, which is also fully owned by the Municipality. USUG sells bulk water to OSNAAG, which, in turn, supplies many residents in apartment areas with water through local kontors. Kontors are autonomous communal service entities, operated by private companies under contract with OSNAAG, which are responsible for water supply and bill collection. OSNAAG supplies water services to some 70 per cent of the population; the remainder is serviced by USUG.

The tariff structure for non-residential water consumers distinguishes only three customer categories: beverage companies; wool, cashmere and tannery factories; and all other legal entities. All nonresidential customers have meters installed. Water supply tariffs are two to three times the rates applied to private households, which points to the existence of cross-subsidies to private households.

> *Law on Water Pollution Fee aims to protect water from pollution, yet the law is not enforced because the procedure for the law's implementation is yet to be developed. Government Resolution #326 of 2013 sets out that the reuse of treated wastewater shall be fully exempted from the water use fee and used water, sourced from rain and snow for livestock and land cultivation shall be 99% exempt from the water resource use fee. Also, the Annexe to Government Resolution #303 (August 23, 2013) sets out those economic entities shall be exempted from income tax on the sale of equipment designed for the efficient use of natural resources, like equipment for wastewater treatment.*
>
> *Unfortunately, the above clauses could be realized through follow-up Government resolutions, which are not developed yet, or under the process. Moreover, it is observed that due to the lack of information and capacity building, enterprises are missing the opportunity to move it forward.*

2.3.3. ELECTRICITY TARIFFS

The general framework for the setting of energy tariffs, including for renewables, is set by the 2001 Law on Energy. The ERC is in charge of setting energy tariffs. By law, it is an independent legal body, but the Government has been

interfering in tariff setting. The end-user tariff structure is complex. Actual electricity prices are distorted, due to coal power subsidies. Power generation companies purchase coal from State-owned mines at a price that is below the cost of extraction. However, this has only partially offset the financial strain on generation companies. According to the ERC, total state subsidies to energy companies amounted to 121 billion tugriks (US$56 million) during the period 2011-2015. The regulatory regime faces the dilemma of having to pursue two conflicting objectives - to set cost-reflective tariffs on the one hand and, on the other hand, to cater for the objectives of price stability and the risk of social pressure, which has led to reversals in tariff increases in the past.

In 2015, feed-in tariffs designed to provide financial incentives for the development of the renewable energy sector were introduced in the 2007 Law on Renewable Energy. For each of the currently eligible renewable energy resources (hydropower, solar and wind), a tariff range has been defined, distinguishing between grid-connected and stand-alone energy systems (Table 10). The tariffs are, moreover, set in US dollar terms in order to reduce exchange rate risk for foreign investors. To illustrate, the feed-in tariff for the Salkhit wind farm is 9.5 US cents (229 tugriks). Setting tariffs in US dollar terms has, however, put a significant additional burden on the state budget, given the considerable cumulative depreciation of the national currency against the dollar, which amounted to 37 per cent in 2016 compared with 2010. Feed-in tariffs are guaranteed for a minimum of 10 years.

Table 10. Tariffs for renewable energy, US$/kWh[46]

Source	Tariff
Generators connected to the grid	
Wind	0.08-0.095
Solar	0.15-0.18
Hydro (up to 5 000 kW)	0.045-0.06
Stand-alone generatorss	
Wind	0.10-0.15
Solar	0.20-0.30
Hydro	
<= 500 kW	0.08-0.1
501 kW-2 000 kW	0.05-0.06
2 001 kW-5 000 kW	0.045-0.05

In 2015, the ERC introduced a so-called “support tariff”, which is to finance the difference between the tariffs for electricity from conventional sources and the higher tariffs applied to renewable energy sources. In other words, the

[46] *Source: 2007 Law on Renewable Energy as amended in 2015*

support tariff is a premium that end users have to pay for the development of renewable energy resources. Since 2015, the support tariff in the central region, which accounts for 96 per cent of total electricity sales, has been 3.95 tugriks (0.2 US cents) per kWh. In other regions (Altai Ulaistai and the western region), the support tariff to be added to the standard tariff is 8.30 tugriks (0.4 US cents) per kWh. With more renewable energy systems connected to the grid, the support tariff can be expected to increase. The Government has also designed additional instruments for dealing with some issues that emerged in the context of the implementation of the Law on Renewable Energy, notably, as regards investor confidence. Uncertainty concerning the duration of the feed-in tariffs was addressed in the 2015 amendment of the Law. Long-term price guarantees, based on either legal provisions or power purchase agreements, may help to mitigate the risks associated with an investment in renewables.

2.4. INVESTMENTS

2.4.1. SUBSIDIES SYSTEM

Mongolia provides tax incentives, i.e. exemptions from income tax, for entities that invest in equipment that is environmentally friendly and improves the efficiency of natural resource use. This measure has been approved by the 2013 Government Resolution No. 303, which establishes a "List of equipment that is environmentally friendly and encourages proper use of natural resources and reduces environmental pollution and waste"[47]. It distinguishes 41 categories of eligible equipment, including, inter alia, equipment for water savings, equipment for energy savings, equipment helping to accelerate the phasing out of HCFC-22, electric motors, wind turbine kits, solar power generation kits and hydropower plant equipment. In 2014, total tax exemptions worth 2.4 billion tugriks (US$1.3 million) were granted to 22 enterprises.

Based on amendments to the 2008 Law on Customs Tariffs and Tax and the 2015 Law on Value Added Tax, which entered into force in December 2015, equipment, parts and spare parts to be used for renewable energy production are exempt from customs import duties and value-added tax. A similar measure had been approved in 2013 for the import of wood, which is designed to reduce the extraction of domestic timber resources.

> *The current legal environment offers entities that reuse water a 100% exemption from the water use fee. Further, eco-friendly equipment (covered in the list of Government Resolution #303 Annexe) is exempt from tax. That list includes equipment for wastewater treatment, which is a step to encourage the reuse of water. Some entities are reusing the water; however, the use of greywater is not sufficient. The priority is to increase the number of water treatment facilities which will treat wastewater up to the required standard. The price for sewage and clean water could subsequently be increased, which would facilitate economic leverage.*

2.4.2. IMPLEMENTATION COSTS FOR ENVIRONMENT-RELATED STRATEGIES, PROGRAMMES AND PLANS

At the heart of the Government's policies designed to green the economy is the 2008 MDGs-based Comprehensive National Development Strategy (CNDS) for the period 2008-2021. Among the main priorities is to halt ecosystem imbalances, which is reflected in several specifically environment-related objectives, such as limiting environmental degradation and pollution. The GD Policy complemented the CNDS in 2014; a national Action Plan for the

[47] *See Annexe 3*

Implementation of the GD Policy was adopted in 2016. It defines six broad strategic objectives, 51 specific targets and 255 activities for their implementation during the periods 2016-2020 and 2021-2030. In 2016, the country also adopted the Mongolia Sustainable Development Vision 2030, which has an environmental sustainability dimension. None of these documents contains any reference to the costs of achieving the established targets and how to finance them. It is also not clear how they are linked to the annual and medium-term state budget planning processes.

There are, moreover, 17 national programmes for specific environment-related areas and economic sectors, most of which are still being implemented, such as the Water National Programme, Waste Management Improvement Programme and National Biodiversity Programme. These also generally lack estimates of costs for achieving the objectives pursued. A major exception is the National Integrated Water Resources Management Plan of Mongolia, adopted in 2013, which estimates the investment expenditures required for rehabilitation and extension of the water sector infrastructure at some 2,235 billion tugriks (US$1 billion) for the period 2014-2016 and another 7,825 billion tugriks (US$3.6 billion) for the period 2017-2021 (**Error! Reference source not found.**). It identifies possible financing sources (state and local government budgets, the private sector, foreign sources), but there is a shortage of information on actual expenditures and their financing.

Table 11. Estimated costs of water sector infrastructure investments, million tugriks

Sector	2014-2016	2017-2021	Total
Safe drinking water supply	1 288 246	2 462 377	3 750 583
Water supply for agriculture	136 526	423 090	559 616
Water supply for industry	614 095	2 277 738	2 891 833
Water resources protection	174 801	373 930	548 731
Water resources management	21 220	52 500	73 720
Total	2 234 887	5 589 593	7 824 480
Total (US$ million)	1 032.09	2 581.32	3 613.41

Source: National Integrated Water Resources Management Plan of Mongolia, Ulaanbaatar 2013.
Note: Figures in US$ were calculated using the average annual exchange rate for 2016: US$1 = 2,165.4 tugriks.

2.4.3. GREEN PROCUREMENT

Efforts have been underway since 2008 to introduce international best practice in public procurement by improving the existing legal framework. This is reflected in a series of amendments to the 2005 Law on Public Procurement in recent years. Also, with the support of PAGE, a draft action plan for sustainable public procurement has been prepared. As of June 2017, there are no legal provisions for including environmental and social criteria ("sustainable procurement") in the tender documents for goods and services to be bought. The product price is the main criterion for assessing offers from companies. The main challenges for introducing sustainable public procurement include the lack of capacity and resources to develop sustainability criteria for diverse goods and services. Another issue is

the extent to which domestic companies are ready to provide green or environmentally friendly goods and services to the Government.

2.4.4. ENVIRONMENTAL FUNDS

ENVIRONMENT AND CLIMATE CHANGE FUND

An Environmental Protection Fund was established in 1998, but it was only a budget line in the Ministry of Environment and Tourism budget until 2012. In 2012, it became a separate entity within the Ministry with specific human and financial resource allocations as well as rules and procedures, and its name changed to the Environment and Climate Change Fund (ECCF). The Fund has a core staff of five. Projects are considered and approved by the Fund Board, which is chaired by the Minister of Environment and Tourism. The Board has 11 members from other ministries, such as the Ministries of Finance and Agriculture). The 2006 Law on Government Special Funds regulates the mandate of the Fund and its financing sources. Currently, the Fund is financed mainly from the state budget. A provision that the Fund shall also receive funds from fees for water pollution (based on the 2012 Law on Fees for Use of Natural Resources) and fees collected for ecotourism licenses issued for protected areas has not yet been implemented.

The Fund has been engaged in the financing of various national programmes related to environmental protection. It has a limited financial envelope, which also reflects the impact of fiscal stabilization policies. In 2016, the Fund supported national environmental programmes with a total of 1.2 billion tugriks, corresponding to 0.01 per cent of total general government expenditures (Table 12). During the period 2014-2016, 40.8 per cent of resources were allocated to environmental education (EE) and 31.1 per cent to the Water National Programme.

Table 12. Financing of national programmes by the ECCF, 2014-2016, million tugriks

National programme	2014	2015	2016	%
Water	406.82	225.34	445.11	31.13
Waste management	101.17	29.69	30.00	4.65
Special protected areas	35.42	31.70	24.60	2.65
Natural plant protection	62.43		9.00	2.06
Protection of rare and endangered species	247.12	48.86	145.14	12.75
Combating desertification	77.20	97.60	30.00	5.92
Environmental education	552.46	371.61	489.68	40.85
Total	1 482.62	804.79	1 173.52	100.00
Total (US$)	0.81	0.41	0.54	
Total as per cent of total general government expenditures	0.02	0.01	0.01	

Source: Environment and Climate Change Fund, 2017.
Note: Figures in US$ were calculated using the average annual exchange rate of the corresponding year. Average percentage shares for the period 2014-2016.

CLEAN AIR FUND

A Clean Air Fund (CAF), which was part of the Government Special Funds, was established in 2010 to finance measures designed to reduce ambient air pollution. The revenues collected from the air pollution tax-funded expenditures of the CAF. But against the backdrop of the need for stringent restrictive fiscal policies, the expenditures dropped sharply after 2013 and far below the annual revenues collected from the air pollution tax. In 2015, when the CAF was closed down, expenditures corresponded to 38.4 per cent of total air pollution tax revenues. Total expenditures of the CAF amounted to 94.2 billion tugriks (US$66.2 million) during the period 20112015, compared with total revenues collected from the air pollution tax of 114.4 billion tugriks (US$74.1 million).[48] The CAF notably participated in the financing of the "Improved household stoves project" for poor households in the ger districts of Ulaanbaatar. The project provided subsidies to households for the adoption of energy-efficient stoves in order to significantly reduce emissions of $PM_{2.5}$ and CO compared with emissions resulting from the use of inefficient coal-fired stoves for heating homes during winter.

RENEWABLE ENERGY FUND

A Renewable Energy Fund was to be created for mobilizing funds to support the development of the renewable energy sector. The Fund was also expected to finance the differential tariffs for renewables and the end-user tariffs applied. However, given that actual funding remained insignificant, the Fund never reached the operational stage and, in the event, it was deleted from the list of Government Special Funds in 2015.

2.4.5. CLEAN DEVELOPMENT MECHANISM

Mongolia has been cooperating with Japan for participating in the Joint Crediting Mechanism under the Kyoto Protocol as a tool to implement the Clean Development Mechanism (CDM). Japan has covered part of the project costs for the application of low- carbon technologies, such as the installation of high- efficiency heat-only boilers in public buildings and, in return, it was credited with the associated carbon reduction credits.

One of the three mechanisms to facilitate the implementation of the Kyoto Protocol is the Clean Development Mechanism. This mechanism does not impose concrete obligations on the reduction of greenhouse gas emissions in accordance with the Protocol (not in Annexe one of the Protocol). It is a mechanism to provide a certified reduction of emissions units to projects on the basis of the measurement and certification of the greenhouse gas emission reduction. This regards projects implemented in developing countries, with units permitted to be used within the Protocol in countries with an obligation to reduce their greenhouse gas emissions, creating an environment for unit trading. The three requirements for countries to implement a clean development mechanism are:

1. They must have ratified the United Nations Conciliation Commission for Palestine (UNCCP)
2. Be a part to the Kyoto Protocol, but not be a country of Annexe one

[48] *Figures in US$ were calculated using the corresponding average annual exchange rates.*

3. To have appointed an institution with the authority to issue a Clean Development Mechanism (CDM) certificate.

Mongolia became party to the UNCCP in 1993, ratified the Kyoto Protocol in 1999 and is not party to Annexe one of the protocols. The National Bureau, affiliated with the Minister of Environment and Tourism in 2004 was charged with issuing CDM, creating the legal environment to implement CDM in Mongolia.

Table 13. Price of Renewable Energy

	Wind	**Solar**	**Water**
In USD (article 11.1 of the Law on Renewable Energy)	0.08-0.095 USD	0.15-0.18 USD	0.045-0.06 USD
Converted to MNT (2016.12.28, Bank of Mongolia closing exchange rate 1USD=2,490MNT)	199-236 MNT	373-448 MNT	112-149 MNT

2.4.6. DEVELOPMENT ASSISTANCE

Mongolia has received considerable financial assistance from multilateral and bilateral donors across a wide spectrum of sectors. Loans and grants from major development partners amounted to some US$2.2 billion during the period 2009-2015. Key sectors, in terms of project value, were transport (40 per cent), finance (22 per cent), education (8 per cent), water supply and urban infrastructure and services (8 per cent), agriculture and natural resources (4 per cent), energy (3 per cent), public sector management (3 per cent) and others (8 per cent). Formal donor coordination meetings ceased in June 2012 but were followed by informal monthly meetings of donors themselves, including separate working groups on the environment, urban development, agriculture and other matters.

