Mongolia National Waste Management Improvement Strategy and Action Plan

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МОНГОЛ УЛСЫН ЗАСГИЙН ГАЗАР

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Abbreviations

AIT RRC.AP	Asian Institute of Technology Regional Resource Centre for Asia and the Pacific
AP	Action plan
CBOs	Community-based organization
CRH	Citizen's Representative Hural
CTO	Chief Technology Officer
EPR	Extended producer responsibility
ESTs	Environmentally-sound technology
GDT	General Department of Taxation
GHG	Greenhouse gas
GPAM	Government Procurement Agency of Mongolia
IO	International organization
IETC	International Environmental Technology Centre
INDCs	Intended Nationally Determined Contributions
JICA	Japan International Cooperation Agency
MASM	Mongolian Agency of Standardization and Methodology
MCUD	The Ministry of Construction and Urban Development
MChC	Mongol Chamber of Commerce
MD	Ministry of Defense
ME	Ministry of Environment
MECSS	Ministry of Education, Culture, Science and Sport
MEGDT	Ministry of Environment, Green Development & Tourism
MET	Ministry of Environment and Tourism
MF	Ministry of Finance
MFALI	Ministry of Food, Agriculture and Light Industry
MH	Ministry of Health
MMHI	Ministry of Mining and Heavy Industry
MNET	Ministry of Nature, Environment & Tourism
MNRA	Mongolian National Recycling Association
MoG	Government of Mongolia
MRTD	Ministry of Road and Transportation Development
MUB	Municipality of Ulaanbaatar
NAMA	Nationally Appropriate Mitigation Action
NCCC	National Committee of Climate Change
NB	National budget
NFP	National focal point
NGOs	Non-governmental organizations
NWMIS	National Waste Management Improvement Strategy
NWMISAP	National Waste Management Improvement Strategy and Action Plan
ODA	Official Development Assistance
PPP	Public-private partnership
PS	Public service
RAs	Resident associations
R&D	Research and development
SGH	State Great Hural
SLCPs	Short-lived climate pollutants
SWM	Solid waste management
SWOT	Strengths, weaknesses, opportunities and threats
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
WIS	Waste Information Systems

Foreword

Waste management improvements, waste reduction and the creation of a clean and healthy environment are some of the objectives of Mongolia's National Development Policy based on the Sustainable Development Goals, Mongolia's Stance on National Security, Green Development Policy, and the Medium-Term Target Programme of "New Development". The Law on Waste (2017) was passed and ratified by the parliament on 12 May 2017. The Government of Mongolia's increasing focus and priority in waste management and environmental protection is greatly visible through its active involvement in reviewing and formulating new and progressive national policies and legal frameworks. Although the existing and planned efforts of the Mongolian government in progressively overcoming challenges in the solid waste sector are commendable, Mongolia's solid waste management sector has untapped potential for improvement.

With this backdrop and to promote the solid waste management sector in the country, there was a need to develop a solid waste management strategy and action plan at the national level. The objectives of this National Waste Management Strategy and Action Plan are to highlight the necessity of greening the development pathway, ensure sound management of solid wastes, promote conservation and efficient use of resources, strive for environmentally sound technologies and approaches, reduce adverse impacts to the climate by reducing GHG emissions and short-lived climate pollutants (SLCPs) generated by the waste sector, drive behavioral change of the public towards the adoption of the 3R (reduce, reuse, recycle) principles, create infrastructure for the collection and disposal of waste, promote and encourage capacity building and raise social responsibility of citizens, business establishments and corporations. This strategy document serves as one of the first official supplementary guidance documents to the newly approved Law on Waste (2017).

The Ministry of Environment and Tourism of Mongolia is indebted to the United Nations Environment Programme through its International Environment Technology Centre (IETC) for its generous financial and technical contribution for the development of the Mongolia National Waste Management Improvement Strategy and Action Plan and to the successful partnership with the Asian Institute of Technology, Regional Resource Centre for Asia and Pacific (AIT RRC.AP).

Ministry of Environment and Tourism

Government of Mongolia

Executive Summary

Waste management has become a major issue in Mongolia due to increased population growth, urbanization and industrialization during the last decade. Since 2010, the total amount of waste generation was 840,000 tonnes and has increased almost three-folds to 2,900,000 tonnes[1] in 2015 (urban areas 1.2 milion tonnes, rural areas 1.7 million tons). Furthermore, increases in consumption levels and the emergence of different waste streams have contributed to a complex and diverse composition of waste in the country. The majority of the waste disposed included 90.9 per cent of waste from MSW and 9.1 per cent from industrial sources. There are about 415 illegal waste sites spread throughout Mongolia, which are being used for waste disposal. The Government of Mongolia has undertaken a number of initiatives related to waste and the 3Rs at different levels, which have either been implemented or are being implemented in the country. For example, about 104,690 tonnes of waste covering an area of 34,724 ha was removed from illegal disposal areas in 2015. However, some initiatives have not been able to suitably address waste management problems. In addition, no coordinated system exists for the management of wastes in the country. Solid wastes continue to be dumped regardless of location and without any scientific treatment. For example, there is no regular waste collection and disposal schedule, no disposal options except for landfills in Ulaanbaatar and other *aimags*, and no special facilities for disposal of hazardous waste. These issues lead to negative impacts on both the environment as well as on public health in the country. Furthermore, the lack of consolidated and comprehensive data on waste generation and its management leads to a gap in future planning and implementation of sound waste management strategies.

At the policy level, the Constitution of Mongolia states that all the Mongolian citizens have the right to live in a healthy and safe environment, and to be protected from environmental contamination and loss of ecological balance. Mongolia has policy and regulatory frameworks related to the environment as well as to green development. Mongolia is also a signatory to major multilateral environmental agreements/conventions related to the protection of public health and the environment. These include the United Nations Framework Convention on Climate Change (1993); Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1996); Vienna Convention for the Protection of the Ozone Layer (1996); Montreal Protocol on Substances that Deplete the Ozone Layer (1996); Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1999); and the Stockholm Convention on Persistent Organic Pollutants (2003). Various provisions of these agreements/conventions are transposed into national policy and regulatory frameworks and provide opportunities to develop policies, programmes, plans and projects related to solid waste management in line with international commitments. Overall evaluation of the solid waste management scenario in Mongolia indicates the government's increasing priority in solid waste management and environmental protection, which is greatly visible through its active involvement in reviewing and formulating new and progressive national policy and legal frameworks. Although existing and planned efforts of the Mongolian government in progressively overcoming challenges in the solid waste sector are commendable, there still remains significant untapped potential for improvement in this sector. The main challenges are linked to current inefficiencies in regulatory and institutional frameworks, financial constraints, skills gap and technology barriers.

Given this scenario, a need was identified to develop a National Waste Management Improvement Strategy and Action Plan (NWMISAP) to stimulate the solid waste management sector in the country. The objectives of the NWMISAP are to highlight the necessity of greening the development pathway, ensure sound management of solid wastes, promote conservation and efficient use of resources, strive for environmentally-sound technologies and approaches, promote reduction of waste at source, reduce adverse impacts to the climate by reducing GHG emissions and short-lived climate pollutants generated by the waste sector, strengthen the legislative framework through the introduction of contamination/penalty fees, drive behavioral change of the public towards the adoption of the 3R (reduce, reuse, recycle) principles, create infrastructure for the collection and disposal of waste, promote and encourage

1 Khishgee (2014). Mongolian Government Ordinance No. 298, 2014, and MET 2016

capacity building and raise the social responsibility of citizens, business establishments and corporations. NWMISAP document will serve as one of the first official supplementary guidance documents to the newly approved Law on Waste (2017).