In the area of environmental protection, 34 projects were ongoing in early 2017, which were already partly launched in 2011 or 2013, and which involve the Ministry of Environment and Tourism as the implementing agency. The total value of loans and grants (excluding co-financing from the Government) amounts to US$139 million. Major sectors in terms of funding are sustainable management of natural resources (44 per cent), forestry policy and management (22 per cent), biosafety and safe management of hazardous chemicals (14 per cent), green development policy and indicators (9 per cent), water policy and management (4 per cent) and others (7 per cent).

2.4.7. GREEN JOBS

There is no uniform definition of “green jobs”. The International Labor Organization (ILO) concept of “green jobs” has both an environmental and a social dimension. A job is defined as environmentally friendly when it contributes to reducing negative environmental impacts, but it is considered to be a “green job” only when this activity also meets the ILO criteria for decent work. To illustrate, an activity in electronic waste recycling where occupational safety is inadequate is not considered to be a green job. Data requirements for estimating the importance of green jobs in any economy are challenging and all estimates should be “taken with a grain of salt”.

A 2014 ILO study, "Green Jobs Mapping in Mongolia", covered eight economic sectors (animal husbandry; crop production; forestry; energy; water supply, sewerage and wastewater treatment; solid waste management; transport; and construction). It estimated that 285,300 jobs - about half of total employment in these sectors - qualified as "environmentally friendly". The animal husbandry sector alone accounted for 252,300 (88.6 per cent) of total environmentally friendly jobs. Only 16.8 per cent of these jobs in the animal husbandry sector qualified as "green", i.e. they also met the criteria for decent work. The total number of green jobs across all eight sectors was estimated at 65,600, corresponding to 11.5 per cent of total employment in those sectors in 2012.

This is broadly in line with the results of more recent labor force surveys conducted by the NSO, which included a separate module of questions concerning jobs in the environmental sector. They show that green jobs accounted, on average, for 9.9 per cent of total employment in the first half of 2016.

2.5. PUBLIC-PRIVATE PARTNERSHIPS IN SUPPORT OF THE GREEN ECONOMY

The legal framework for public-private partnerships (PPPs) consists mainly of the 2010 Law on Concessions and related secondary regulations and the Law on Investment, which was revised in 2013. The 2009 Resolution of the State Great Khural No. 64 establishes the main principles of the State Policy on Public-Private Partnerships. Concessions are available for assets of both central and local government authorities. A central government PPP unit, which, since 2011, is in charge of defining the policy on PPPs and organizing their implementation, was moved from the Ministry of Mining and Heavy Industry to the new National Development Agency (NDA) in 2016.

Against the backdrop of substantial needs for infrastructure investments, the Government has given high priority to the use of public-private partnerships (PPPs) to improve the delivery of public infrastructure and public services. The 2008 CNDS identified PPPs as a potential mechanism to mobilize resources from the private sector to support economic growth, diversify the economy and create jobs.

In 2010, the Government approved a list of 121 concession projects in a number of sectors, such as transport, energy, tourism and the environment. A revised list of 50 projects was approved in September 2013. As of 2016, the Government had 39 PPP projects in the pipeline, including projects in the energy, transport and education sectors. Ulaanbaatar City, moreover, signed concessions during 2013-2014 in various areas, including transport, water and wastewater management. Most projects proposed by the different government agencies at the central and local levels were not suitable for concessions, mainly because they were not commercially viable. Among the constraining factors for PPP projects in energy, transport and municipal infrastructure are low tariffs and the dominance of inefficient State-owned companies.

During the period 2011-2015, the Government finalized seven concession agreements under the 2010 Law on Concessions in the energy and transport sectors. These included, notably, the project to construct the lignite-fired CHP Plant Number 5 in the vicinity of Ulaanbaatar, which will be developed by a consortium of private investors based on a build-own- operate-transfer basis, benefiting from an ADB loan. Besides the generation of power, the heat generated will be channeled in the form of hot water to the Ulaanbaatar district heating grid.

Another important project in the energy sector is the Salkhit Wind Farm, the first commercial wind farm project in Mongolia, which started operations in June 2013. It involved debt and equity funding from the EBRD and FMO, the Dutch development bank, to private investors. Another PPP project for the construction of the Tsetsii Wind Farm in southern Mongolia in the Gobi Desert, involving JICA, the EBRD and private investors, was launched in September 2016. Another project in the pipeline is the Ulaanbaatar Bus Rapid Transit PPP project, which will be financed by the ADB.

In the environmental sector, the Global Green Growth Institute (GGI), in coordination with government stakeholders such as the Ministry of Environment and Tourism and Ulaanbaatar City, has since September 2015 developed guidelines for PPP models to be applied to build social infrastructure, with the main emphasis on the greening of education buildings (schools, kindergartens), to ensure their high energy savings performance. A pilot green PPP project for developing and implementing nine new education buildings in Ulaanbaatar is currently being prepared, but ensuring commercial viability may be a challenge.

Efforts to promote PPPs also include measures to refocus commercial banks' lending policies on the extent to which investment projects promote sustainable development. Thus, the Mongolian Bankers Association, in cooperation with key stakeholders in the government sector, such as the MET, the MoF and the Central Bank, has adopted, starting from January 2015, Sustainable Finance Principles as well as sector guidelines (such as for manufacturing) designed to promote the mobilization of financial resources for bankable green investment projects, including PPPs. But there is no information on how this has affected banks' lending policies. In order to step up the mobilization of resources for financing the transition towards a green economy, in October 2017, the Government established a Mongolian Green Credit Fund (GCF) under the Development Bank of Mongolia.

Nevertheless, the improvement of the regulatory and institutional framework required for organizing and implementing green PPP investment programmes remains a challenge. Despite progress having been made since 2010, when the Law on Concessions was adopted, the capabilities of the central and local government sector to prepare and procure PPP projects are still weak, including the need to ensure that the fiscal implications of PPPs are fully understood and affordable.

2.6. CHAPTER CONCLUSIONS

In this chapter we have reviewed existing economic leverages that related to any production that effective in Mongolia for pointing them into greener and environment-friendly.

1. The "polluter pays" principle is not effectively applied in Mongolia. The air pollution tax is more symbolic, its main purpose being to generate government revenue. The implementation of this instrument has also been hindered by the lack of adequate measurement instruments for the emission of pollutants.

2. Incentive system for business entities in green production has been stated in each legal document, but the main reference goes for the regulation on taxation. Also, the system not reasonable as demanded by the manufacturers due to imperfection of follow up regulations that should clarify requirements and procedures to obtain those exemptions and depreciation by taxpayers.

3. The role of economic instruments in creating effective incentives for changes in the behavior of polluters has remained modest. The main purpose of the air pollution tax has been to generate state budget revenue, which was temporarily allocated to the now-defunct Clean Air Fund. The water pollution tax was adopted in 2012, but the secondary legislation necessary for its implementation has not been introduced.

4. In the area of utility services (water supply and sewerage, municipal waste collection, energy supply), the challenge is to continue the move towards cost-reflective tariffs in order to ensure the rational use of resources as well as the financial viability of service providers. In general, revenues are insufficient for financing operating and maintenance costs, resulting in these services have to rely on subsidies from local and state budgets.

5. The exploitation of the huge potential for renewable energy remains a major challenge, despite a generous system of feed-in tariffs. The system of support tariffs will create more transparency with regard to the costs

for end-users of the increasing use of renewable energy sources. There are also some subsidy schemes designed to promote the diffusion of green technologies, but the overall scale of these appears to be limited.

6. Financing of environmental expenditures and related national programmes relies largely on annual state budget allocations and foreign loans and grants. Local governments can use earmarked environment-related revenues for financing environment protection measures, but actual expenditures have remained significantly below the level of earmarked revenues, pointing to the diversion of funds to non- environmental purposes. There is a scarcity of information on investments in municipal infrastructures such as waste collection and disposal, as well as water supply and sewerage services, notably, wastewater treatment.

7. There is only limited involvement of PPPs in financing and operating municipal services in areas such as waste management and water supply and sewerage services, reflecting the adverse impact of regulated (low) service fees on the commercial viability of PPP projects. In addition, the capabilities of local governments to engage in such projects are, in general, still weak, pointing to the need for effective oversight of such projects.

8. The utility services sector in Mongolia faces the challenge of ensuring the financial sustainability of its operations given that existing tariffs are not cost-reflective. This makes the sector dependent on subsidies and transfers from local government and state budgets. The general feature is a lack of adequate funds for maintenance and renewal of the infrastructure. Tariffs for water supply and energy do not provide sufficient incentives for rational use of these resources. Tariffs that are insufficient for recovering costs are also a barrier for greater private sector involvement in the provision of these services.

9. Mongolia has adopted a green development agenda as well as separate national programmes for the main environmental domains, such as water, forests and protected areas. Funding of these agendas and programmes mainly relies on year-to-year allocations from the state budget and on foreign loans and grants. Local governments can rely on their own earmarked revenues for financing environmental expenditures - but the actual expenditures have fallen increasingly short of the mandatory funds that they should spend. More generally, total environmental expenditures by the government sector appear to be rather small, raising doubts about the effective role that the public sector can play in the pursuit of the green development agenda.

THREE. LEGAL FRAMEWORK OF THE WOOL AND CASHMERE INDUSTRY

3.1. REGULATORY FRAMEWORK

In the section 2.1.3. of the MSDV-2030 during the 1st phase of the Industrial Development of 2016-2020, it stated "Increase the proportion of total processing industry to 15 percent, improve the productivity of the domestic commodity exchange, develop export-oriented processing clusters based on advanced technology, increase productivity and deliver 60 percent of complete processing of raw materials such as leather, wool and cashmere".

In the section 2.50 of the Government Action Plan of 2016-2020 the GoM aimed to implement long-term flexible investment and flexible financial policy for light industry, SME and cooperatives.

3.1.1. CASHMERE PROGRAM (2018-2021)

In 2016, by the resolution 71 in the article 2.1.10. the GoM planned to renew and implement the Cashmere program, and the article 1.1.8. stated to support business entities who have saved temporarily employment by the taxation and loan policies. Justified by above policies the updated Cashmere program has been approved by the Government resolution 47 in 2018.

In recent years, government has taken several actions to promote cashmere industry. Mostly to support in soft loan starting from 15.08.2013 until 01.12.2017 so as to support a technical update of manufacturers. There are only few of manufacturers benefitted from soft loan which was funded by financial source from Chinggis bond. It has also been decided by the government in March 2013 to provide soft loan to increase turnover of national manufacturers. Most of cashmere products were exported before national manufactures could actually benefit from this loan. In reality, national manufacturers are willing to soft loans, however their capacity is not able to meet high requirements of commercial banks in Mongolia. In general, result of government attempts to support cashmere industry still insufficient.

It has been calculated that Mongolia can export 19.8 million knitted and textile products to earn about MNT 2 – 4 trillion per annum, if cashmere is fully processed home[49].

The GoM on February 6, 2018 adopted a program "Cashmere"[50] to boost the cashmere industry. The four-year program with two stages, is expected to increase Mongolia's production and export of final cashmere products 5.7 times, while maintaining 5,500 jobs and newly creating about 3,600 jobs in the national cashmere industry. The program fund will be generated from the state and local budgets and foreign loans and aids.

Environment related objective of the program states as "Introduce eco-friendly advanced techniques and technologies into production, develop product-friendly and competitively-oriented products (2.2.4.), which includes following actions:

- Develop a database of consumer trends in cashmere products and systematically develop domestic and overseas market surveys;

[49] *MONTSAME.2018-02-07*
[50] *Resolution #47, 2018, GoM*

- Develop and promote the Mongolian Noble Fibre brand based on the color and advantage of Mongolian cashmere;
- Introduce new and advanced technique and technology to production and increase the production of organic products, products that meets international quality and safety standards;
- Participate in and organize the target fairs and business forums for the promotion of cashmere products on international markets;
- Strengthen the testing laboratories of light industry research and development institutes and gradually organize steps to bring them to international level testing;
- Support the development of textile industry through parks and clusters by registering production and trade of cashmere value chain.
- renew the required technique and technology by certifying the cashmere factory every 3 years and/or by expanding the plant.

Under the action to introduce/strengthen technique and technology the eco-friendly production that meets international standards could be interpreted. However, in the section "Program impact and indicators" of the program there are no measurable definition of proper indicators related in eco-friendly production, which makes the document unreliable against policy on green production and sustainable development.

By the implementation of the program, a total of 188.2 billion tugriks were granted to 20 entities with a source of Development Bank of Mongolia on soft terms, where as a result, cashmere production increased by 1.3 times compared to the previous year, and the full processing of the raw processing sector was 14.1 percent in 2017, reaching 25.0 percent in 2018 and reached to 35.8 percent compared to the base year. The dehairing capacity of these factories increased by 33.8 percent, spinning production capacity 28.6 percent, and textile production capacity increased by 42.7 percent, and a total of 1570 new jobs were added[51].

3.1.2. NATIONAL PROGRAM "INDUSTRIALIZATION 21:100"

One of the national programs commenced in 2018 is "Industrialization 21:100" that was approved by the GoM. The program will cover all sectors, including agriculture, light industry, construction and steel industries, except the mining. Within the frame, 100 factories that will manufacture export-oriented and import-substituting products will be established. According to an initial estimate, the program will require approximately MNT 1.4 trillion investment, produce over six thousand workplaces and will be implemented in two phases from 2018 to 2019 and from 2019 to 2020.

It is decided that the projects will be financed from local and state budget, foreign soft loans and aids.

The goal of the program is to develop sustainable and competitive industrialization involving value added production, meeting international quality and standardization requirements and market economy demands by

[51] *Performance evaluation report on Cashmere program in 2018.* http://mofa.gov.mn/exp/ckfinder/userfiles/files/nooluur2018.pdf [accessed 12 November 2019]

introducing advanced technology, based on the local community features and resources. In addition, it is believed that it will increase number of workplaces, circulation of domestic and foreign trade and economic growth.

The objective 2.3.3. of the program states as "To increase the capacity of processing plants, introduce environmentally friendly advanced techniques and technologies, build local plants, develop small and medium-sized enterprises by clusters, increase productivity with competitive value, competitive and market demand, and defined following actions:

- Create infrastructure for industrial and technological parks and develop industrial cooperation in clusters;
- Measures to provide interest rate differences on loans and running cost investment issued by a commercial bank to a national manufacturing enterprise that exporting more than 30% of its products; by more than 30 per cent of its manufactured product;
- To study and re-allocate up to 75% of the amount of expenditures spent on research and development expenditure up to the production of export-oriented high-tech technologies;
- Expand the cooperation of research institutions and industrial enterprises to promote innovation and industry;
- Establish a refurbishment plant and service center for an industrial plant and an incubator;
- Introducing high technology and innovation of leading foreign companies into production by introducing franchising to processing factories;
- Develop and promote export of cultural and creative products;
- In order to avoid problems with energy consumption newly built factories have to have a power supply at the regional level in conjunction with the planning of the Unified Energy System of Mongolia;
- Increase production by providing soft loans from small and medium enterprises development funds to increase working capital and new purchase and expansion of export-oriented industries.