The NWMISAP has been developed conceptually on the 3R principles of the solid waste management hierarchy in accordance with the UNEP-UNITAR Guidelines for National Waste Management Strategies. The Ministry of Environment and Tourism (MET) identified a national consultant to draft the strategy and an action plan in close coordination with a number of stakeholders. Furthermore, it was developed through a process of wide consultation with the key stakeholders including two national-level workshops. The feedback received after each consultative exercise has been incorporated in the final version of the document.

The NWMISAP covers municipal solid waste (MSW, from households/gers, commercial and institutional areas], construction and demolition (C&D) waste, healthcare waste, industrial waste, mining waste, tyre waste, e-waste, disaster waste and other non-hazardous wastes. The NWMISAP provides a strategic vision and direction for sustainable waste management from 2017 until 2030.

The vision of the NWMISAP is *to develop, implement and maintain an integrated waste management system in the country in order to bring the lowest level of negative impact of waste on the environment, climate and public health, and to meet sustainable development goals. Its mission is to facilitate development and institutionalization of a sound legal framework to be implemented through environmentally sound technologies and methodologies in order to achieve sustainable waste management*. In order to implement the strategy and achieve the set objectives, the document lays out the priority short- and long-term actions.

The strategic objectives presented in this document are coherent with the existing national and regional development plans and master plan. In general, the objectives proposed in this document fall under the following categories:

Objective 1: Improve the legal framework for facilitating better enforcement of the law to achieve sustainable waste management;

Objective 2: Reduce final waste disposal by 30 per cent through the use of economic incentives for recycling and recovery of waste;

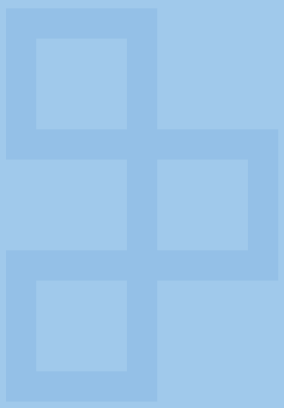
Objective 3: Establish holistic waste management for hazardous waste;

Objective 4: Reduce waste generation at source by providing public education to ensure habitual waste segregation;

Objective 5: Greenhouse gas reductions by transitioning to environmental-friendly technologies for final waste disposal; and

Objective 6: Establish required organizational structures and financial systems for sustainable waste management to ensure its operational stability.

The NWMISAP is arranged into five chapters. The first chapter provides the background for the need of a waste management strategy, the existing situation of waste management in Mongolia and the current policy and legal framework. Chapter Two describes the strategy development process. Based on this baseline information, a list of strategies to fill the existing gaps and tap the potential opportunities are laid out in the third chapter. Translating these strategic objectives into actions is presented in Chapter Four. The fifth chapter concludes with arrangements for implementation and monitoring of the NWMISAP.



1 \ Introduction

The Need for a National Solid Waste Management Improvement Strategy

Solid waste management has become a major issue in Mongolia. The country has witnessed increases in population growth, urbanization and industrialization during the last decade. This has resulted in an overall increase in solid waste generation. In 2010, the total amount of waste generation in the country was 840,000 tonnes. By 2015, in just five years, waste generation had increased three-fold to 2,900,000 tonnes,[2] which means that the total amount of solid waste generated has increased at the rate of 500,000 tonnes per year. The main reason for the increase in the solid waste generation can be attributed to the rise in as well as changes in consumption patterns. This includes consumption of materials as well as the new products. For instance, as of 2011, the import of chemical substances had risen by 8.9 per cent, office equipment and electronics by 28.9 per cent, car batteries and used bicycles by 28.1 per cent, and used vehicle equipment by 71.8 per cent. Further, different waste streams produced by both industrial and domestic use have contributed to the complex and diverse composition of waste in the country. These wastes include waste from mining activities, waste containing harmful and substandard chemical substances, pesticides, packaging and wrappings, used car oil, car batteries, measurement devices that contain mercury, wastewater and sludge from the water treatment plants and hazardous waste.

Out of the total solid waste disposed in the landfills, MSW covers 51% of the total waste, while C&D and hospital waste accounts for 3% each (see Figure 2).

In order to tackle this issue, the Government of Mongolia has initiated a number of initiatives at different levels, which have either been implemented or are in the process of being implemented in the country. Since 2007, Mongolia's central authority on environmental issues, the Ministry of Environment and Tourism, requires local governments of the 21 provinces to introduce and implement landfill technology in stages at their central waste disposal sites, which is still under implementation. In 329 *soums*,[4] 21 provincial centers and six sites in Ulaanbaatar city, there are a total of 396 central waste disposal sites covering

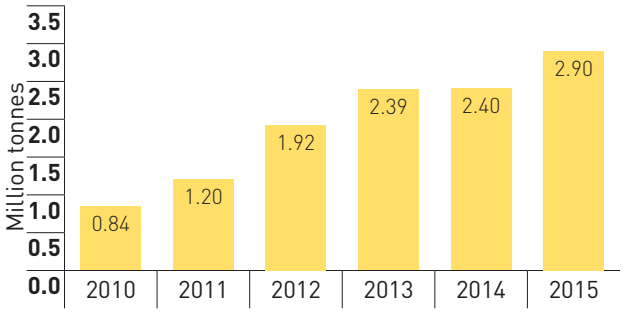


Figure 1 Increasing trend of annual waste generation in Mongolia

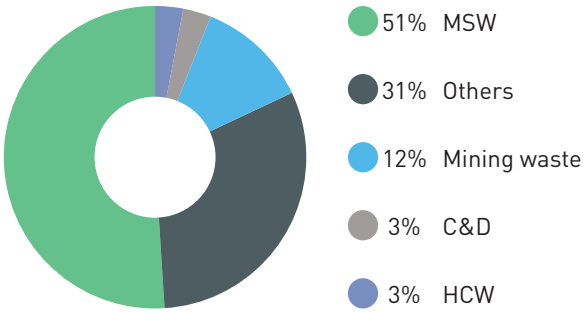


Figure 2 Percentage composition of various waste streams in Mongolia[3]

2 Khishgee (2014). Mongolian Government Ordinance No. 298, 2014, and MET 2016

3 Personal communication with Ms. Erdenebayasgalan Ganjuurjav [Email dated: 29 July 2016]

4 *Soum* = equivalent to county - political and administrative unit. Workshop on National and City Waste Management Strategy & Action Plan and Pilot Demonstration Project & Capacity Building Training Session on E-waste Management in Ulaanbaatar, Mongolia, 14-16 December, 2016.

around 125,000 hectares of land in total. About 2,344,613 tonnes of waste were disposed in these waste disposal areas in 2015.

The composition of solid waste disposed includes 90.9 per cent of waste from domestic source (21 per cent from business entities, 8 per cent from roads, 16 per cent from apartment areas, 47 per cent from ger areas and other wastes 8 per cent) and industrial sources (construction 59 per cent, industry 38 per cent, other 3 per cent). There are about 415 areas being used for illegal waste disposal. About 104,690 tonnes of waste covering an area of 34,724 ha was removed from these disposal areas in 2015. In Ulaanbaatar, about 10,000 tonnes of hazardous waste was generated in 2007. About 369 tonnes, 68,000 litres of chemical waste, 85.5 per cent of which is stored in non-designated areas needs to be disposed. In 2015, about 1,036,295 tonnes of recyclable waste was generated out of which only 0.31 per cent has been recycled. Recycled items consists of paper and paper products, glass and glass products, aluminum, ferrous metal, plastics and others.[5] In Ulaanbaatar, from 2006 to 2010, Japan International Cooperation Agency (JICA) under a grant component implemented a project called "Ulaanbaatar's Waste Management Improvement Project". Within the project framework, a central waste disposal site equipped with landfill technology was established in Songinokhairkhan district and waste transportation vehicles were replaced.