As a result, the level of complete processing of raw material of wool and cashmere expected to be increased from 20 to 60 (as of 2021).

By implementing wool and cashmere sectoral programs, it will support the plants in 5 locations listed in Table 14.

Table 14. List of industries planned within the Program "Industrialization 21:100"

Name	Production	Capacity	Workspace (person)	Targeted market	Total investment (mln MNT)	Duration	Notes
Bayan-Ulgii							
Knitting factory	Knitted wool product	1,400 pcs annually	6	Export	50	2018	Upgrade technology and technology

Dundgovi							
Camel wool product factory	Camel wool blanket, shirt, t-shirt and final product	Over 10,000 pcs of product annually	5	Domestic	50	2019	Has a model FS
Umnugovi							
Camel wool processing factory	Camel wool products	Daily 5tn washed, 2tn processed wool	45	Export and domestic	1,700.00	2019	Has a model FS
Tuv							
Cashmere washing and combing factory	Washed and combed cashmere	4000 tons annually	500	Domestic and export	50,000.00	2019	FS is under the development
Remote districts of Ulaanbaatar							
Wool, cashmere spinning factory	Spinned yarn	1,320 tons annually	300	Import substitution	473,000.00	2018	Have FS
Wool, cashmere knitting factory	Knitted product	5.9 mln pcs annually	400	Export oriented	283,800.00	2018	Have FS

3.1.3. THE LAW ON TECHNOLOGY TRANSFER (1998)

The purpose of this law is to regulate relationships in identification of operational principles for technology transfer, assessment of the technology level, and identification of requirements for the technology transfer process. On the other hand, the law regulates ownership of technology, it's transferring, supporting mechanisms for the new and advanced technology and their dissemination.

The statement 4.1.3 and 9.1.4. state as "technology to be transferred shall not negatively affect environment, human health, flora and fauna" makes one of the important requirements of the law and points responsibility to determine

amount and type of incentives and discounts for parties in technology transfer process (5.1.3.) for the government. Moreover, the law determines mechanisms to evaluate and condition to transfer the technology, where the Environmental Impact Assessment becomes the key for successful procedures.

In our case, the law enables setting for use of environmentally friendly technology in wool and cashmere industry and could be the basis for introducing new and advanced technology to reduce environmental impact of the industry.

3.1.4. INTERNATIONAL STANDARDS

Cashmere is a natural protein fibre that comes from the Cashmere goat (the capra hircus langier). Quality is determined by fibre length, fibre fineness, and color.

Often considered purely a luxury product in the past, the cost of cashmere has been pushed down, mirrored by a sharp increase in demand. Cashmere suppliers have struggled to keep up with increased demand and low prices to the detriment of the environment, fibre quality, and herding communities. Currently, supply simply cannot keep up with demand in a sustainable way.

Thus, the quality of cashmere and the way of sustainable production of fine cashmere and wool become a global issue. Certification and standardization of cashmere and wool production is the market mechanism to promote the environmental compliance and sustainable production.

In order for Mongolian wool and cashmere processing MSMEs to continuously improve their E&S performance and to be able to promote a set of credible commitments, the project aims to facilitate the development of a VCP, which may cover issues such as respect for Human Rights, fair labor standards, occupational health and safety, environment, anti-corruption and ethics and include monitoring and evaluation guidelines and a commitment to report on performance.

In order to align these commitments with existing international best practices, and facilitate linkages for companies willing to pursue later third-party certification, CSCP proposing international standards to be followed, such as OEKOTEX, EU EcoLabel for textile, GOTS but also OHSAS18001 and of similar codes of practices like the NICE Code of Conduct of the Norwegian Fashion Association. They will be used as inputs to draft the VCP. As below, two main standards are described.

THE STEP BY OEKO-TEX® STANDARD

The STeP by OEKO-TEX® standard is a normative document that defines the technical conditions for the certification of production facilities throughout the entire textile production chain and for the licensing of the STeP by OEKO-TEX® trademark.

The objective of STeP certification is the permanent implementation of environmentally friendly production processes, optimal health and safety protection and socially responsible working conditions.

The STeP by OEKO-TEX® standard can be applied for the certification of production facilities throughout the entire textile production chain. This includes production facilities in every processing stage, from the production of fibres to spinning mills, weaving mills and knitting mills to finishing facilities, as well as manufacturers of ready-made clothes, textile logistics centers and manufacturers of accessories, foams and mattresses.

STeP by OEKO-TEX® evaluates, tests and certifies the following modules in the textile production chain:

1. Chemical Management
2. Environmental Performance
3. Environmental Management
4. Social Responsibility
5. Quality Management
6. Health and Safety

To qualify for certification in accordance with STeP by OEKO-TEX®, production facilities must meet the necessary criteria in the modules mentioned above. Various ratings that are updated in regular intervals can be achieved, based on the performance classes defined in the standard.

GLOBAL ORGANIC TEXTILE STANDARD - GOTS

The aim of this Standard is to define requirements to ensure organic status of textiles, from harvesting of the raw materials, through environmentally and socially responsible manufacturing up to labelling in order to provide a credible assurance to the end consumer.

The Standard focuses on compulsory criteria only except where an exception from this rule is expressly stated. Some of the criteria are compliance requirements for the entire facility where GOTS products are processed (Environmental management, Wastewater treatment, Minimum social criteria and Auditing of processing, manufacturing and trading stages), whereas the others are criteria relevant for the specific products subject to certification.

As it is to date technically nearly impossible to produce any textiles in an industrial way without the use of chemical inputs, the approach is to define criteria for low impact and low residual natural and synthetic chemical inputs (such as dyestuffs, auxiliaries and finishes) accepted for textiles produced and labelled according to this Standard.

The Standard sets requirements on working and social conditions that are equivalent to those of leading social sustainability standards. Considering that the core function of this Standard is verifying and certifying processing of certified organic fibres, where a particularly high level of assurance of labor conditions is needed, applying a compatible specialized social standard or scheme is recommended.

As the Standard is also applied and monitored for entities in countries with developed and effectively applied social and labor legislation and collective agreements between employers and trade unions that conform with the universal standards of the International Labor Organization (ILO), exceptions to monitoring, verification and audit requirements may be made. Conditions for making exceptions are defined in the Implementation Manual of this Standard.

3.1.5. WOOL AND CASHMERE INDUSTRY ENVIRONMENT-ORIENTED STANDARDS

Mongolia has about 6,210 national standards, 42 per cent of which are based on international or regional standards. Within the framework of the Agreement signed with the European Committee for Standardization (CEN), Mongolia aims to raise compliance to 90 per cent.

Within the scope of this GAP analysis survey, we have reviewed the most related national standards, where 141 national standards related to wool and cashmere industry to find requirements for environmental compliance and eco-friendly production context (Table 15).

Table 15. National standards analysis

Relation / Purpose	Air quality	Chemicals	Industry-specific standards	Occupational and health safety	Soil quality	Wastewater requirements	Water quality	Water use	Grand Total
Classification and terminology			3						**3**
Common requirements			1	22					**23**
Determination and analysis	2	2	84	6	23	4	1	20	**142**
Environmental protection	2		**1**		18	33		3	**57**
Labelling requirement			1						**1**
Product quality requirement			48						**48**
Term and definition	1	1		2	4	1	1	4	**14**
Not defined			3	17				5	**25**
Grand Total	**5**	**3**	**141**	**47**	**45**	**38**	**2**	**32**	**313**

As a result, we found only one national standard "MNS 6390:2013 - The primary treated effluent of wool and cashmere factory into the sewerage of central treatment plant. Technical requirements". However, it is not meant that the sector has no responsibility towards environmental compliance, but also all wool and cashmere factories shall accept common environmental standards. Moreover, there is need of certain norms and standards that will guide enterprises for green production rather than emphasizing on quality and quantity of wool and cashmere products and international market development, which will be a scientific basis for further improvement of existing legislation and policy.

3.2. INSTITUTIONAL FRAMEWORK

3.2.1. THE MINISTRY OF FOOD, AGRICULTURE AND LIGHT INDUSTRY [52]

The Ministry of Food, Agriculture and Light Industry (MoFaLI) is responsible for the development and implementation of policy and legislation on animal husbandry, crop cultivation, food safety, light industry (wool, cashmere, printing, construction materials, wood processing, waste recycling, packaging production, cosmetics and household item production) and SMEs.

The waste-related responsibilities of the MoFaLI include waste management related to dead bodies of animals, waste from agro-industries and the recycling of waste generated by light industry. The MoFaLI works with the Ministry of Environment and Tourism and the Municipality of Ulaanbaatar to address the management of waste

[52] *www.mofa.gov.mn 51-262271, 51-263237, http://mofa.gov.mn/exp/static/contact_us*

from leather tanneries located in Ulaanbaatar, which discharge chemicals into the Tuul River basin, with an adverse impact on its water quality.

The National Agricultural Extension Centre, set up under the Ministry in 1996, is responsible for operating and managing the public extension services for farmers and herders. It has branch offices in almost all aimags and many soums.

3.2.2. LATERAL COMMITTEE ON SCIENCE AND TECHNOLOGY[53]

Under the coordination of the MoFaLI in 2015 The Lateral Committee On Science And Technology[54] was re-established to define the issues that need to be addressed in the field of science and technology, review scientific and core technological projects and submits requests for the research to the Ministry of Education, Culture and Science.

The main objectives of the Committee are:

- Develop a favorable legal environment for high-tech research and development, innovation and advisory and extension services to increase the economic benefits of the sector.
- Promote innovative knowledge, technology, innovation products, incubators, models, and agro-markets that have trade potential.
- Develop bio and nanotechnology based on open laboratories and increase the quantity and type of export-oriented products with high intellectual capacity and export-oriented products.
- Strengthen the organizational structure of the food, agriculture and light industry research and analysis with sector policy and planning, and improve the organizational structure and make the course a new level.
- Develop and provide advice projects, legislation, policies, long, medium and short-term strategies, programs with economic, productivity and outcome analysis.

Between 2012-2016, the committee focused on implementing Grant for Sector Research and Development and strengthening human resource in the sector with the support of scientists, researchers, and teachers the University of Agriculture. Further they plan to organize events, stakeholder workshops on developing and supporting high-tech technology and innovations.

3.2.3. POLICY WORKING GROUP ON IMPROVING THE LEGAL ENVIRONMENT OF THE CASHMERE INDUSTRY

According to the Cashmere program, there has been established a working group to develop the necessary legal and regulatory framework to improve the legal environment, to support the production of tax policies and to increase the production capacity of the spinning sector.

[53] *www.mofa.gov.mn 51-266142*
[54] *The Minister's Decree A-26 dated February 23, 2015*

By today, there are no public information on activities performed by the working group and no performance footprints.

3.2.4. MONGOLIAN NATIONAL CHAMBER OF COMMERCE AND INDUSTRY

The Mongolian National Chamber of Commerce and Industry (MNCCI) was founded on July 2, 1960. Since 1990, and the end of the socialist system, the MNCCI has established itself as Mongolia's leading non-governmental institution. The organization is devoted to the development of international trade and investment among Mongolia's business community.

Under the MNCCI there are councils specialized in certain industries, for our case it is the cashmere and wool industry council. Unfortunately, we haven't found any information about the activities of this council.

3.2.5. MONGOLIAN WOOL AND CASHMERE ASSOCIATION

Established in 1993 Mongolian Wool and Cashmere Association (MWCA) aims to support anyone who work in the livestock husbandry, to ensure rational and equal rights of suppliers and producers of good quality wool and cashmere products, who contribute wealth to the national income, to strengthen skills and expertise of sectoral engineers and technicians, capacity building, protecting the rights of employees in the wool and cashmere sectors.

The association have following objectives:

- Produce high quality products and build high value infrastructure
- Improve the quality of raw materials
- Create a legal environment to promote advanced technology and investment
- Strengthen testing of laboratories and get international recognition
- Introduce a Mongolian brand on the international market
- Improve harmonization of scientific organizations, the government and the private sector
- Regularly improve the skills of the staff

As of today, the association focuses on the introduction of Mongolian cashmere in the world market through the promotion of the product in international fares and exhibitions and implementing project-based activities to improve the quality of products. As part of the efforts to improve the taxation environment for the sector, the VAT law was amended and the VAT duplication is eliminated.

3.2.6. NATIONAL AND INTERNATIONAL PROJECTS

The most international projects on wool and cashmere products are mostly involved in increasing exports, enhance agricultural productivity, increase local value addition, diversify exports, and create jobs. For example, the Swiss Development Agency is implementing the "Green Gold-Livestock Health" project to promote the Mongolian "king" cashmere on the international market. The ADB proposed its "Value-added Cashmere production and Export" project (proposed 10 mln USD) in 2018 to support the expansion of Gobi''s primary and secondary cashmere processing capacity. The Gobi will increase its raw cashmere procurement capacity, ultimately benefitting herders and the manufactured end-products will be sold domestically and exported to over 30 countries. The World Bank is

implementing an "Export Development Project" (total budget 20.78mln USD) support Mongolian small and medium-sized firms (SMEs) in the non-mining sectors to strengthen their export capabilities and expand access to export markets.

In the Government level the ADB implementing the Agriculture and rural development project in Mongolia since 2012, and on October 28, 2015, The Government of Mongolia (GoM) entered into two loan agreements (Loan Number 3287-MON and 3288-MON (SF)) with the Asian Development Bank (ADB) to lend to the Borrower from ADB's Special Funds resources an amount in various currencies equivalent to Special Drawing Rights (SDR) 10,719,000 and $35,000,000 from ADB's ordinary capital resources, respectively, to fund the Additional Financing of the Agriculture and Rural Development Project. Each loan agreement went into effect on a date 90 days after the date of the loan agreement. The loan agreement is expected to be completed by June 30, 2021. The objective of the Project is to increase value addition on Mongolian agricultural resources. Within the Output 4 total 35 companies in the wool and cashmere, skin and hide, apparel production, meat processing, bee- farming and sea-buckthorn production sub-sectors were selected to develop brand products for the national and international products, tripartite agreements were signed for the pilot project “Production of woolen fabric clothing” with sheep wool yarn and fabric producers. 100 per cent sheep wool fabric pilot production started and a sheep wool yarn processor (Mogol Noos LLC) supplied yarn to a fabric producer (Bly Sky LLC). The project plans to seek opportunities to sell produced goods to the international markets. The purpose of the above activities is to increase utilization of sheep wool, to promote the production of environment-friendly, value-added finished products to meet health requirements in Mongolia. The project has organized discussions involving all stakeholders of to discuss a concept about responsibilities, duties and rights of each of these stakeholders in the Mongolian Noble Fibre (MNF) Certification Program, inform them on the progress of implementation of MNF program, and coordinate the cooperation between the program participants.