However, the various initiatives undertaken have not been able to address waste management problems in an integrated and comprehensive manner. For example, districts on the outskirts of the city and rural areas are still dealing with waste and related contamination issues. There is also no consolidated system for the management of the waste. Solid waste is still dumped regardless of location and without any scientific treatment. There is no regular waste collection and disposal schedule, no disposal options other than landfilling, and no special facility for the disposal of hazardous waste. This leads to negative effects on both the environment as well as on public health. Further, lack of consolidated and comprehensive data on waste generation and its management leads to gaps in planning and implementation of the solid waste management sector. Besides a partially conducted quantitative survey in 2009, there are no consolidated quantitative records on solid waste covering the whole country and, therefore, no comprehensive monitoring system in place.

At the policy level, the Constitution of Mongolia states that all Mongolian citizens have the right to live in a healthy and safe environment, and to be protected from environmental contamination and loss of ecological balance. Policy documents and programmes, such as the Mongolia's National Development Policy based on the Millennium Development Goals, the Mongolia's Stance on National Security, the Green Development Policy, and the Medium-Term Target Programme of "New Development", all include waste management improvements, waste reduction and the creation of a clean and healthy environment as one of their objectives. The updated Waste Law (2012), in Article 6, Clause 6.1.5, states that the government will approve the National Programme on Waste Management Improvement. Therefore, this national waste management improvement strategy and action plan has been prepared in line with the existing policy framework of the country.

The objectives of the NWMISAP are to highlight the necessity of greening the development pathway, ensure sound management of waste, promote the conservation and efficient use of resources, strive for environmentally-sound technologies and approaches, promote the reduction of waste at source, reduce the adverse impacts to the climate by reducing GHG emissions and short-lived climate pollutants (SLCPs) generated by the waste sector, strengthen the legislative framework

5 Bulgan T. (2016). Head of Green development policy and planning department, Ministry of Environment and Tourism. Presentation on requirement to renew legal framework and management on waste, and policy on waste management, Second Workshop on National and City Waste Management Strategy & Action Plan and Pilot Demonstration Project & Capacity Building Training Session on E-waste Management in Ulaanbaatar, Mongolia, 14-16 December, 2016.

through the introduction of contamination/ penalty fees, drive behavioral change of the public towards the adoption of the 3R (reduce, reuse, recycle) principles, create infrastructure for the collection and disposal of waste, promote and encourage capacity building and raise the social responsibility of citizens, business establishments and corporations. This NWMISAP document will serve as one of the first official supplementary guidance documents to the newly approved Law on Waste of 2017. Further, in order to promote community involvement in waste reduction and for the creation of a clean and healthy environment, it is crucial that the goals and activities of this strategy and action plan are implemented as soon as possible.

National Waste Management Framework and Sustainable Green Development

Mongolia has policy and regulatory frameworks related to solid waste management. The Sanitation and Hygiene Law (1998) in Mongolia aims to ensure the right of an individual to healthy and safe working and living conditions. Articles 5-7 of the Sanitation and Hygiene Law prescribe, respectively, the requirements for the supply of drinking and household water, air quality and soil sanitation.

Until the 2000, solid waste-related activities were regulated by (i) the Law on Import, Ban of Transborder Delivery and Export of Hazardous Waste (2000); (ii) the Law on Domestic and Industrial Wastes (2003); and (iii) the Law on Ban of Some Plastic Bags Consumption (2009). The Law on Household and Industrial Waste, which came into enforcement on 1 July, 2004, and is part of the Waste Law 2003 was the first designated law on solid waste management in Mongolia. This law governed waste collection, transportation, storage, and landfill of the household and industrial waste, reuse of the waste as secondary raw material, and ensured effective measures to prevent the negative impacts of wastes on public health and the environment. The above-mentioned three laws were integrated in 2012 within the reformed framework of environmental laws leading to the promulgation of the current Waste Law 2012. The current Waste Law emphasizes the introduction of the 3R principles to improve solid waste management and forms the regulatory basis of waste segregation at source.

On 19 May 2016, the Mongolian Parliament has passed the new Waste Law 2016 however, it was not endorsed, which includes MSW, liquid, gaseous and solid hazardous waste excluding radioactive wastes (except radioactive waste), hence, becoming the first law on holistic solid waste management, following the Global Waste Management Outlook. The New Law on Waste (2017) was discussed in the standing committee and ratified by the Parliament on 12 May 2017, Waste Law 2012 will be superseded.

The Law on Waste (2017) states that the Mongolian government shall approve action plans to implement the national programme on waste management and enforce implementation. Similarly, Phase II (2018-2022) has been earmarked for the creation of a clean and healthy environment through the restoration of environmental damage from waste contamination by educating the public about green consumption and developing an awareness of social responsibility and establishing a proper solid waste management system. Implementation of the programme is expected to be the first step towards a proper solid waste management system by operating central waste sites that meet quality requirements, reaching at least 20 per cent reuse or recycling target from the current 4.4 per cent (excluding metal waste) to produce value-added products, establishing source segregation of solid waste and developing and maintaining an electronic information system for the monitoring of waste flows to provide accurate statistical information.

Other national-level policies/programmes/plan statements, which provide guidance on solid waste management, include The Sustainable Development Concept of Mongolia 2030. The Sustainable Development Concept of Mongolia 2030,[6] approved under the State Great Hural Resolution No. 19 on 5 February 2016, sets a goal for Mongolia to become a leading middle-income country by per capita income, with a stable multi-sector economy and a middle-class by preserving the ecological balance and having a sustainable economy by 2030. It also sets the objectives to become one of the leading 30 countries in terms of green development indicators and maintenance of a stable ecological balance. In order to achieve this, the solid waste recycling target is set to reach 30 per cent as of 2025 and 40 per cent as of 2030 to preserve the ecological balance.

The current government's Action Plan 2016-2020,[7] adopted under the State Great Hural Resolution dated 9 September 2016, specifies "to implement the green development policy directed to maintain the natural pristine nature balance in order to remain and transfer to the next generations, enable the natural resources conservation, prevention from depletion, effective use and natural regeneration, make the natural resources the basis of environmentally friendly economic growth and stable social development, transfer efficient and advanced technologies which are harmless to public health and the environment in order to save and conserve the natural resources, and recycle and reuse wastes, as well as realize effective waste management to reduce the air, water and soil pollution in urban areas".

Mongolia is also a signatory to the following multilateral environmental agreements and conventions for the protection of the public health and the environment:

- United Nations Framework Convention on Climate Change (1993);
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1996);
- The Vienna Convention for the Protection of the Ozone Layer (1996);
- The Montreal Protocol on Substances that Deplete the Ozone Layer (1996);
- The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1999);
- The Stockholm Convention on Persistent Organic Pollutants (2003).

Various provisions of these agreements and conventions are transposed into national policy and regulatory framework and provide opportunities to develop policies, programmes, plans and projects related to solid waste management in line with the international commitments.

The regulatory framework and policies/programmes/plan statements and international commitments described above form a basis for developing this NWMISAP.

Current Issues and Challenges on Waste Management in Mongolia

Overall, the Mongolian government's increasing priority on waste management and environmental protection is greatly visible through its active involvement in reviewing and formulating new and progressive national policy and legal frameworks, as well as through ratification of multilateral environmental agreements. Although, the existing and planned efforts of the Mongolian government

6 http://www.legalinfo.mn/law/details/11725. (Accessed on 24 January, (2016)
7 http://legalinfo.mn/law/details/12120. (Accessed on 24 January, (2016)

in progressively overcoming challenges in the waste sector are commendable, Mongolia's waste management sector has untapped potential for improvement. These are mainly linked to the current inefficiencies in the regulatory and institutional frameworks, to financial constraints, skills gaps and technology barriers.

Regulatory Framework - Compliance and Enforcement Challenges

The main challenges with regard to the policy and regulatory framework are:

- Lack of effective enforcement of laws and regulations, weak monitoring and compliance due to technology, capacity, financial and other resource gaps;
- Lack of effective awareness as well as of penalty mechanisms to ensure compliance by stakeholders;
- Lack of continuity, uncertainty and administrative inefficiency due to repeated revision of laws. Changes in legislation must provide a stable legal basis for its enforcement;
- Gaps exist in coordination of environmental legislation in different sectors. These policy inconsistencies point to a need for streamlining environmental policies and legislation. It is also necessary to provide a strong foundation, through new or amended legislation, for mainstreaming the environment in the context of sustainable development. Gaps exist in policies and legislation in assigning institutional ownership and responsibility for further development or enforcement to a specific government department and/or agency, at the central or local level.

Institutional Framework – Inefficiencies and Coordination Gaps

It has been observed that lack of coordinated effort and cooperation are the key gaps in the legal and institutional framework for solid waste management. Such inefficiencies may be due to many factors, such as:

- Ministries and other agencies in Mongolia are established on a very strong sectoral and hierarchical approach with few, if any, mechanisms for coordination and less so for cooperation;
- There is a lack of lateral integration at the strategic and operational levels;
- Change in political power often leads to changes or reforms in institutions that are responsible for the environment, either changing the name (and responsibility/ authorized power) of the institution as well as change in the deployment of human resources that serve the particular institution (at all levels and at each change of government). This lack of continuity, misplacement of capacity and uncertainty causes administrative inefficiency. For instance, the ministry responsible for environmental issues has been renamed thrice between 2008-2016, from MNET to MEGDT to MET.
- Institutional roles and responsibilities at different levels of government are not clearly delineated, thereby leaving a gap in ownership and responsibility. At present, relevant institutions implement solid waste management activities as individual projects rather than as part of a national programme. Most donor-funded programmes are also implemented directly by working at the local government level with no clear (national) institutional framework that leads to proper development of the human resources and the programme sustainability.

- Lack of integration and coordination between waste and other relevant sectors lead to missing of opportunities for sharing resources and expertise. The situation gets further complex given overlapping and conflicting legislation and responsibilities. The "silo" functioning of institutions at times causes inconsistencies in the achievement of the broader goals of sustainable and green development.

- Lack of administrative capacity (low technical capacity, facilities and equipment) to implement and monitor solid waste management activities, especially at the local government level. One of the technical capacity gaps shared during the commissioning of the baseline study was the lack of capacity on waste sampling methodology and inventory assessment and monitoring.

- Weak human resource capacity is often reported throughout the Mongolian civil service and positions are often left vacant or filled inappropriately without any regard for their qualifications and expertise.

- Lack of diverse and innovative financing measures in waste sector: A shared cost mechanism (government budget, private investments, polluter pays principle and extended producers responsibilities, official development assistance (ODA)) would result in sustainability of solid waste management incentives at the local level and releases financial burden on only one party.

- Revenue sources for waste management (e.g., waste fees, water and wastewater charges, polluter pays taxation) do not cover the full cost of solid waste collection, transportation, treatment and disposal.

- Funding for solid waste, wastewater treatment and air pollution in Mongolia heavily depends on ODA grants and are often project-based. There is little or no contribution by the national government, leading to lack of financial sustainability and inability to continue or scale up of projects by the end of their timeframe.

Financial Constraints

Limited financial resources represent another barrier to the implementation of sound solid waste management at the national level:

- A limited national budget for solid waste management: Transfer of financial resources from the national budget to local levels of government as grants is not a guaranteed nor proportionate number each year, i.e., there is no specific amount of budget allocated for waste management each year. If there is a certainty in the amount of GDP allocation for solid waste management each year, despite the change of the government, local governments can continue solid waste management activities without suffering from budget cuts.

Technology Barriers

A strong technical and scientific base is a primary requirement for effective solid waste management. Developing countries, however, usually have access to outdated technologies, which add to pollution. For example, poor heating and cooking systems in ger areas result in the emission of SLCPs (including choking smog) and other air pollutants. In addition to this, technologies used for solid waste treatment need to be upgraded using advanced technologies. Mongolia lacks up-to-date data on inventories of various forms and streams of waste generation, collection, treatment, recovery and disposal. Several technological barriers in solid waste, wastewater, and air pollution management include:

- Solid waste collection and transportation with inadequate temporary waste storage facilities (especially in ger areas) and especially sewerage network systems due to dispersed population, climate conditions, etc.

- Waste disposal sites are simply open dumping grounds that release GHGs, SLCPs and leachate thereby polluting the surrounding soil and water ecosystems and adversely affecting public health. Further, industrial wastes are disposed in the same dumpsites meant for municipal solid waste.

- A small fraction of waste is recycled (4.4 per cent),[8] and the technology used for recycling is mostly primitive/crude recycling. However, some recycling units (e.g., tyre-to-oil plants have been established by the private sector in Ulaanbaatar).

- Lack of source segregation of waste makes waste sorting difficult at a later stage (due to lack of advanced sorting technology/mechanical conveyor belts with infrared and magnetic separators); hence the chance of losing valuable recyclables into the dumping ground is higher.

8 Mongolian Government Ordinance, Ref no. 298, 2014. National Programme on Waste Management Improvement. Government of Mongolia

2 \ Strategy Development Process

The Mongolia Solid Waste Management Strategy and Action Plan has been developed in accordance with the UNEP-UNITAR Guidelines for National Waste Management Strategies.[9] The project team, which worked on the development of this strategy and action plan consisted of a national consultant (recommended by the Ministry of Environment and Tourism-MET), focal point from the MET, UN Environment (UNEP) IETC and AIT RRC.AP. A step-wise approach has been adopted to formulate this strategy and is described in Figure 3.

Step 1: Review and Assessment of national policies (related to development/sustainable development/ green development);

Step 2: Identification of common elements related to solid waste management;

Step3: Review and assessment of completed, ongoing and future plans/programmes /projects. This document serves to combine foregoing, ongoing and planned waste management strategies;

Step 4: Baseline study for gap analysis and identification of issues (AIT RRCAP in partnership with UNEP IETC;

Step 5: Analysis of strengths, weaknesses, opportunities and threats (SWOT) in the solid waste management sector in Mongolia; and

Step 6: Preparation of strategy and action plan, which deals with the issues and challenges that are considered to be barriers in the implementation and enforcement of solid waste management in the country.