The European Union has started focusing on sustainable production in the Mongolian textile industry, while the European Bank for Reconstruction and Development is launching the Sustainable Cashmere Production project. The bank approved a project of 400,000 euros this year to support the cashmere industry with European donor funding.

The MOFALI and the Ministry of Economic Development of Italy have created a Letter of Intent on Cooperation in the Textile Industry. On February 26 of 2019, the Letter of Intent was signed by the Minister of MoFALI and the Ambassador Extraordinary and Plenipotentiary of Italy to Mongolia His Excellency Mr. Andrea De Felip from the Italian side[55]. Letter of Intent provides legal background for establishing Italian-Mongolian Textile Technology Center in Mongolia. By establishing the center Italian side will provide high technology textile equipment, train personnel, introduce know-how of the textile industry and new technologies as well as improve management. It aims to accelerate Mongolian textile industry development, make the textile industry recognized at the international market and develop the Textile Technology Center as the best one in Mongolia.

Memorandum of Understanding was signed between DBM Leasing LLC[56] and Mongolian Wool and Cashmere Association to start cooperation aimed at renovation of equipment, an increase of output and sales of wool and cashmere production of Mongolia. Within the scope of the Memorandum, Members of the Mongolian Wool and

[55] www.montsame.mn
[56] http://dbmleasing.mn/en/dbm-leasing-is-cooperating-with-mongolian-wool-and-cashmere-association/

Cashmere Association, along with small and medium enterprises, will be able to cooperate with DBM Leasing LLC to develop strategic projects and business ventures.

The NCCI of Mongolia with the cooperation of the Association of German Chambers of Commerce and Industry (DIHK) implementing project ProValue to generate additional income and employment in rural areas of Mongolia by promoting added value creation in the seabuckthorn and sheep wool value chains[57].

The UNIDO implementing project SECIM[58] (Support to Employment Creation In Mongolia) (total budget is 1'687'338 USD) to contribute to inclusive economic growth and to support the alleviation of income inequality in Mongolia. The project expects to strengthen conditions and capacity for private sector employment creation in specific value chains, where textile sector (cashmere, camel and yak hair wool) is one of 5 value chains that will be piloted in Mongolia. The project will support for decent employment and income opportunities along with the cashmere and wool value chain.

3.3. CHAPTER CONCLUSION

1. Mongolia has defined policy toward wool and cashmere industry through cashmere program, defining to develop a processing industry cluster based on advanced technology and increase productivity to 60% of complete processing of raw materials such as skins, wool and cashmere. Based on activities and expected results, the Government aims to increase the production of cashmere products that meet international quality and safety standards, involving modern high-tech innovations in production technology.

2. The meaning of the program reflected in the follow-up documents, such as National program "Industrialization 21:100", becomes as a mid-term program for developing industry sector, including cashmere and wool manufacture. The program stresses the development of sustainable and competitive industrialization involving value-added production, meeting international quality and standardization requirements and market economy demands by introducing advanced technology, based on the local community features and resources.

3. Latter documents definitely will be based on the law on Technology transfer, which aims to enable the setting for use of environmentally friendly technology in wool and cashmere industry and could be the basis for introducing new and advanced technology to reduce the environmental impact of the industry.

4. Accordingly, the fundamental regulation for the green production in wool and cashmere sector is authorized and on its way for development, and the coordination of those efforts is definitely under the responsibility of the MoFaLI, but not well defined by follow up documents.

5. Existing institutes emphasize mainly on quality and quantity of wool and cashmere products and international market development rather than guiding to environment-friendly oriented high-tech production, which is the essential setting for the above objectives.
6. Missing inter-sectoral coordination of existing organizations and NGOs and no cohesive database on wool and cashmere industry that will show the progress of national programs and projects toward challenges and it is demanding to get information on their effectiveness.

[57] http://provalue.mongolchamber.mn/en/index.php/about-us
[58] https://open.unido.org/projects/MN/projects/140197

7. Standards related to the green production still remains untouched rather than general statements in the legal documents, and reviewed standards are mostly product based and have qualitative and quantitative requirements.

8. As stated above, there are numerous international projects and national efforts in the wool and cashmere sector development in Mongolia, focusing mostly on product quality, capacity building and market development, but there is still need of top-level coordination to optimize targets and get practical results in the sector as the whole.

FOUR. STATE OF WOOL AND CASHMERE PRODUCTION

4.1. THE STATUS OF THE WOOL AND CASHMERE INDUSTRY IN MONGOLIA

Textile products derived from pasturing livestock play an important role in the economy of Mongolia. Because Mongolia supplies around 40 percent of the world raw cashmere demand and it is deemed that the domestic production of final cashmere products for exports would increase the economic values by five times and the export revenue alone to reach USD 1.7 billion[59]. Also, the proposed duty-free treatment by the USA to Mongolia cashmere products and 25 percent duty of China on knitted products are viewed as great opportunities to encourage exports.

Of the natural fibres produced by different animals (cashmere, yak hair, sheep wool, camel hair etc.), Mongolian cashmere has an outstanding position in the world market share. The annual production of cashmere in Mongolia ranks at the second in the world, just after China. As with many other raw materials, cashmere prices are volatile, which directly affects herder incomes and jobs. The upstream (on-farm) meat and dairy value chains perform-a vital role in providing quality raw materials for the textile and leather industries.

Many wool and cashmere processing and garment manufacturing enterprises have invested in sophisticated de-hairing, spinning, finishing (bleaching and dyeing), weaving and knitting equipment.

The cashmere industry is made up of three types of companies, each with its own characteristics, markets and opportunities, including employment opportunities. The first type comprises early-stage processing enterprises that procure raw greasy cashmere from herders or traders, scour it and produce fine de-haired cashmere for export, mainly to China, Europe and Japan. The second type comprises garment manufacturers - mostly producing sewn garments, but also knitted cashmere garments using hand-knitting machines. The third type comprises vertically integrated cashmere companies, combining several operations from raw material processing to spinning, finishing, garment manufacturing and production of other knitted and woven products. Unfortunately, the interests of these three types of companies do not necessarily coincide, in particular, the first two respond to short-term changes in domestic and international trade markets, rather than adopting a longer-term perspective on investing in the expansion of the industry in Mongolia.

The Mongolian wool and cashmere sector need to overcome several impediments to its development, which will be addressed by the action. These include:

- The quality of the raw fibre.
- The coordination problem: it is difficult for herders to enter formal market arrangements with domestic manufacturers, thus adding to the lack of technical assistance to enhance breeding.
- The finishing process problems: (i) quality assurance in the bleaching and dyeing process, (ii) the poor quality of water used in dyeing and finishing (the water needs to be very soft), (iii) supply of the chemical products necessary for the treatment of the fibre.
- Spinning process problems: (i) inadequate domestic spinning capacity leading some garment producers to ship raw cashmere to China for spinning, and to re-import the yarn for manufacturing in Mongolia; (ii) inconsistent yarn quality (sometimes mixed with other yarns).
- Capacity building for good decent work practices.

[59] *MONTSAME – International forum on Mongolia-China cashmere industry organized. 2019-09-12*

According to the NSO in the year 2017, only 12 percent of the total stock of cashmere has been fully processed, which used for 2.3 percent of the manufacturing industry, 7 percent of processing and 55 percent of light industry, and were produced 5409.7 tons of washed cashmere, 571.4 tons of combed cashmere and 915.6 thousand pieces of knitwear. 90% of the total resource of raw material registered as processed as primary, 10% as textile, knitting and finished products for domestic use and exporting.

Mongolian cashmere fibre has been steadily thickening. This drift to coarser fibre diameters has meant that a larger percentage of Mongolian cashmere cannot be used for high-priced garment manufacture. This is the single most important factor impeding the development of the industry. Quality cashmere commands a 30 to 40 percent price premium in international markets, and the coarsening of Mongolian cashmere cost herders about US$16 million in 2001—a 20 percent drop in income for the average household with livestock[60]. Historically Mongolian herds have produced some of the best cashmere, but the quality mix of Mongolian cashmere has fallen over the last decade as herders focused on quantity rather than quality. Mongolia's ability to penetrate the luxury knitted and woven goods industry will depend completely on its ability to produce a consistently high-quality product[61].

During main season for buying raw cashmere, many of domestic buyers are unable to get cash because the cost of borrowing is extremely high. While foreign traders go to our country to buy good quality raw materials with cash and pay petite export taxes for over 80 percent of raw materials for exporting. As a result, domestic factories getting in depletion of raw material and use only 40-60 percent of its installed capacity, which is affecting employee salaries, affecting therefore to the decrease of the number of students in the industry year by year. Today, there is need more than 3000 engineers and technicians in the cashmere industry in Mongolia, but in the past 5 years, only 40-50 engineers and about 10 skilled workers have been trained annually.

According to U.N. Development Program estimates, 90% of Mongolia is fragile, dry land, which is under increasing threat from desertification. Part of the reason for this is thought to be global warming, but in Mongolia’s case another significant factor is the rise of the global cashmere industry. The large population of cashmere goats became a problem because goats destroy grasslands and soil much more than any other traditional Mongolian livestock, such as sheep, cattle, horses and camels. Goats are much more voracious eaters and consume the root of the grass thereby stopping it from growing altogether.

As a long-term economic enterprise, mining is paradoxical for Mongolia’s future development. It threatens to upset Mongolia’s unique biodiversity, cultural heritage and traditional economic structure based on livestock herding.

From the perspective of Mongolia’s long-term sustainability, both herding and mining compete over access to key natural resources such as land and water. In a changing climate, these resources are going to be further stressed; in the absence of a robust response mechanism, this may lead to greater conflicts between Mongolia’s two primary economic enterprises.

One of the means of implementation of the Policy that are highly important in relation to the co-existence of mining and traditional livelihoods in a changing climate is to Increase the processing of agricultural raw materials, including animal skin, wool and cashmere to 60 and 80 percent by 2020 and 2030 respectively through promotion of

[60] *Vera Songwe, Bold Magvan, World Bank. 2002*
[61] *Mongolia’s Cashmere Industrial Cluster Development, Shatar Ariunchimeg, 2017*

sustainable agriculture development and development of green-tech, export-oriented manufacturing industry cluster[62].

> *Considering grazing capacity, it's suggested that the number of goats in Mongolia should be limited to up to 10 million. It's reasonable to reduce number of goats to improve grazing capacity, despite increasing demand of cashmere in both national and international market. It's anticipated that decrease in the number of goats tend to cause a decrease up to 1-2 times in cashmere production.*
>
> *This might affect amount of cashmere supply but cashmere products of national manufacturers will not be affected. At the same time, it has also been assumed that decrease in the number of goats will cause reduction in amount of unprocessed and combed cashmere. Based on standard calculation of agriculture production, 2.7-3 thousand tones cashmere will be produced with 10 million goats. This will lead to 50% of the increase in national manufacturers' production63.*

4.2. ENVIRONMENTAL AND SOCIAL BASELINE ASSESSMENT

In 2019, the STEP EcoLab project conducted a sustainability assessment of the Mongolian cashmere and wool processing sector by evaluating current production practices in four main areas: water use, use of chemicals, energy use and social indicators against sustainability criteria set in internationally recognized standards.

Around 100 large, medium and smaller scale textile companies are engaged in wool and cashmere processing and production in Mongolia[64] alongside more than 150 family-scale, microenterprises mainly engaged in low volume production of knitted garments. The assessment covered 20 large and SME companies, selected in consultation with the project partner representing the industry, the Mongolian Wool and Cashmere Association.

For thousands of years, nomadic herding peoples have combed the fine down hair from their goats. The noble animal fibre manufacturing is broken down into several different processes.

[62] *Sharma, B. D. (2014). Can traditional livelihoods and mining co-exist in a changing climate: Strengthening public-private partnerships to reduce risk and address loss and damage*.

[63] *Serendamba, L., Batmunkh, D., & Erdenebayar, L. (2013). Evaluating cluster initiatives of meat, wool, cashmere, sea buckthorn industry to improve Mongolian national competitiveness (in Mongolian).*

[64] *http://www.mongoltextile.mn/web/nav/79*

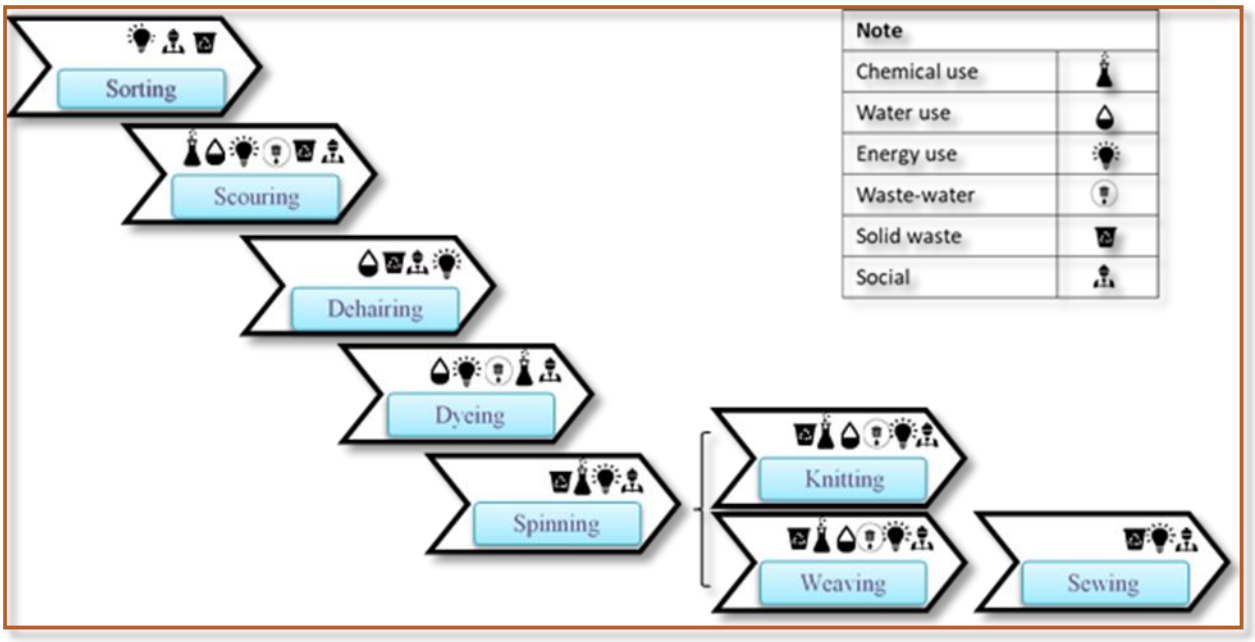

Figure 2. The process of wool and cashmere production

All above processes have an impact to the nature, especially cashmere and wool processing technology have an environmental impact in certain level. Therefore, environmental and social impact assessment with regard to sustainability practices at 20 selected cashmere and wool processing companies carried out in the 1st quarter of 2019 by the current STeP EcoLab project and revealed following:

WATER USE

Water consumption at Mongolian cashmere and wool producers is, on average, 1.6 times higher compared to water consumption values for wool textile production reported in other sources when measured in m^3 per kg of textile output.

The most water efficient companies are primary processors engaged in washing and scouring; their water usage is within reported international benchmarks ranges. On the other hand, fully or partially integrated producers consume substantially more water per kg of textiles output.

The critical issue in water use compliance is to achieve proper water measurement, metering, recording and documentation at each step of the wet processing unit. The much larger issue is to improve both the value and valuation of water and prevent, regulate and control over-usage/drainage of water from individual wells which, at the moment, is difficult to monitor and regulate[65].

Resource efficiency has been endorsed at 3 of the companies that have worked. Through close monitoring of production costs and expenses, these companies either kept records of water consumption or had implemented

[65] STEP EcoLab project, *Environmental and social impact of the Mongolian cashmere and wool processing sector. Baseline assessment report*. *April 2019.* p.33.

maximum water and electricity consumption targets in order to control expenses. These methods provide valuable insights on water efficiency and serve as local best practices.

USE OF CHEMICALS

Overall, the majority of chemicals used in textiles production in Mongolia are compliant with GOTS and MiG by OEKO-TEX sustainability criteria.

Certain compliance tests need to be carried out if a company or enterprise decides to apply for sustainability standards and ecolabelling. There could be a problem/barrier with toxicity and biodegradability threshold analysis because currently, the national testing laboratories might not have the capacity or capability to perform certain types of highly specialized tests required.

Most companies assessed have adequate records of chemicals and their names but the information is not complete with missing safety data sheets. The same is true for machine oils and lubricating chemicals. Storage, transfer and handling regulations on hazardous chemicals are not sufficient and need improvement and documentation.

Criteria for chemicals contained in accessories, packaging materials and tags need to be evaluated further and if necessary, tested. At the moment, it is hard to determine the chemical composition of the above through a simple assessment.

WASTEWATER

Mongolian cashmere and wool producers face serious issues in sustainability compliance if current trends in wastewater treatment, reuse and recycling are carried forward and common practices are not improved substantively.

Current wastewater treatment practices are largely outdated and almost non-existent, at least within the scope of the companies covered by the current assessment and project. The assessment confirms that textile companies contribute towards overburdening of the Central Wastewater Treatment Plant because none of the produced effluents is pre-treated at the site prior to disposal to the main sewage network. Wastewater from primary processors are very high in turbidity, COD and pH values can be out of permitted ranges.

Producers are willing to invest/co-invest in wastewater treatment plants to curb the environmental impact of their production.

SOLID WASTE AND SLUDGE DISPOSAL

State of compliance in solid waste management is generally good within the sector while sludge disposal issue is not well addressed similar to wastewater treatment problem.

Solid waste management at assessed factories is generally similar, with most companies contracting waste transportation companies that collect solid waste on a weekly basis and delivers it to landfill sites. No incineration or landfilling of waste occurs at the production sites.

ENERGY USE

The collected data on energy consumption per kg product is mostly in the range of international benchmark, moreover, the survey revealed various energy saving measures have been implemented in the visited companies.

Smaller companies appeared to be more efficient due to easier control of expenditures for utilities. Large companies represent more opportunities in terms of energy saving.

General trend is very positive. All the visited large, medium or small companies are paying attention to reduce energy consumption and implemented or planning to implement energy saving measures. In case of company C3, space heating consumes almost 43 percent of all steam consumption, while used steam from process factory is directly discharged although it may be used for heating purpose.

However, benefits of the implemented energy saving measures are often not evaluated. Even the baseline energy consumption of production units at current time is not estimated. Obviously, there is lack of methodology to monitor energy consumption and manage it.

There is no tradition of estimating carbon footprint of production. None of the visited companies obtained ISO 14000 series of standards. The companies need to develop set of environmental policy and procedures with targeted reduction of energy consumption.

4.3. VISITING WOOL AND CASHMERE PRODUCTION COMPANIES

This research was conducted between June to November of 2019, including meeting with government officials, desk review of current policy and regulatory documents on green production and sustainable development in terms of wool and cashmere production, visited wool and cashmere product manufacturers to outline challenges toward environmental legislation in order to define legislation gaps on the ground and expose challenges and suggestions of manufacturers.

During the survey, we have visited 4 companies on wool and cashmere production. Company names are coded from F1 to F5.

Figure 3. Location of the companies

Wool cashmere factories are preferred to be near central treatment facilities, steam and electricity. Many of the factories are located in the Khan Uul district, where have been old socialistic time plants. However, some factories, such as F3 company has installed a factory in Emeelt, outside of the city, because since the last 12 years the City claims to move all factories outside the city, but they have not been implemented yet.

4.3.1. CHARGES AND TAXES

- The amount of wastewater is calculated by the supplied clean water meter. However, on the ground, water consumption per unit is different, about 90% of the water in dehairing plant goes as humidity, i.e., some of the incoming clean water is used for other purposes, and total wastewater should be very low. Because wool and cashmere are dehaired in a high humidity environment, where the most water evaporates in the air. Therefore, it is inappropriate to estimate the amount of wastewater by the amount of supplied clean water. If install meter for each sewage pipe, the estimation would be more realistic. However, in factory F3 sewage charges are metered by the water meter installed on the waste pipes and transported by a specialized company to the Central Treatment facility at the price as an additional expenditure. Because it owns a deep well and has a steam stove, and it is an advantage to get the required amount of steam without excess with low cost. And the charge for sewage is paid to USUG as usual. Inspectors of USUG arrives every month to get the composition of sewage according to the standard. Some factories, for example, factory F4 have their laboratory for controlling wastewater.
- For the processing uses steam. USUG provides a steam charge with the additional 30% as an irreversible condensation. Because there is no pipeline to return excess steam for drying wool and cashmere back. Additionally, producers shall pay a charge for wastewater according to used clean water. Therefore, in some factories initiated to use excess heat for their heating, such as F5.
- For factories in distance from the central infrastructure the steam and heat are produced by own boiler, and there is smoke. The city administration required to get coal from a special company that has a special license for using raw coal. Moreover, for coal-based boilers, the maintenance should be handled by a specialized company, who will be entitled to ownership of this boiler, which makes deviation related to the decision to not burn the coal.
- Among producers, there is a desire to be environmentally friendly and reduce environmental impact, but as a result, they have got a reduction of own profit with insignificant parsimony. For example, when expecting cost savings for the electricity, upgrading all electrical equipment, reducing motors and saving energy costs, water and steam tariffs have been increased because of the change in regulation and the sense of parsimony have lost. In other words, the unit price for selling product has no change, but the cost has increased, so it is not possible to save. This is a burden.

4.3.2. REGULATION AND STANDARDS ON SEWAGE AND GREYWATER

- Usually, scouring of wool and cashmere needs 25-35 tons of clean water every day in medium-sized factories. The modern wastewater facility is very expensive, such as F2 has such facility by 500,000 euros, with a free of customs duty. Their facility cleans wastewater up to 80-90 per cent. It produces about 1 ton of sludge per month and 30 tons of greywater per day. Meanwhile most scouring plants do not clean their wastewater up to this high level and discharge directly to the central sewerage facility.
- There are standards for clean and wastewater but need for a standard of using greywater in wool and cashmere production, specific standard on wool or cashmere processing technology and for technology for wastewater treatment. Because the price for each technology differs. Moreover, practically observed that depending on where the raw material comes from, the scouring technology is changing. Therefore, this indicator should be

emphasized as to what constitutes a concentrated substance.

- The law on water pollution is in place but the regulation has not yet been approved, which will regulate pollution charge and taxation based on the amount of pollution and composition of the wastewater. There is a need to develop regulation for wool and cashmere industry producers to prohibit any production without wastewater treatment facility, which is important to reduce the burden on CWWTP. In Europe, for example, factories get their licenses after having their treatment plant, which principle should be introduced in Mongolia. Due to the absence of the regulation, two factories that have introduced high technology on water treatment with high cost (one factory paid 600 million tugriks and the other is 500,000 euros) pay the same fee for wastewater as other factories that have not installed or low treatment system.
- The requirement for cleaned wastewater for reusing in production is not defined yet. The cleaned water is simply discharged to the environment without reusing, which means dead expense. Therefore, requirements for use of cleaned wastewater and appropriate technological options should be standardized, which will ensure the estimation of desired expenses.

4.3.3. REGULAR INSPECTIONS, STATE EMBARGOS

- Generally, the pressure on the manufacturer is high. The state's embargos are great, but they do not offer alternatives or suggestions. There are no incentives and support from the state for business entities who have understood their accountability and responsibility.
- The proposed duty-free treatment by the USA to Mongolia cashmere products and 25 per cent duty of China on knitted products are viewed as great opportunities to encourage exports. However, manufacturers see it as Chinese manufacturers will enter to Mongolian business very soon, and the national enterprises surely will be dragged off. But when it comes for coordination, instruction on how to improve the technology, the state prefer to close or restrictions. In some cases, the state control is high, but depends on for whom and how. In the city center, there are many Chinese wondered factories, who are secured by police and any other controlling agencies, and evade from often checks and fines, and are less burdensome. Therefore, Chinese owned factories should be well controlled, because a few factories claim to install required technology, but others not.
- Because production is a continuous process, it is very damning for the owners to stop the plant as a result of any inspection. That's why it's important to provide regular guidance and recommendation from the state inspection agencies prior directly stopping the factories. It is economically very harmful to wool and cashmere production factories.

4.3.4. OPTIONS FOR INCENTIVES

- It is important that the laws to encourage enterprisers to meet the requirements for environmental protection, at least to minimize costs for production. For example, if a producer has installed water treatment equipment, may be exempted from wastewater charge for a certain period. Because there is no benefit from installing such equipment, and obviously will increase the cost of the product, and factories are not interested in installing such devices. Increase of the cost makes producers more vulnerable in the market.
- Incentives for water treatment is available when greywater used back in their production process, but grey water with chemicals is not acceptable for wool production technology, and there is no other way to discharge to the CWWTP, which means no any incentive is expected.
- In the case of F2, they are not used to have a loan from Mongolia. Because in Europe plenty of loans with zero credit for example for the water treatment plant, which has more symbolic meaning to promote producers to

get appropriate technology and equipment to reduce environmental impacts. Moreover, compared to Europe, in Mongolia no soft credit system for importing environmentally friendly technology and equipment.

- Factories have no initiative because there is no incentive and motivational system in Mongolia for producers.
- It is better for a producer to have a loan to buy spinning equipment rather than a wastewater treatment device. Because the fee for clean and wastewater is low but requires high investment cost for water treatment system without any economic incentives. Therefore, producers prefer to get spinning machinery to increase income selling a new product, rather than having debt and liability for saving water.
- Generally, it is obvious that being environmentally-friendly means additional cost and pressure for producers and no benefit, so the government should consider incentives and exemptions in tax system, or need to find market that will buy the product with price that included those environmental efforts /environmental value-added/, stabilize the price of raw materials for production, avoid political interests for election, reduce the interest rate of the loan for current assets, reduce corporate income tax etc.

4.3.5. WASTEWATER TREATMENT TECHNOLOGY

- The wastewater treatment system of the wool and cashmere factories were primitive, and in the last decade, technologies have been started introducing. Mostly by coagulation or flotation, using certain chemicals. Of course, there are some advantages and disadvantages in terms of effectiveness and safety.
- Selection of technology and equipment on waste treatment on its own, found with low efficiency and high price, and producers suffer to find a proper one. At present, the price starts at about 1 million euros.
- The bacteria used for Gobi LLC wastewater seems safer, but it is impossible to use in the winter. It is time-consuming to have a single bacterial method. Plus, it makes a lot of smell in the air. Safety is also important.
- In low capacity factories not afford high-value equipment. But it is hard to install a single treatment facility between low capacity factories because they are scattered. Moreover, some companies do not have a desire to cooperate.
- It is also possible to transport wastewater of low capacity factories to large-scale factories, and in turn, the large factories could manage operation cost for each of them, which should be investigated.
- According to the questionnaire results, the proportion of expenditure for raw materials and salary takes 70-92% of all production cost, while pollution charge (wastewater and solid waste) and water supply fee takes only 0-3.4% of all production cost value, and expenditure for buying chemicals varies between 0 and 6%. Cleaned wastewater from wool and cashmere factories are usually discharged to the environment, without any economic benefit. In the other hand, the cost of water is low, and the cost is zero and the fraction does not take up to a certain percentage of the whole investment.
- Cleaned wastewater usually suggested for car washing shops. However, if the cleaned wastewater contains chemicals, such as polychlorinated chloride, then all containers have to be made of plastic or stainless steel, i.e., every greywater cannot be re-used. Aluminum sulfite can also be used but the sedimentation rate is slow. Generally, the speed of sedimentation is important. However, the plastic containers are not suitable in winter condition, so stainless steel containers are used, but it is very expensive.

4.3.6. SLUDGE

- Sludge from wastewater treatment remains a major problem in wool scouring technology, which estimated as 6 to 12 per cent of the total wool, becoming the next problem after wastewater. The sludge from scouring wool mostly consists of clay and delivered to the city central dumpsite every month. There is said that sludge from wool scouring consists of Lanolin oils, so there are many ways to reuse them or apply as fertilizer. However, household sewage should not be mixed with technology. If you will find a use for sludge, there is an opportunity to create a job and new business, and wool factories can supply raw materials.
- The sludge can be used as a processed composter, but cannot be used in vegetables. Even the cleaning of wastewater from wool cleaning is more than 95%, Italian specialists advised processing again with activated carbon to reuse it for wool production again. It means that cleaned wastewater cannot be a proper technical solution for wool and cashmere products, to avoid any consequences, such as becoming the reason for allergies to the person using the final products. In Japan, the sludge used to produce lanoline. The solution for sludge processing, wastewater treatment and reuse are feasible primarily during EIA survey and the entity shall provide close guidance and recommendation, even budget calculation for suitable technology for manufacturers.

4.3.7. EIA

- All companies have their EIA report, but there is a violation of the provisions of the law on EIA, where the EIA entity shall consult with the project proponent on reducing environmental impact, suggesting project proponent specific technology and ways to reduce environmental impacts, with low impact on production cost. EIA companies have been developed EIA survey but do not provide good environment-friendly advice and technological version. The person who receives the report does not readily review the report, the EMP is not realistic and too general. This situation leads to a problem during importing chemicals, because of the lack of information in the EIA

4.3.8. COORDINATION

- The MFALI is the only organization for coordination of the industry, but it has many other sectors, which makes less effort on each of them. Moreover, the environmentally friendly technology goes under the supervision of the MNET, while human resource development for wool and cashmere industry goes for MECSS, but there is a weak interconnection between the above organizations.
- There are many non-governmental organizations related to wool and cashmere industry but have no substantial results. Wool and cashmere association just started to introduce SCP for member factories. At the NCCI there are Wool and cashmere board, but the activity is unclear. There are no specialized professionals on wool and cashmere processing industry. The deficiency of skilled workforce leads to incapability toward environmentally sound production. There are many projects in the Wool and Cashmere Association, but their impact is unclear.
- Due to the lack of united coordination for wool and cashmere industry, producers can't get proper information on time. Especially information on environmental and technological requirements are used to be disseminated through chattering or unofficial conversations with each other, while the city administration prefers to provide information and training with a fee. Therefore, news on technological upgrade and update of regulations taken through public media and self-studied for further details.
- High political interest in the preparation of raw material for wool and cashmere industry have a high negative impact for producers. Still, there is no management and improvement in logistics.