- Several meetings and stakeholder consultations were convened to review the strategy and action plan including MET, line ministries, representatives from NGOs/recycling associations, the private sector and citizens

9 https://www.unitar.org/launch-unep-unitar-guidelines-national-waste-management-strategies. (Accessed on 24 January, (2016)

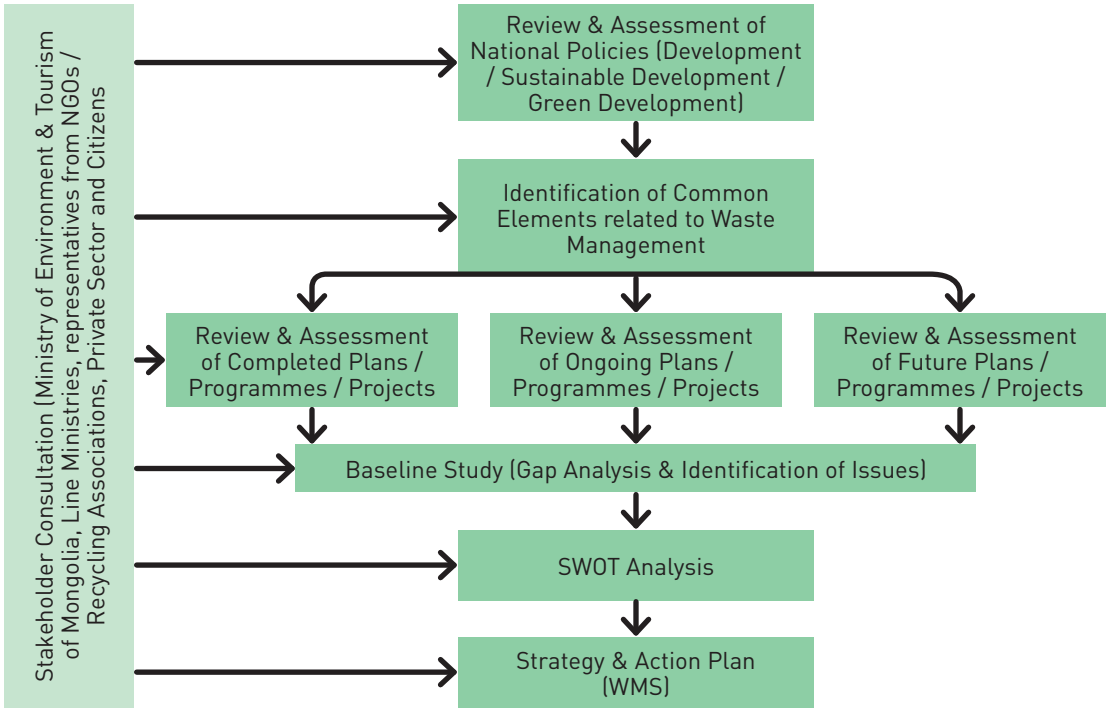


Figure 3 Process flow of approach and methodology

at each step along the way. This included organization of a national workshop for awareness raising and capacity building in coordination and partnership with Ministry of Environment, Green Development and Tourism (MEGDT), UNEP-IETC, AIT RRC.AP and UNIDO held on 4-6 February 2015. The workshop was organized with the aims of:

- Raising awareness of technical officers and other participants on holistic waste management;
- Building capacity to develop a strategy and action plan for Mongolia focusing on data collection and analysis, identification of gaps in legislative framework and implementation, financing mechanisms, technologies and roles of stakeholders;
- Agreeing on the generic outline document of a national waste management strategy and action plan; and
- Discussing the next steps covering the work plan/process of the strategy formulation.

The second national workshop was conducted on 14-16 December 2016. The main objective of the workshop was to present and review the draft national waste management strategy and action plan to a wider range of stakeholders, thereby receiving constructive feedback and suggestions to be incorporated into the final version. The final NWMISAP is a living document and will be updated as deemed as necessary.



Figure 4 **Second Workshop on National and City NWMISAP and Pilot Demonstration Project in Ulaanbaatar City, Mongolia**

3 \ National Waste Management Improvement Strategy

The SWOT analysis undertaken indicates that Mongolia has a strong but nascent policy and regulatory framework committed to green and sustainable development. However, the solid waste management sector has inherent weaknesses related to the regulatory framework (e.g., lack of compliance and enforcement), institutional framework (e.g., inefficiencies and lack of coordination), as well as financial- and technology-related barriers as highlighted in section 1.1.2. Mongolia offers enormous opportunities for stakeholders at all levels of solid waste management. However, the country suffers from the threat of missing these opportunities as well as to undertake sustainable and green development if weaknesses and barriers are not overcome.

Therefore, the NWMISAP has been formulated based on the common guiding principles mentioned in Waste Management Framework and Sustainable Green Development (section 1.1.1), waste hierarchy-based 3R principles and the Law on Waste of 2017. These principles are:

- Operate proactively by employing the precautionary principle;
- Sort waste at source and adopt waste reduction practices during production;
- Increase waste recycling and reuse through support of economic incentives;
- Create sustainable development to support zero-waste production;
- Supporting polluter pays principle;
- Remove wastes using means and technologies that cause less harm to the environment;
- Support the participation, rely on and promote partnership between citizens and the private sector; and

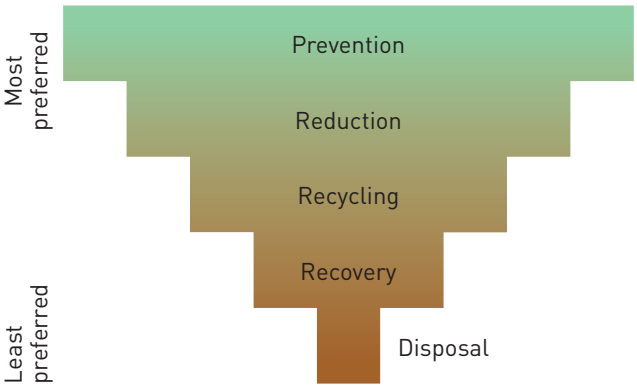


Figure 5 The waste management hierarchy

- Make information transparent and easily available, and increase public awareness and education.

The waste hierarchy is core to the concept of cradle-to-grave approach (from generation to disposal) and to sustainable development in solid waste management. Conceptually, the 3R-based waste hierarchy shown in Figure 2 is a hierarchical structure, where the highest priority must be given to the prevention/reduction of waste. If the prevention/reduction option is neither practical nor technically or socio-economically feasible, then the other solutions have to be considered, for example, reuse, recycling or recovery of the waste. If recycling is not feasible, then different treatment alternatives must be considered. Through the application of this hierarchical approach and the process of elimination, the best practical environmental and locally feasible solution with the least negative impact on the environment for any particular waste stream is selected. This approach has resulted in the reduction of waste disposed at landfills as well as in the utilisation of primary resources such as wood (e.g., trees). It has also resulted in an increase in the utilisation of waste as a resource, for example MSW used to generate heat and electricity. Companies have also adapted their manufacturing processes and substituted raw materials to prevent hazardous waste generation and, in some cases, to improve the quality of the final product. Though the focus of solid waste management in most developing

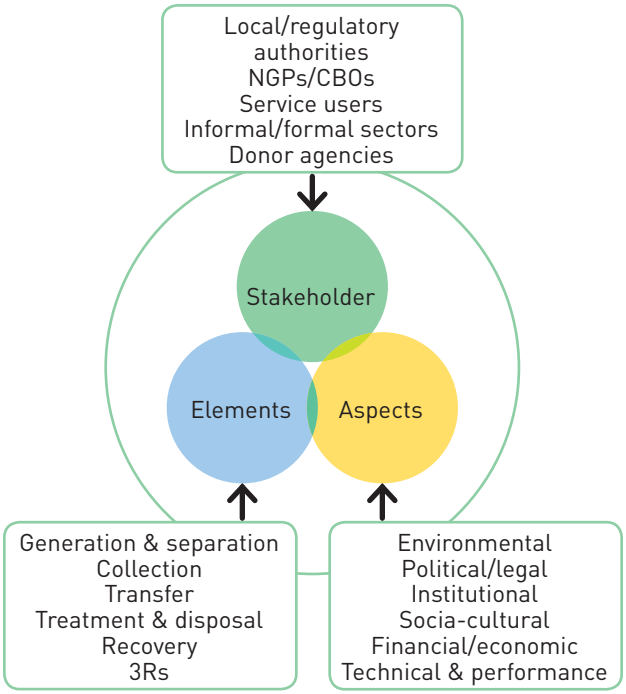


Figure 6 ISWM framework

Source: A Global Review of Solid Waste Management; March 2012, No. 15 (Box No. 4)

countries – including Mongolia – is on collection and disposal of solid waste, a phase-wise adoption of this approach could lead to accrual of various benefits. Therefore, the NWMISAP has been planned to be implemented in accordance with the phased approach to overcome weakness and threats identified in the SWOT analysis.

Under the broad framework, one of the common approach used globally is Integrated Sustainable Waste Management Framework (ISWM) applicable in a regional, national and local setting. The three major dimensions of ISWM framework is shown in Figure 6 and summarized in the Table 1.

Table 1 Dimensions of ISWM Framework

Policy Dimensions/ Framework	Components (coverage)
Stakeholders	Include individuals or groups that have an interest or roles. All stakeholders should be identified and where practical involved in creating a SWM program (Local/Regulatory Authorities, NGOs/CBOs, Service Users, Informal/Formal Sector, Donor Agencies).
Elements (Process)	Include the technical aspects of solid waste management. All stakeholders impact one or more of the elements. The elements need to be considered simultaneously when creating an SWM program in order to have an efficient and effective system (Generation and Separation, Collection, Transfer, Treatment and Disposal, Recovery and 3Rs).
Aspects (Policies and Impacts)	Encompass the regulatory, environmental and financial realities in which the waste management system operates. Specific aspects can be changeable, e.g. a community increases influence or environmental regulations are tightened. Measures and priorities are created based on these various local, national and global aspects (Environmental, Political/Legal, Institutional, Socio-Cultural, Financial/Economic and Technical and Performance).

Source: A Global Review of Solid Waste Management; March 2012, No. 15 (Box No. 4)

The waste management sector also follows a generally accepted waste hierarchy as shown in Figure 2. The hierarchy started as the 'three Rs' reduce, reuse, recycle but now a fourth R is frequently added recovery. The hierarchy responds to financial, environmental, social and management considerations as part of "Elements" (process) shown in Figure 3. For Mongolia, there's no existing ISWM yet in place for *aimags*/*soums* to implement.

Target waste streams

In accordance with current definitions and responsibilities regarding solid waste management in Mongolia, the NWMISAP covers the following waste streams:

- Municipal solid waste (from households/gers, commercial and institutional areas);
- Construction and demolition waste;
- Healthcare waste;
- Industrial waste including mining, tyre, e-waste and other non-hazardous wastes; and
- Disaster waste.

Among these waste streams, the NWMISAP will mainly focus on the municipal solid waste from households, commercial (offices, restaurants, hotels, commercial and service establishments, markets, etc.), institutional, and non-processed industrial sources. The similarity in nature and composition of these wastes and the urgent need of action to control them is considered. For the other waste streams, the NWMISAP provides some recommendations regarding the institutional mechanisms required to control these wastes properly along with the proposed allocation of roles among the relevant government ministries and agencies. Detailed action plans for other waste streams may be developed in future.

Target Areas

The WMS covers the whole country of Mongolia and is applicable to all states/*hurals*, *aimags* (provinces),[10] cities, *soums* and districts in Mongolia.

Vision

The vision of the Mongolia NWMISAP is:

> *"To develop, implement and maintain an integrated solid waste management system in the country in order to bring the lowest level of negative impact of waste on the environment, climate and public health, and to meet sustainable development goals."*

The focus is to move towards green development and a circular economy, to raise management of waste to a new level, to achieve conservation of raw materials, the strive for clean and environmentally-sound technologies through the reduction of waste at the source, to levy waste fees, to change public opinion and habits using the 3R (reduce, reuse, recycle) principles, to create infrastructure for the collection and disposal of solid waste, to enhance capacity building and raise social responsibility of citizens, business establishments and corporations.

10 *Aimag* is equivalent to province, a political and administrative unit that is located either in a peri-urban or urban area). Workshop on National and City Waste Management Strategy & Action Plan and Pilot Demonstration Project & Capacity Building Training Session on E-waste Management in Ulaanbaatar, Mongolia, 14-16 December, 2016.

Mission

The mission of the Mongolia NWMISAP is:

> *"To facilitate development and institutionalization of a sound legal framework to be implemented through environmentally-sound technologies and methodologies in order to achieve sustainable solid waste management."*

The mission is to save natural resources through economic recycling of waste resources and prevent and reduce negative impacts of waste on public health, environment and climate change.

Objectives

- In order to realize the vision and achieve specific targets, strategies should be established with the following objectives:

Objective 1: Improve the legal framework for facilitating better enforcement of the law to achieve sustainable waste management;

Objective 2: Reduce final waste disposal by 30 per cent through the use of economic incentives for recycling and recovery of waste;

- Objective 3: Establish holistic waste management for hazardous waste;
- Objective 4: Reduce waste generation at source by providing public education to ensure habitual waste segregation;
- Objective 5: Greenhouse gas reduction through transition to environmental-friendly technologies for final waste disposal; and
- Objective 6: Establish the required organizational structure and the financial system for sustainable waste management and ensure its operational stability.

Waste management implementation timeframe

Target Year

The target year of the NWMISAP is 2030. The same target year has been adopted for the Sustainable Development Concept of Mongolia 2030. Phase-wise implementation from 2017 till 2030 is described below.

Phase I: Short term (2017-2020)

The first phase will focus on improving and developing a relevant legal framework for waste reduction, an improved waste management system, capacity development for infrastructure and financing, increased participation of communities and the private sector and the transformation of public habits/behavior related to solid waste management.

The development of an adequate legal framework will provide a strong foundation for the preparation of guidelines, procedures, master planning and institutional mechanisms for implementation. Master planning will lead to formulation of action plans and activities for implementation based on financial mechanisms.

Phase II: Medium term (2017-2025)

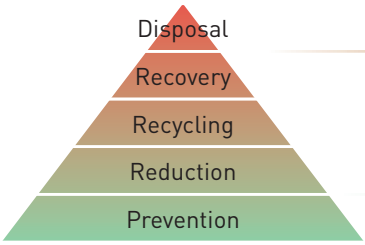
The second phase will focus on the preparation and implementation of activities on approval of laws/policy/guidelines, infrastructure and financing following the existing framework on waste management (amended Law on Waste 2017). Identified actions and activities will be implemented to create suitable waste management infrastructure based on the 3Rs.

Phase III: Long term (2017-2030)

- The third phase focuses on the creation of a clean and healthy environment through the restoration of areas damaged by contamination of waste, creation of additional infrastructure and its sustainability through public education on green consumption and awareness of social responsibility, as well as the establishment of a proper waste management system.

- A conceptual framework linking vision, guiding principles, waste hierarchy based on the 3R principles, objectives, strategies, actions/activities, stakeholders, financing and performance measurement is shown in Figure 3 followed by description of objectives and corresponding strategies.

Vision



Guiding principles

Objective 1: Improve the legal framework for facilitating better enforcement of the law to achieve sustainable waste management.	Objective 2: Reduce the final waste disposal by 30% through the usage of economic incentives for recycling and recovery of waste.	Objective 3: Establish holistic waste management for the hazardous waste
Strategy 1.1] Improve the legal framework to regulate the waste management and institutionalize regulation on economic incentives for waste segregation, recycling and reuse. Strategy 1.2] Establish the legal framework for the manufacturers and importers, fix responsibility for the waste generated from their products / goods and monitor the waste imports. Strategy 1.3] Improve legal framework related to the management and coordination of hazardous waste. Strategy 1.4] Reduce the negative impact of the solid waste on public health and environment through monitoring of emissions from recycling, reuse and disposal related activities. Strategy 1.5] Develop and implement the waste management master plans for each province, city, *soum*, and district, and within this framework, estimate expenses, investment requirements and carry out the cost-benefit analysis of the waste reduction and recycling.	Strategy 2.1] Establish a collection system for recycling and recovery of solid waste. Strategy 2.2] Create (encourage) favorable (convenient) condition and support for private entities to invest in waste collection, transportation, recycling, reuse and recoveryactivities. Strategy 2.3] Engage the private sector through the PPPs – to get involved in solid waste collection, transportation, recycling and disposal.	Strategy 3.1] Establish hazardous waste inventory system. Strategy 3.2] Establish hazardous waste management system for collection, transportation, recycling and disposal.
Actions: 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6. 1.1.7 / 1.2.1, 1.2.2 / 1.3.1, 1.3.2, 1.3.3 / 1.4.1, 1.4.2, 1.4.3, 1.4.4, 1.4.5 / 1.5.1, 1.5.2, 1.5.3, 1.5.4, 1.5.5, 1.5.6	Actions: 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5 / 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.2.6, 2.2.7, 2.2.8 / 2.3.1, 2.3.2, 2.3.3, 2.3.4	Actions: 3.1.1, 3.1.2, 3.1.3 / 3.2.1, 3.2.2, 3.2.3

Funds

Stakeholders (responsible agencies)

Performance indicator | Performance indicator | Performance indicator

Figure 7 Conceptual Strategic Framework

Source: Jain Amit (2016).