- The existing NGOs has a structure that is not clear and used to get financing from enterprises to support their activities. In the other hand, directors of enterprises are overloaded with their daily activities, there is a need for an initiative to protect their rights, to give professional guidance and advice. Therefore, existing organizations need to be highly effective and efficient in coordinating enterprises.

4.3.9. CAPACITY BUILDING

- Introduction of new regulatory rules and training is not sufficient and producers are lagging behind the information.
- There is a shortage of professional staff of advanced technology in wool and cashmere processing technology and imposes to train them if you get a suitable person.
- There is a high deficiency of engineers on wool and cashmere production. In universities, the enrollment for such engineers is very low because the score for engineering is high for new graduates of secondary schools. Also, there is a lack of specialized training in wool and cashmere processing technology, shortage of professionals, some training programs and projects do not know the exact technology i.e. there are no demand-driven training.

4.3.10. QUALITY OF WOOL AND CASHMERE

- Due to climate change and lack of policy on selective breeding of livestock, cashmere fibre is getting thicker, even in China. It is estimated that every year it will grow by 0.1micron due to global warming. The cashmere with fibre less than 15.5-micron GoM considered as a Noble Fibre Cashmere as an objective for cashmere industry in Mongolia. However, such cashmere could be sourced mostly in China, and this is a very high standard. For Mongolia, such a measure requires at least 15 years of proper breeding, and the responsibility is under the RIAH.
- After scouring of a ton of cashmere about 700 kg becomes as clean cashmere, while 30% is discharged as sludge, of which 10% is mineral and vegetable matter content, but in recent years it increased to 12-15%. The reason for this is that the concentration of sand and mineral content in the wool and cashmere increased due to climate change and desertification.

4.4. QUESTIONNAIRE SURVEY RESULTS

In order to analyze the current situation of above-mentioned regulation in the cashmere and wool processing industry, we have developed a questionnaire for producers and aimed to identify regulatory complications faced by the producers, that have initiated some initiatives to develop environmentally friendly and productive development opportunities.

The questionnaire consisted of 8 groups of questions has been provided for textile companies to complete (Annexee). And we have received back response from 5 companies (Annexee), from where we have found the following results.

1. The proportion of expenditure for raw materials and salary takes 70-92% of all production cost, while pollution charge (waste water and solid waste) and water supply fee takes only 0-3.4% of all production cost value, and expenditure for buying chemicals varies between 0 and 6%.

2. Cashmere factories mostly prefer locations with infrastructure, such as electricity, roads, water and heat supply and waste water discharge systems, but least dependent from the market or central part of the city, which could be expressed from the questionnaire results.
3. According to the law on EIA, all factories have conducted EIA, where the expenditure for the environmental plan varies between 17-57mln tug for 5 years. All respondents answered as well familiarized with the EIA report, and the EIA reports mostly required for getting permission for importing chemicals and for investment projects as one of their requirements.
4. It is admirable, that most factories aim to reduce environmental impact through cleaning and reusing discharged water and looking for solutions to use waste by-products of the production and decrease its volume. Moreover, they are well aware of saving electricity costs turning into modern solutions, such as changing light bulbs into LED, reducing and changing old generators into more productive solutions.
5. However, none of the respondents got neither any incentive, exemptions and depreciation from the government, therefore have not encountered challenges during implementation of above initiatives.
6. For the question "What legal regulation and support are required in the Wool and Cashmere industry to develop in terms of environmentally-friendly and international standards" all respondents requested for the state support for business entities that initiated such an effort to decrease environmental impact from their production. Supports are mostly tax exemptions and depreciations, such as in VAT tax, customs tax for importing advanced equipment for saving water, electricity, waste water treatment etc. The detailed list of suggestions are as follows:

    - Organize integrated water resource management in order to save water used for industry and to coordinate international standards with Mongolian GASI standards
    - Creating a legal environment that enables decent condition for the tax and loan for businesses that initiated and invested saving water resources
    - Needs VAT and custom tax exemptions for a new water-efficient technology and refund some portion of the investments for that companies who largely invested in above initiatives.
    - Reusing wastewater could be a reason for tax exemption for water supply and waste water disposal
    - Encourage companies that have saved clean water
    - Endorsement or discount in social insurance system based on production expenses.
    - Water and power supply organizations need to collaborate with cashmere and wool factories on related training and recommendations
    - Exemption of customs duty and VAT for power saving equipment and supply, encourage business entities that saved electricity
    - Give a soft loan to a company that plans to use solar power
    - Enable tax or electricity tariff redemption for use of flexible or non-incandescent lighting
    - Ease procedure for getting permission and importing of chemicals, that are recognized not harmful by provider country.

- It is important to know how the quality of water is measured by the pollution index during production and to standardize what quality of water will be used for which production process.
- To create wastewater standards for the treatment of wastewater.
- Exemption from wastewater charges
- Allow business entities that have established wastewater treatment plants to return a certain amount of investment from the state and exempt customs duty for importing waste water treatment plants.
- Give loans to companies that want to re-use gray water
- Exemption of customs duty for importing waste water treatment plants will reduce its price and factories will have an opportunity to install them for their production process
- Relevant institutions should promote international advanced technology for business entities.
- Tax deductions to companies with less solid waste
- Implement proper waste management
- Waste charge exemption or tax privilege for companies that take recyclable waste to recycling depot

4.5. CHAPTER CONCLUSION

1. The wool and cashmere industry in Mongolia are one of the two primary factors of the country's GDP, supplying around 40 per cent of the world raw cashmere demand because it has an outstanding position in the world market share. Also, the proposed duty-free treatment by the USA to Mongolia cashmere products and 25 per cent duty of China on knitted products are viewed as great opportunities to encourage exports.

2. However, this becomes also a leading factor for desertification in Mongolia, where 90% of the land is dry and vulnerable for climate changes. The large population of cashmere goats became a problem because goats destroy grasslands and soil much more than any other traditional Mongolian livestock, such as sheep, cattle, horses and camels. Goats are much more voracious eaters and consume the root of the grass thereby stopping it from growing altogether.

3. The processing of wool and cashmere for further production involves issues concerning sustainable use of natural resources. Many factories operate on average at less than 50% capacity, with the low productivity, high labor costs, uneven quality, lack of design capabilities, the high cost of funds, lack of design capabilities and little export sales capabilities. They need on-going technical assistance in production, worker training and skills development, product quality, design, and export marketing.

4. As the cashmere sector stands as a strategic sector for economic diversification, there is an increasing discussion that the promotion of cashmere harvested and produced in an environmentally sustainable and socially inclusive and responsible manner will help Mongolia to wrestle with the country's challenges. Therefore, in the past, cashmere buyers are beginning to demand producers to be more environmentally friendly, so the factories are willing to introduce clean technology.

5. Based on meetings with processing factories and questionnaire survey, producers desire to be environmentally friendly and reduce environmental impact, but as a result, they have got a reduction of own profit with

insignificant parsimony. For example, when expecting cost savings for the electricity, upgrading all electrical equipment, reducing motors and saving energy costs, water and steam tariffs have been increased due to regulation, and the sense of parsimony have lost. In other words, the unit price for selling product has no change, but the cost has increased, so it is not possible to save.

6. Most of the enterprises don't see the EIA system as an opportunity to go for the green, while not reducing profits. Because of unsatisfactory performance of the provisions of the law on EIA by EIA licensed firms, where the EIA entity shall consult with the project proponent on reducing environmental impact, suggesting project proponent specific technology and ways to reduce environmental impacts, with low impact on production cost. EIA companies have been developed EIA survey but do not provide good environment-friendly advice and technological version. The person who receives the report does not readily review the report, the EMP is not realistic and too general.

7. The current attempts of the GoM mostly focus on raw materials and financing for the cashmere industry, which leaves behind other important aspects of the industry, such as environmental protection and technology upgrade.

8. Generally, the pressure on the manufacturer is high. The state's embargos are great, but they do not offer alternatives or suggestions. There are no incentives and support from the state for business entities who have understood their accountability and responsibility. Most of regulations, policies loss their power in the implementation stage, leading to deviation of initial purposes.

It is concluded that there is high demand for efficient and rational coordination (government or non-government) for wool and cashmere production sector that will initiate and manage efforts for developing taxation policy, mostly tax exemptions and depreciation, such as in VAT tax, customs tax for importing advanced equipment for saving water, electricity, wastewater treatment etc.

CONCLUSION

Within the scope of defined objectives, we have studied environment and green production legislation system and status of implementation for the cashmere and wool production sector to reveal regulatory gaps and challenges that encounter manufacturers. As a result, in the regulatory aspect for green production in wool and cashmere production sector following gaps are identified:

1. The current framework of the legal system on green production has no intended distinction on wool and cashmere production and should be considered as one of the sectors in light industry. However, the actual environmental legal framework focuses towards the transition to green development growth model using mechanisms such as valuing the benefits of and the rational use of natural resources, increasing productivity, green investment and green procurement, by the expansion of works and services directed at engraining environmentally friendly production and services, and promoting a green lifestyle. And from this point of view, the wool and cashmere production considered as one of the sectors that need to be environmentally friendly with an industrial process that utilizes energy and natural resources efficiently, with reduced waste and without harm or risks to the environment.

2. Since 1987, Mongolia has developed an extensive legal framework on environmental protection. Environmental legislation is largely consistent and coherent. In general, it can be seen that most of the legal and institutional arrangements are in place to support regulatory and compliance assurance mechanisms. However, it is poor functional in the implementation stage, due to the absence or incompleteness of some implementing regulations.

3. The “polluter pays” principle is not effectively applied in Mongolia. Most of taxes are more symbolic, their main purpose being to generate government revenue. The implementation of this instrument has also been hindered by the lack of additional regulations and capacity building.

4. Economic leverages for business entities in green production mostly expressed as taxes and charges, while promotion and encouragement system are limited by sectors, such as energy and construction, and with low performance. Incentive system for business entities in green production is stated in each legal document, but the main reference goes for the regulation on taxation. Also, the system not reasonable as demanded by the manufacturers due to imperfection of follow up regulations that should clarify requirements and procedures to obtain those exemptions and depreciation by taxpayers.

5. Fundamental orientation for the green production in wool and cashmere sector is authorized and on its way for development, under the close responsibility of the MoFaLI, but not well defined by follow up documents. Missing inter-sectoral coordination of existing organizations and NGOs and no cohesive database on wool and cashmere industry that will show the progress of national programs and projects toward challenges and it is demanding to get information on their effectiveness.

6. Existing institutes emphasize mainly on quality and quantity of wool and cashmere products and international market development rather than guiding to environment-friendly oriented high-tech production, which are the essential setting for above objectives.

7. Accordingly, wool and cashmere sector manufacturers are under high pressure. The state's embargos are great, but they do not offer alternatives or suggestions. There are no incentives and support from the state for business entities who have understood their accountability and responsibility. Most of regulations, policies loss their power in the implementation stage, leading to deviation of initial purposes.

8. Mongolia has accumulated extensive experience with EIA procedures. However, the EIA procedures are not seen by all parties as an opportunity to improve projects and their sustainability and efficiency, but as an administrative hurdle. EIA in practice is undermined by poor implementation by licensed entities and ineffective oversight. Public confidence in the EIA system is low, with a common perception that EIAs are frequently "copied and pasted" and that the quality of assessment is inadequate. The high number of entities licensed to undertake a detailed EIA - and perceived problems with quality - bring into question their experience and competence.

Standards related to the green production still remains untouched rather than general statements in the legal documents, and reviewed standards are mostly product based and have qualitative and quantitative requirements. There are missing standards that convenient for wool and cashmere production to be environmentally friendly approach, except project suggested The STeP by OEKO-TEX® standard and Global Organic Textile Standard – GOTS. Moreover, as stated in MSDV-2030 and other national regulations, it is recommended to promote ISO 14001:2015 Environmental management standard in wool and cashmere production sector.

ANNEXES

RELATED ENVIRONMENTAL STANDARDS

1.	**MNS 0012-0-001: 1987**	Main rule. System structure	OHS
2.	**MNS 0012-0-002: 1987**	Occupational safety standards system. Terms and definitions	OHS
3.	**MNS 0012-0-005: 1988**	Working condition, their factor of classification. Terms and definitions	OHS
4.	**MNS 0012-0-006: 1989**	Labor protection. Metrology of quarantine	OHS
5.	**MNS 0012-099: 1991**	Condition of working place for women and under age interdict working	OHS
6.	**MNS 0012-1-009: 1985**	Noise. Permitted level of building civil construction	OHS
7.	**MNS 0012-1-016: 1988**	Ultrasound. General requirement of safety working	OHS
8.	**MNS 0012-1-017: 1988**	Ultrasound. Method of determination of sound pressure of working place	OHS
9.	**MNS 0012-3-002: 1982**	Wood processing. General safety requirements	OHS
10.	**MNS 0012-3-005: 1983**	Wood cutting. Safety requirements	OHS
11.	**MNS 0012-3-006: 1983**	Painting work. Common requirement of safety working	OHS
12.	**MNS 0012-3-007: 1983**	Wood storing. Safety requirements	OHS
13.	**MNS 0012-3-009: 1990**	Electrical safety work at building electricity. General requirements	OHS
14.	**MNS 0012-4-005: 1985**	Device and method protected from noise. Classification	OHS
15.	**MNS 0012-4-015: 1988**	General requirements of the shapes and sizes of the markings on the electrical voltages	OHS
16.	**MNS 0017-1-1-10: 1979**	Water use and protection. Terms and definitions	Water use
17.	**MNS 0017-1-1-14: 1980**	Water space. Classification of water use	Water use
18.	**MNS 0359: 1989** 24	Hydro technique and water. Terms and definitions	Water use

19.	**MNS 0900:2005**	Drinking water. Hygienic requirements and control	OHS
20.	**MNS 1800: 1973**	Safety of the lifting machine	OHS
21.	**MNS 2305: 1994**	Soil. Order to accept, packing, transport, keeping	Soil
22.	**MNS 2490: 1977**	Working out by static method of soil research estimation	Soil
23.	**MNS 2662: 2002**	Cold water meter. Methods and means for verification	Water use
24.	**MNS 3239: 2014**	Working drawing of indoor water supply and sewerage system	Waste water
25.	**MNS 3241: 2003**	Working design for outside network cold supply water and sewage system.	Waste water
26.	**MNS 3297: 1991**	Soil. Soil sanitary estimation index norm of populated area	Soil
27.	**MNS 3298: 1991**	Soil. Common requirement putting of taking of test part	Soil
28.	**MNS 3307: 1991**	Soil. Method of determination of total quantity of soil chemical element	Soil
29.	**MNS 3308: 1991**	Soil. Method of determination for quantity in total and motive form of soil microelement	Soil
30.	**MNS 3309: 1991**	Soil. Method of determination of soil simple dissolved salt chemical solution	Soil
31.	**MNS 3310: 1991**	Soil. Method of determination for soil agrochemical index	Soil
32.	MNS 3342:1982	Water space. Common requirement protection of underground water from pollution	Water use
33.	MNS 3597:1983	Water space. Common requirement protection of surface and underground water from fertilizer pollution	Water use
34.	**MNS 3985: 1987**	Soil. Index type of sanitary position	Soil
35.	MNS 3985:1987	Soil. Index type of sanitary position	Soil
36.	**MNS 4004: 1987**	Soil. Chiricov Method of determination of mobile phosphorus	Soil
37.	**MNS 4006: 1987**	Soil. Michigan Method of determination for mobile phosphorus	Soil
38.	**MNS 4047: 1988**	Water space. Control method of surface water quality	Water use

39.	**MNS 4078: 1988**	Water melioration terms and definitions	Waste water
40.	**MNS 4079: 1988**	Water quality. Terms and definitions	Water use
41.	**MNS 4236: 2003**	Technical conditions for water supply and sewage system.	Waste water
42.	**MNS 4246: 1994**	General requirements of vehicles and safe glasses	OHS
43.	**MNS 4288: 1995**	General requirements for selecting a site for wastewater treatment plants and treatment technologies and effectiveness	Waste water
44.	**MNS 4340: 1996**	Water for industrial use. Determination of iron content	Water use
45.	**MNS 4341: 1996**	Water for industrial use. Determination of magnesium content	Water use
46.	**MNS 4342: 1996**	Water for industrial use. Determination of stability	Water use
47.	**MNS 4343: 1996**	Water for industrial use. Determination of siliceous acid content	Water use
48.	**MNS 4344: 1996**	Water for industrial use. Determination of natrium content	Water use
49.	**MNS 4345: 1996**	Water for industrial use. Preparation of clean water for chemical analysis	Water use
50.	**MNS 4346: 1996**	Water for industrial use. Determination of hydrazine	Water use
51.	**MNS 4347: 1996**	Water for industrial use. Determination of active chloride	Water use
52.	**MNS 4348: 1996**	Water for industrial use. Determination of copper	Water use
53.	**MNS 4349: 1996**	Water for industrial use. Determination of nitrate	Water use
54.	**MNS 4350: 1996**	Water for industrial use. Determination of free carbonic acid content	Water use
55.	**MNS 4351: 1996**	Water for industrial use. Determination of ammonium of nitrogen	Water use
56.	**MNS 4352: 1996**	Water for industrial use. Determination of zinc	Water use
57.	**MNS 4353: 1996**	Water for industrial use. Determination of aluminum	Water use
58.	**MNS 4354: 1996**	Water for industrial use. Determination of nitrite	Water use
59.	**MNS 4399: 1996**	Water for industrial use. Determination of chloride content	Water use
60.	MNS 4585:2007	Air quality. General technical requirements	Air quality

61.	**MNS 4586: 1998**	Water quality. General requirements	Water use
62.	MNS 4586:1998	Water quality. General requirements	Water use
63.	**MNS 4660: 1998**	Protective clothes and apparatus against electrical machines	OHS
64.	**MNS 4930: 2000**	Safety of machinery. General requirements	OHS
65.	**MNS 4943: 2011**	Water quality. Sewage water	Waste water
66.	MNS 4943:2011	Water quality. Sewage water	Waste water
67.	MNS 4943:2015	Environment. Water quality. Effluent water. General requirements	Waste water
68.	**MNS 4968: 2000**	Occupational safety and health. Production processing general requirements	OHS
69.	MNS 4968:2000	Occupational safety and health. Production processing general requirements	OHS
70.	**MNS 4969: 2000**	Occupational safety and health. Main rule. Training organization of hygiene	OHS
71.	**MNS 4970: 2000**	Occupational safety and health – Maximum loadings of lifting and carrying machines	OHS
72.	**MNS 4992:2000**	General requirement of safety and classification of chemical toxic substance	OHS
73.	**MNS 4994:2000**	Occupational safety and health. Vibration. Requirements for general safety	OHS
74.	**MNS 4995:2000**	Occupational safety and health. **General** requirements for the measurement of vibration	OHS
75.	**MNS 4996:2000**	Occupational safety and health. General requirement for method of measurement of light norm in working place	OHS
76.	MNS 5002:2000	Occupational safety and health. Noise requirements. General requirements for safety	OHS
77.	**MNS 5002:2000**	Occupational safety and health. Noise requirements. General requirements for safety	OHS
78.	**MNS 5003:2000**	General requirements for the measurements of noise	OHS

79.	MNS 5010:2001	Occupational safety and health. General requirements for the measurement of dust content in the air	OHS
80.	**MNS 5010:2001**	Occupational safety and health. General requirements for the measurement of dust content in the air	OHS
81.	**MNS 5027: 2001**	Occupational safety. industrial hygiene. General requirement of health and ergonomic working with video terminal	OHS
82.	**MNS 5029:2011**	Occupational safety and health. Label and marking of toxic and hazardous chemicals	OHS
83.	**MNS 5034:2001**	Soil quality. Method of helminthological analysis	Soil
84.	**MNS 5078: 2001**	Occupational safety and industrial hygiene. General requirements for ventilation and casement window of industrial enterprise	OHS
85.	MNS 5078:2001	Occupational safety and industrial hygiene. General requirements for ventilation and casement window of industrial enterprise	OHS
86.	**MNS 5079: 2001**	Occupational safety and industrial hygiene. Safety of load and unload work general requirements	OHS
87.	**MNS 5080: 2001**	Occupational safety. Industrial hygiene. Working condition, their classification and factors. Estimation of working condition	OHS
88.	**MNS 5087: 2001**	Hot water boiler. Terms and definitions	Water use
89.	**MNS 5105: 2001**	Occupational safety. Industrial hygiene. Hygiene protection areas norm, general requirements	OHS
90.	**MNS 5106: 2001**	Occupational safety. Industrial hygiene. Occupational physiology. Norms of the indexes for estimation of the nervous and thinking loads, determination method	OHS
91.	**MNS 5107: 2001**	Occupational safety. Industrial hygiene Occupational physiology. Norms of the indexes for estimation of the physical loads and the Method of determination	OHS
92.	**MNS 5145: 2002**	Occupational safety. Industrial hygiene. Electric safety. Maximum permissible levels of pick up voltages and currents	OHS
93.	**MNS 5146: 2002**	Electric safety. Protective conductive earth, neutral ling	OHS
94.	**MNS 5147: 2002**	Industrial hygiene. Electrostatic fields. Tolerance levels and requirements for control at working places	OHS

95.	**MNS 5148: 2015**	Evaluating Compliance with Safety Limits for Human Exposure to Radio Frequency Electromagnetic Fields	OHS
96.	**MNS 5149: 2002**	Industrial hygiene. Power frequency electric fields. Permissible levels of field strength and requirements for control at work-places	OHS
97.	**MNS 5150: 2002**	Industrial hygiene. Electric safety. General requirement	OHS
98.	**MNS 5151: 2002**	Occupational safety. Industrial hygiene. Electric safety. Term and definition.	OHS
99.	**MNS 5323-102: 2009**	Higher education. Specialty profile: Water supply and sewage. Index: D 580600	Waste water
100.	**MNS 5367: 2004**	Soil. Methods for the detection of coliform organisms, thermotolerant coliform organisms and presumptive E. coli	Soil
101.	**MNS 5546: 2005**	General requirements for assessment of soil erosion and degradation of vegetation cover in pasture lands	Soil
102.	**MNS 5582: 2006**	Water quality. The raw waste water from the leather processing industry before the primary effluent treatment plant. Technical requirements	Waste water
103.	**MNS 5667: 2006**	Wastewater. Determination of sludge for moisture and ash	Waste water
104.	**MNS 5668: 2006**	Method for microbiological of waste water	Waste water
105.	**MNS 5775: 2007**	Settlement area distribution service of drinking water General requirements	OHS
106.	**MNS 5789: 2007**	Water quality. Determination of total cyanide Titrimetric method	Waste water
107.	**MNS 5790: 2007**	Water quality. Determination of method for magnesium	Waste water
108.	**MNS 5791: 2007**	Water quality. Determination of method for beryllium	Waste water
109.	**MNS 5850: 2008**	Soil quality. Soil pollutants elements and substance	Soil
110.	MNS 5850:2008	Soil quality. Soil pollutants elements and substance	Soil
111.	MNS 5885:2008	Acceptable concentration of air pollutant elements. General technical requirements	Air quality
112.	MNS 5914:2008	Land reclamation. Terms and definitions	Soil

113.	MNS 5918:2008	Re-vegetation of destroyed land. General technical requirements	Soil
114.	**MNS 5919: 2008**	Maximum acceptable level and measuring method of air pollutants in the exhaust gases from steam and hot water boilers of TPP and Thermal stations	Air quality
115.	**MNS 5924: 2015**	Pit latrine and sewage pit. Technical requirements	Waste water
116.	**MNS 5975: 2009**	Grease catcher equipment in waste water. General requirements	Waste water
117.	**MNS 5988: 2009**	Ionomeric method for determination of cadmium in soil samples	Soil
118.	**MNS 5990: 2009**	Atomic absorption spectrometry – Cold vapor method for determination of mercury content in soil	Soil
119.	**MNS 6010: 2009**	Terms and definitions for disaster general clause	OHS
120.	MNS 6148:2010	Water quality. Maximum limit of substance contaminating the ground water	Water use
121.	**MNS 6185 :2010**	Determination of mercury concentration in soil by mercury vapor analyzer	Soil
122.	**MNS 6230: 2010**	Identification of wastewater discharge point. General requirements	Waste water
123.	**MNS 6341:2012**	Soil quality. Method of hygienic microbiological examination	Soil
124.	**MNS 6437 :2014**	Occupational health and safety in mineral processing industry– Requirements	OHS
125.	**MNS 6455: 2014**	Urban search and rescue operation	OHS
126.	**MNS 6561: 2015**	Environment. Water quality. Effluent water for sewerage network. General requirements.	Waste water
127.	MNS 6561:2015	Environment. Water quality. Effluent water for sewerage network. General requirements.	Waste water
128.	**MNS 6656: 2017**	Occupational safety and health. Occupational hygiene. Sampling and analyzing method for total dust in workplace air	OHS
129.	**MNS 6657: 2017**	Occupational safety and health. Occupational hygiene. Sampling and analyzing method for respirable dust in workplace air	OHS
130.	**MNS 6658: 2017**	Occupational safety and health. General requirement for protecting workers from exposure to mineral dust at workplaces	OHS

131.	**MNS ASTM C 1255:2013**1	Standard test Method for analysis of Uranium and Thorium in soils by energy dispersive X-Ray fluorescence spectroscopy	Soil
132.	**MNS BS 8525-1: 2015**	Greywater system. General requirements	Waste water
133.	MNS BS8525-1:2015	Greywater system. General requirements	Waste water
134.	**MNS EN 1091-1: 2016**	Vacuum Sewerage Systems Outside Buildings *and* Special Sewerage Systems. Part 1: Vacuum Sewerage Systems Outside Buildings	Waste water
135.	**MNS EN 12255-12: 2015**	Wastewater treatment plants- Part 12: Control and automation	Waste water
136.	**MNS EN 12255-13: 2015**	Wastewater treatment plants- Part 13: Chemical treatment-Treatment of wastewater by precipitation /flocculation	Waste water
137.	**MNS EN 12255-14: 2015**	Wastewater treatment plants- Part 14: Disinfection	Waste water
138.	**MNS EN 12255-15: 2015**	Wastewater treatment plants- Part 15: Measurement of the oxygen transfer in clean water in aeration tanks of activated sludge plants	Waste water
139.	**MNS EN 12255-16: 2015**	Wastewater treatment plants- Part 16: Physical (mechanical) filtration	Waste water
140.	**MNS EN 12255-3: 2015**	Wastewater treatment plants- Part 3: Preliminary treatment	Waste water
141.	**MNS EN 12255-5: 2015**	Wastewater treatment plants- Part 5: marooning processes	Waste water
142.	**MNS EN 12255-8: 2015**	Wastewater treatment plants- Part 8: Sludge treatment and storage	Waste water
143.	**MNS EN 12255-9: 2015**	Wastewater treatment plants- Part 9: Odor control and ventilation	Waste water
144.	**MNS EN 12566-1: 2011**	Small wastewater treatment systems for up to 50 PT. Part 1: Prefabricated septic tanks	Waste water
145.	**MNS EN 12566-2: 2011**	Small wastewater treatment systems for up to 50 PT. Part 2: Soil infiltration systems	Soil
146.	**MNS EN 12566-3: 2011**	Small wastewater treatment systems for up to 50 PT. Part 3: Packaged and/or site assembled domestic wastewater treatment plants	Waste water
147.	**MNS EN 12566-4: 2011**	Small wastewater treatment systems for up to 50 PT. Part 4: Septic tanks assembled in situ from prefabricated kits	Waste water

148.	**MNS EN 12566-5: 2011**	Small wastewater treatment systems for up to 50 PT. Part 5: Pretreated Effluent Filtration systems	Waste water
149.	**MNS EN 61619:2012**	Insulating liquids. Contamination by polychlorinated biphenyls (PCBs). Method of determination by capillary column gas chromatography	Chemicals
150.	**MNS ILO-OSH 1: 2003**	Guidelines on occupational safety and health management systems	OHS
151.	**MNS ISO 10359-1: 2002**	Water quality. Determination of fluoride – Part 1: Electrochemical probe method for potable and lightly polluted water	Water use
152.	**MNS ISO 10382:2012**	Soil quality. Determination of organochlorine pesticides and polychlorinated biphenyls. Gas chromatographic method with electron capture detection	Soil
153.	**MNS ISO 10390: 2001**	Soil quality. Determination of pH	Soil
154.	**MNS ISO 11046: 2003**	Soil quality - Determination of mineral oil content - Method by infrared spectrometry and gas chromatographic method	Soil
155.	**MNS ISO 11047: 2001** 1	Soil quality - Determination of cadmium, chromium, cobalt, copper, lead, manganese, nickel and zinc - Flame and electrothermal atomic absorption spectrometric methods	Soil
156.	**MNS ISO 11074-1: 2001**	Environment. Soil quality. Vocabulary. Part 1: Terms and definitions relating to the protection and pollution of the soil	Soil
157.	**MNS ISO 11074-2: 2001**	Environment. Soil quality. Vocabulary. Part 2: Terms and definitions relating to sampling	Soil
158.	**MNS ISO 11074-2: 2001**	Environment. Soil quality. Vocabulary. Part 2: Terms and definitions relating to sampling	Soil
159.	**MNS ISO 11260: 2000**	Soil quality - Determination of effective cation exchange capacity and base saturation level using barium chloride solution	Soil
160.	**MNS ISO 11269-1: 2002**	Soil quality. Determination of the effects of pollutants on soil flora - Part 1: Method for the measurement of inhibition of root growth	Soil
161.	**MNS ISO 11269-2: 2013**	Soil quality – Determination of the effects of pollutants on soil flora. Part 2: Effects of contaminated soil on the emergence and early growth of higher plants	Soil
162.	**MNS ISO 11464: 2002**	Soil quality. Pretreatment of samples for physic-chemical analyses.	Soil