(Least preferred)

(Most preferred)

Objective 4: Reduce waste generation at the source by providing public education to ensure habitual waste segregation	Objective 5: Greenhouse gas reductions by transitioning to environmental-friendly technologies for final waste disposal.	Objective 6: Establish the required organizational structure and financial systems for the sustainable waste management and ensure its operational stability.
Strategy 4.1] Develop and implement a waste education programme. Strategy 4.2] Intensify training and advocacy targeted for business entities and organizations. Strategy 4.3] Improve press and media's role and state their responsibilities relating to public awareness of waste management. Strategy 4.4] Raise public awareness in terms of domestic waste separation, recycling and proper handling of chemical substances and individual social responsibility.	Strategy 5.1] Reduction in negative impacts of solid waste disposal sites to public health and the environment Strategy 5.2] Reduction in the amount of waste disposed through support to waste reuse, recycling and recovery activities. Strategy 5.3] Ensure technical and advisory support to create the necessary national capacity needed to achieve targets set in the INDCs, with a particular focus on reducing GHGs and SLCPs from the waste sector. Strategy 5.4] Install waste disposal sites that meet health and well-being criteria in all *aimags* or local communities.	Strategy 6.1] Establish required structure for developing the sustainable waste management system and ensure its operational stability. Strategy 6.2] Improve financing mechanisms by recovering expenses required for implementing and operating waste management systems through the transfer of waste service charges and fees based on polluter pays and extended producer responsibility principles.
Actions: 4.1.1, 4.1.2, 4.1.3, 4.1.4 / 4.2.1, 4.2.2 / 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.4.6, 4.4.7	Actions: 5.1.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5/ 5.2.1, 5.2.2, 5.2.3, 5.2.4, 5.2.5 / 5.3.1, 5.3.2, 5.3.3, 5.3.4/ 5.4.1, 5.4.2	Actions: 6.1.1, 6.1.2, 6.1.3 / 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5, 6.2.6
Performance indicator	Performance indicator	Performance indicator

Strategies

Objective 1: Improve the legal framework for facilitating better enforcement of the law to achieve sustainable waste management

Strategy 1.1: Improve the legal framework to regulate solid waste management and institutionalise regulation on economic incentives for waste segregation, recycling, and reuse.

Strategy 1.2: Establish a legal framework for manufacturers and importers. Fix responsibility for waste generated from their products/goods and monitor waste imports.

Strategy 1.3: Improve on the legal framework related to management and coordination of hazardous waste;

Strategy 1.4: Reduce the negative impacts of solid waste on public health and the environment through monitoring of emissions from recycling, reuse and disposal-related activities; and

Strategy 1.5: Develop and implement solid waste management master plans for each province, city, *soum*, and district, and within this framework, estimate expenses, investment requirements and carry out cost-benefit analyses of waste reduction and recycling.

Objective 2: Reduce final waste disposal by 30 per cent through the use of economic incentives for recycling and recovery of waste

Strategy 2.1: Establish a collection system for recycling and recovery of solid waste;

Strategy 2.2: Create (encourage) favorable (convenient) conditions and support for private entities to invest in waste collection, transportation, reuse, recycling, and recovery activities; and

Strategy 2.3: Engage the private sector – through public-private partnerships (PPP) – to get involved in solid waste collection, transportation, recycling and disposal.

Objective 3: Establish holistic waste management for hazardous waste

Strategy 3.1: Establish a hazardous waste inventory system; and

Strategy 3.2: Establish a hazardous waste management system for collection, transportation, recycling and disposal.

Objective 4: Reduce waste generation at source by providing public education to ensure habitual waste segregation

Strategy 4.1: Develop and implement a waste education programme to be included in school curricula;

Strategy 4.2: Intensify training and advocacy targeted for business entities and organizations;

Strategy 4.3: Improve press and media's role and state their responsibilities relatingto public awareness of waste management; and

Strategy 4.4: Raise public awareness in terms of domestic waste separation, recycling, proper

handling of chemical substances and individual social responsibility.

Objective 5: Greenhouse gas reductions by transitioning to environmental-friendly technologies for final waste disposal

Strategy 5.1: Reduction in negative impacts of solid waste disposal sites to public health and the environment;

Strategy 5.2: Reduction in the amount of waste disposed through support to waste reuse, recycling and recovery activities;

Strategy 5.3: Ensure technical and advisory support to create necessary national capacity needed to achieve targets set in the INDCs, with a particular focus on reducing GHGs and SLCPs from the waste sector; and

Strategy 5.4: Install waste disposal sites that meet health and well-being criteria in all *aimags* or local communities.

Objective 6: Establish required organizational structures and financial systems for sustainable waste management to ensure its operational stability

Strategy 6.1: Establish required structures to develop a sustainable waste management system and ensure its operational stability; and

Strategy 6.2: Improve financing mechanisms by recovering expenses required for implementing and operating waste management systems through the transfer of waste service charges, and fees based on polluter pays and extended producer responsibility principles.

Roles of Stakeholders

The NWMISAP needs to be implemented by three key stakeholders, namely the general public, the government and the private sector. The NWMISAP identifies the general roles and responsibilities of each of the stakeholders as described below. Specific roles and responsibilities of each stakeholder are described Chapter 4.

1. **General Public**

- Reduce waste as a conscious consumer;
- Return to retailers packaging and containers that immediately become solid waste;
- Reduce, reuse and sort waste as a waste generator; and
- Segregate recyclable materials at source in accordance with the recycling mechanism applied in that locality (e.g., reduce organic waste by composting).

2. **NGOs, community-based organizations and resident associations**

- Bridge the gap between the community and relevant stakeholders;
- Organize resident associations, recyclers, haulers, and end-users of recyclables to support community-based 3Rs activities;
- Lead the role in raising awareness and organizing communities for 3Rs, such as proper source segregation of recyclable materials;
- Raise public awareness on the 3Rs; and
- Organize 3R activities at the community level, including source segregation of recyclables.

3. **Government**

1. National Government

- Formulate and promulgate basic policy on national waste minimisation through legal and economic instruments;
- Establish an organization to certify eco-friendly products;
- Promote and supervise roles through information/data collection and management; and
- Provide incentives to promote 3R activities by stakeholders.

2. State Government/*aimag*

- Act as the focal point on solid waste data, i.e. collection, analysis and sharing of data related to SWM and the 3Rs;
- Formulate local action plans on waste minimization;
- Implement policy through local action plans on waste minimization;
- Coordinate among relevant stakeholders to establish and maintain recycling activities in their relevant *aimags*;
- Create opportunities for exchange of information among *aimags*; and
- Jointly implement awareness activities between the general public and *aimags*.