163.	**MNS ISO 11465: 1999**	Soil quality. Determination of dry matter and water content on a mass basis - Gravimetric method	Soil
164.	**MNS ISO 11466: 2007**	Soil quality– Extraction of trace elements soluble in aqua regia	Soil
165.	**MNS ISO 14240-1: 2003**	Soil quality. Determination of soil microbial biomass - Part 1: Substrate-induced respiration method	Soil
166.	**MNS ISO 14240-2: 2003**	Soil quality. Determination of soil microbial biomass - Part 2: Fumigation-extraction method	Soil
167.	**MNS ISO 17380: 2008**	Soil quality- Determination of total cyanide and easily released cyanide - Continuous-flow analysis method	Soil
168.	**MNS ISO 22036: 2014**	Soil quality – determination of trace elements in extracts of soil by inductively coupled plasma – atomic emission spectrometry (ICP - AES)	Soil
169.	**MNS ISO 22155:2012**	Soil quality. Gas chromatographic quality determination of volatile aromatic and halogenated hydrocarbons and selected ethers- Static headspace method	Soil
170.	**MNS ISO 22892:2012**	Soil quality. Guidelines for the identification of target compounds by gas chromatographic and mass spectrometry	Soil
171.	**MNS ISO 4064-1:2016**	Water meters for cold potable water and hot water Part 1: Metrological and technical requirements	Water use
172.	**MNS ISO 5667-3 :1999**	Water quality – Sampling – Part 3: Guidance on the preservation and handling of samples	Water use
173.	**MNS ISO 6206: 2001**	Chemical technology. Chemical products for industrial use. Sampling. Vocabulary	Chemicals
174.	**MNS ISO 6279-1: 2010**	Water supply and Sanitation. Terms and definition-Vocabulary	Water use
175.	**MNS ISO 6340: 2003**	Water quality – Detection of Salmonella species	Water use
176.	**MNS ISO 6385:2000**	Occupational safety and health. Ergonomic principles in the design of work system	OHS
177.	**MNS ISO 6594: 2001**	Cast iron drainage pipes and fittings - Spigot series	Waste water
178.	**MNS ISO 758: 2007**	Liquid chemical products for industrial use. Determination of density at 20 degrees C	Chemicals
179.	**MNS ISO 7708: 2016**	Air quality. Particle size fraction definition for health-related sampling	Air quality

180.	**MNS ISO 7933: 2015**	Ergonomics of the thermal environment-Analytical determination and interpretation of heat stress using calculation of the predicted heat strain	OHS
181.	**MNS ISO 8772: 2008**	High density polyethylene (HD-PE) pipes and fittings for buried drainage and sewerage systems – Specifications	Waste water
182.	**MNS NFPA 1670:2010**	Operations and training for technical search and rescue incidents	OHS
183.	**MNS OHSAS 18002: 2015**	Occupational Health and Safety management systems- Guidelines for the implementation of OHSAS 18001:2007	OHS
184.	**MNS OIML R 49-1: 2012**	Water meters intended for the metering of cold potable water and hot water. Part 1: Metrological and technical requirements	Water use
185.	**MNS6458:2014**	Occupational safety and health. General requirements for storage of toxic and hazardous chemicals and products	OHS

WOOL AND CASHMERE RELATED NATIONAL STANDARDS

#	**Standard nomenclature**	**Description**
1.	**MNS 0033: 2007**	Grease wool. Technical specification
2.	**MNS 0036: 2015**	Grease camel wool. Technical specification
3.	**MNS 0037: 2007**	The Coarse hair. Technical specification
4.	**MNS 0038: 2007**	The raw cashmere. The technical requirement
5.	**MNS 0215: 2018**	Textiles. Packing, marking, storing, transporting of animal fibres. Technical requirement
6.	**MNS 0296: 2012**	Machine made wool felt. Technical requirement
7.	**MNS 0366: 1986**	Pure and half woolen fabric. General technical requirements.
8.	**MNS 0374: 1986**	Pure and half woolen cloth. General technical requirements.
9.	**MNS 0379: 2007**	Textiles. Method for the determination of grease content of animal fibres by extraction process
10.	**MNS 0380: 2007**	Textiles. Method for the determination of moisture content of animal fibres

11.	**MNS 0494: 1989**	Coarse wool, spring screening.
12.	**MNS 0749: 1986**	Pure and half woolen broadcloths. General technical requirements.
13.	**MNS 0780: 2007**	Primary processed sheep ‘s wool. Technical specification
14.	**MNS 0881: 1986**	100% and half woolen blanket. Technical requirements
15.	**MNS 1000: 2007**	Textiles. Method for the determination of fibre diameter distribution
16.	**MNS 1012: 2015**	Cashmere comb. Technical requirement
17.	**MNS 1012:2016**	Wool and cashmere comb. Technical requirement
18.	**MNS 1043: 2009**	Handmade carpet. Technical requirement
19.	**MNS 1044: 2009**	Grading practice for machine made carpet
20.	**MNS 1096: 2008**	Covering wool felt. The test method
21.	**MNS 1588: 2009**	Machine made carpet. Technical specification
22.	**MNS 1835-1: 2007**	Method for sampling of testing of woven fabrics
23.	**MNS 1835-11: 2007**	Method for calculation of test results
24.	**MNS 1835-12 :2007**	Method for determination of abrasion resistance of woven fabric
25.	**MNS 1835-2: 2007**	Method for determination of mass per unit area of woven fabric
26.	**MNS 1835-4: 2007**	Method for determination of number of threads per warp and weft direction in woven fabric
27.	**MNS 1835-5: 2007**	Method for determination of breaking force and elongation at break in woven fabric
28.	**MNS 1835-6: 2007**	Textiles. Method for determination of water resistance
29.	**MNS 1835-9: 2007**	Method for determination of moisture regain in woven fabric
30.	**MNS 2481: 2008**	Stitch bonded web. Technical specification

31.	**MNS 2483: 2008**	Stitch bonded web. The test method
32.	**MNS 2949: 2008**	Textiles. The method for determination of wool content
33.	**MNS 2951: 2007**	Textiles. Method for sampling of animal fibres
34.	**MNS 3182: 1981**	Cashmere goat of Gorno-Altai breed group
35.	**MNS 3266: 2009**	Method for the determination of thermal transmittance of textile materials
36.	**MNS 3283: 1991**	Felt to perforate. Technical requirement.
37.	**MNS 3318: 2007**	Method for the determination of wool felting properties
38.	**MNS 3362: 1982**	First processing of wool. Terminology and vocabulary
39.	**MNS 3493: 2009**	Practice for sampling carpet for testing
40.	**MNS 3518: 2009**	Method of determination of compound yarn weight
41.	**MNS 3520: 1989**	Knitted and textile. Test for color fastness. General principles of testing and determination.
42.	**MNS 3683: 2007**	Processed cashmere. Technical specification
43.	**MNS 3685: 2003**	Camel wool blanket. The technical requirement
44.	**MNS 3687: 1987**	The method marking, keeping transportation all kind of cashmere, wool and woolen products.
45.	**MNS 3700: 2009**	Method for the determination of acid content of wool
46.	**MNS 3704: 2009**	Method of determination of tuft/yarn withdrawal force
47.	**MNS 3706: 1984**	Textile floor coverings. Method of determination tests for color fastness.
48.	**MNS 3848: 2009**	Method of measuring dimensional change
49.	**MNS 3913: 2007**	Textiles. Method for the determination of coarse hair content of cashmere, yak and camel wool
50.	**MNS 3918: 1986**	Pure wool and half pure wool of neckerchief

51.	**MNS 4064: 1988**	Test for color fastness. General principles.
52.	**MNS 4066: 1988**	Knitted clothes. Determination of density.
53.	**MNS 4251: 2008**	Textiles. Industrial wastes. Waste hair and re-dehaired short down cashmere. Technical specification
54.	**MNS 4535: 2007**	Method for determination of air permeability of woven fabric
55.	**MNS 4950: 2007**	Dehaired camel wool. Technical specification
56.	**MNS 5248:2007**	Dehaired yak down. Technical specification
57.	**MNS 5251: 2008**	Textiles. Industrial wastes. Tannery hair. Technical specification
58.	**MNS 5306: 2003**	Cashmere yarn. Technical specification
59.	**MNS 5307: 2003**	Knitwear. Technical requirement
60.	**MNS 5563: 2005**	Cashmere and wool processing industry. General requirements
61.	**MNS 5564: 2005**	Textile material. Technical felt and craft felts
62.	**MNS 5646: 2011**	Transportation of wool and row materials. General requirement
63.	**MNS 5756-0: 2007**	Method for determination of sampling yarn for testing
64.	**MNS 5756-1: 2007**	Method for determination of yarn linear density
65.	**MNS 5756-2: 2007**	Method for determination of tensile strength and extension of yarn
66.	**MNS 5756-3: 2007**	Method for determination of twist in yarns
67.	**MNS 5756-4: 2007**	Method for determination of moisture in yarn
68.	**MNS 5757-0:2007**	Method for sampling for testing of knitted products
69.	**MNS 5757-1: 2007**	Knitted products. Method for determination of fabric areal density
70.	**MNS 5757-2: 2007**	Knitted products. Method for determination of angle of spirality
71.	**MNS 5757-3: 2007**	Knitted products. Method for determination of stitch density

72.	**MNS 5757-4: 2003**	Knitted products. Method for determination of cover factor
73.	**MNS 5757-5: 2007**	Knitted products. Method for determination of stitch/loop length
74.	**MNS 5757-6: 2007**	Knitted Products. Method for determination of breaking force and elongation at break
75.	**MNS 5757-7: 2007**	Knitted Products. Method for determination of dimensional change in washing
76.	**MNS 5757-8: 2007**	Method for determination of the resistance to pilling and change of appearance of fabrics by Pilling box
77.	**MNS 5820: 2007**	Yarn product. Cashmere woolen yarn. The technical requirement
78.	**MNS 5821: 2007**	Method for the determination of breaking tenacity and strength of wool bundle
79.	**MNS 5822: 2007**	Method for determination of conditioning textiles for testing
80.	**MNS 5865: 2008**	Yak down yarn. Technical specification
81.	**MNS 5982: 2009**	Method for the determination of stitch and gauge of textile floorcoverings
82.	**MNS 5983: 2009**	Method of determination of moisture content of textile floorcoverings
83.	**MNS 6003: 2009**	Test methods for surface tension of solutions of surface – active agents
84.	**MNS 6005: 2009**	Grease camel wool yarn. Technical specification
85.	**MNS 6006: 2009**	Packing, marking, storing, transporting of requirement
86.	**MNS 6232: 2011**	Wool blended fabric for school uniform use. Technical requirement
87.	**MNS 6238: 2011**	Woven fabric for military uniform use. Technical requirement
88.	**MNS 6295: 2011**	General safety technical specification for textile products
89.	**MNS 6340:2012**	Technical requirement for infant ‘s cloth in maternity house use
90.	**MNS 6375: 2013**	Exchange traded raw cashmere. Technical requirement
91.	**MNS 6376: 2013**	Exchange traded raw wool. Technical requirement

92.	**MNS 6377: 2013**	The raw yak wool. Technical requirement
93.	**MNS 6390: 2013**	The primary treated effluent of wool and cashmere factory into the sewerage of central treatment plant. Technical requirements
94.	**MNS 6398:2013**	Dehaired sheep wool down. Technical requirement
95.	**MNS 6458:2014**	Sheep wool wadding. Technical requirements
96.	**MNS 6462:2014**	Textiles. Blended wool down yarn. Technical specification
97.	**MNS 6635:** 2016	Textiles. Knitted products. Knitwear size and variation. Technical requirement.
98.	**MNS AATCC 20: 2014**	Fibre analysis. Qualitative
99.	**MNS AATCC 20A: 2014**	Fibre analysis: Quantitative
100.	**MNS ISO 105 – A01: 2014**	Textiles. Tests for color fastness. Part A01: General principles of testing.
101.	**MNS ISO 105 – A02: 2014**	Textiles. Tests for color fastness. Part A02: Grey scale for assessing change in color.
102.	**MNS ISO 105 – A03: 2014**	Textiles. Tests for color fastness. Part A02: Grey scale for assessing staining.
103.	**MNS ISO 105 – B01: 2014**	Textiles. Tests for color fastness. Part B01: Color fastness to light: Day light.
104.	**MNS ISO 105 – E01: 2014**	Textiles. Tests for color fastness. Part E01: Color fastness to water
105.	**MNS ISO 105 – E04: 2014**	Textiles. Tests for color fastness. Part E04: Color fastness to perspiration
106.	**MNS ISO 105 – C10: 2014**	Textiles. Tests for color fastness. Part C10: Color fastness to washing with soap or soap and soda
107.	**MNS ISO 105 – X11: 2014**	Textiles. Tests for color fastness. Part X11: Color fastness to hot pressing
108.	**MNS ISO 1141: 2000**	Ropes. Polyester. Specification.
109.	**MNS ISO 11859: 2000**	Textile floor coverings-Pure wool, hand–knotted pile carpets Specification.
110.	**MNS ISO 2078:2000**	Textile glass – Yarns Designation.

111.	**MNS ISO 3175-1: 2002**	Dry cleaning and finishing. Part 1: Method for assessing the cleanability of textiles and garments
112.	**MNS ISO 3175-2: 2002**	Dry cleaning and finishing. Part 2: Procedures for tetrachloroethene
113.	**MNS ISO 3758: 2002**	Care labeling code using symbols.
114.	**MNS ISO 3998:2015**	Textiles. Determination of resistance to certain insect pests
115.	**MNS ISO 4916: 2011**	Seam types – Classification and terminology
116.	**MNS ISO 5084:2012**	Textiles. Determination of thickness of textiles and textile products
117.	**MNS ISO 6348:2012**	Textiles. Determination of mass. Vocabulary
118.	**MNS ISO 8115: 2000**	Cotton bales-Dimensions and density.
119.	**MNS ISO 8516: 2000**	Textile glass Textured yarns Basis for specification.
120.	**MNS ISO 9866-2:2012**	Textiles. Effect of dry heat on fabrics under low pressure. Part 2: Determination of dimensional change in fabrics exposed to dry heat.
121.	**MNS ISO105 – B02: 2014**	Textiles. Tests for colorfastness. Part B02: Color fastness to artificial light: Xenon arc fading lamp test.
122.	**MNS ISO105 – X12: 2014**	Textiles. Tests for color fastness. Part X12: Color fastness to water
123.	**MNS ISO4915: 2012**	Textiles. Stitch types. Classification and terminology
124.	**MNSISO 105 – D01: 2014**	Textiles. Tests for color fastness. Part D01: Color fastness to dry cleaning using perchloroethylene solvent