4. **Private Sector and Institutions**

1. Business Entities

- Reduce the amount of waste generated by adopting cleaner production methods;
- Serve as recycling partners by segregating recyclable materials at sources, in accordance with recycling facilities available in their localities;
- Share information and raising awareness on the 3Rs through networks such as business associations, especially for small and medium enterprises.

2. Manufacturing/Industries and Retailers

- Promote the use of reusable/refillable containers;
- Promote voluntary take-back of packages and containers based on EPR principles;
- Provide product information regarding reuse and recycling to the consumer; and
- Design and manufacture eco-friendly products.

3. Concessionaires

As an organization responsible for solid waste management at the local level, concessionaires shall have the following roles:

- Establish their own recycling systems as major waste management stakeholders; and
- Share information and raise awareness on the 3Rs.

4. Recyclers

Collectors and recyclers of materials play significant roles in maintaining recycling activities in their service areas and localities, including:

- Cooperate with collectors of recyclable materials based on separation at source in *aimags*/*soums*; and
- Register as recyclers, if required by legislation.

5. End users of recyclable materials

The loop of recycling is closed when collected recyclable materials are used for manufacturing by end users, thus decreasing the amount of virgin materials required. To cooperate in the implementation of national waste minimisation policies and to promote recycling, the following roles should be undertaken by end users:

- Make efforts to receive and utilise recyclable materials in their manufacturing processes;
- Link and form networks with the recycling community; and
- Provide information to the general public and raise awareness on source segregation and recycling.

Institutional framework for waste management

The administrative powers, roles and responsibilities identified, but not limited to, to regulate solid waste management are provided below and summarised in Table 1.

Mongolian Parliament

- Monitor implementation of laws and regulations; and
- Approve the budget submitted by the government for waste recycling, reuse, regeneration and disposal.

Government

- Approve the National Programme on Improvement of Waste Management;
- Approve regulation on temporary storage, collection, transportation, recycling, disposal, registration and reporting on hazardous waste;
- Approve a list of hazardous waste streams and their classification;
- Approve a list of the hazardous waste prohibited/limited, imported and exported to and from Mongolia;

Ministry of Environment and Tourism (MET)

- Enforce the implementation of national policy on waste management;
- Approve an action plan to implement the national programme on solid waste management and enforce its implementation;
- Approve a methodology to establish norms related to MSW waste;

- Develop and approve regulations to establish a national database on solid waste management;
- Give permission to legal entities and organizations for collection, transportation, recycling, disposal, export and import of hazardous waste; and approve the regulations to give permission;
- Approve a coded list of waste generation resource and define their threshold limits;
- Approve form(s) for solid and hazardous waste registration and reporting; and form(s) registering the organizations who generating, transporting, collecting, recycling, recovering and disposing of hazardous or general waste;
- Establish general requirements for operations related to collection, sorting, transportation, recycling, recovery, disposal and landfilling of MSW;
- Approve guidelines on the methodology to establish and operate waste disposal sites;
- Approve regulations on selection criteria to be applied and procedure for issuing permission to legal entities and organizations willing to engage in operations related to disposal facilities and landfills;
- Approve a list of products for importers and manufacturers responsible for generating hazardous waste;
- Approve the structure and charter for the Waste Experts' Committee; and
- Request approval labelling standards for goods produced from recyclable and recycled resources from the organizations who has special right to approve labeling standard.

Ministry of Construction and Urban Development (MCUD)

- Approve and enforce implementation of regulations on clean-up, collection, sorting, transportation, recycling, recovery, disposing and landfilling of construction waste;
- Establish norms for C&D waste; and
- Provide professional and technical advice and financial assistance for construction waste processing, recycling and landfilling operations.

Ministry of Road and Transportation Development (MRTD)

- Approve and enforce implementation of regulations for clean-up, collection, sorting, transportation, recycling, regeneration, disposing and landfilling of waste from transportation vehicles;
- Monitor operations related to clean-up, collection and transportation of solid waste generated at the following levels:
  - International;
  - National; and
  - Local.

Ministry of Health (MH)

- Provide professional and technical advice and financial assistance for the execution and monitoring of healthcare waste management operations at sectoral organizations;
- Develop, approve and enforce implementation of guidelines on sorting, collection, transportation, recycling, recovery and disposal of hazardous wastes generated by healthcare organizations;

- Approve a methodology for calculating service fees for hazardous wastes generated by healthcare organizations;
- Establish normative amounts for hazardous wastes generated by healthcare organizations; and
- Provide technical and professional advice and financial support for operations related to sorting, collection, transportation, recycling, recovery and disposal of hazardous wastes generated by healthcare organizations.

Ministry of Education, Culture, Science and Sport (MECSS)

- Provide professional and technical advice and financial assistance for execution and monitoring of solid waste management operations by sectoral organizations;
- Incorporate content related to education/awareness on solid waste management into curricula at kindergarten, primary, secondary and high school level, vocational/technical and higher educational institutions; and
- Conduct research, develop technical guidelines on utilization of modern technologies in establishing levels of pollution caused by waste, necessary clean up, prevention, processing, recycling, recovery and disposal methods and practices.

Ministry of Defense (MD)

- Approve and enforce implementation of guidelines/instructions on collection, transportation, recycling, recovery and disposal of solid waste, such as firearms, bullets, weapons, explosives and chemicals, generated by subordinate organizations or left at territories used for military purposes; and
- Submit a report on handling of solid waste to the administrative body in charge of environmental matters.

Ministry of Mining and Heavy Industry (MMHI)

- Provide professional and methodological advice for execution and monitoring of waste management during mining and processing;
- Approve and enforce implementation of guidelines/instructions on sorting, collection, transportation, recycling, recovery and disposal of solid waste generated during mining, extraction and processing operations; and
- Submit a report on handling of solid waste generated during mining, extraction and processing operations to the administrative body in charge of environmental matters.

Ministry of Finance (MF)

- Jointly, with the state administrative body in charge of environmental matters, approve a methodology for calculation of solid waste service fees and enforce implementation of service fee collection;
- Jointly, with the state administrative body in charge of environmental matters, approve a methodology for calculation of unit tariffs for costs related to the cleaning, collection, transportation, burial and landfilling of regular solid waste;
- Develop policy incentives to operations related to collection, transportation, recycling, recovery and disposal of solid wastes.

Ministry of Energy and Energy Regulatory Commission

- Provide professional and methodological advice for execution and monitoring of waste generating from energy producing, transmitting and distributing operations;
- Approve tariff and review the calculation of energy fee generated from waste recovery.

Aimag, **City Citizens' Representative Hural**

- Monitor the enforcement of the Law on waste management in their constituencies;
- Develop and approve local program for improving waste management and monitor its implementation;
- Develop and approve regulations on cleaning, sorting, collection, transportation, regeneration, burial and disposal of regular waste, and enforce implementation;
- Approve a unit tariff for waste cleaning and landfilling operations on public use areas in accordance with the methodology

Aimag, **City Governor**

- Organize and ensure the implementation of national policies on waste management in their respective territories;
- Issue a permission for operating a waste disposal site, landfilling and regeneration activities; and develop and approve a procedure to issuing permission
- Ensure the implementation of local program on waste management;
- Submit a report on handling of waste to Ministry of Environment and Tourism.
- Monitor implementation of waste management legislation in respective territories;
- Monitor operations related to temporary storage, collection, transportation storage, recycling and disposal of hazardous waste in respective territories;
- In accordance with the Law on procurement of goods, works and services on state and local budget funds, select a business entity or organization and establish and agreement on conduct of waste recycling, regeneration, landfilling and disposal operations at facilities constructed on funds from national or local budget, or on grant or loan from international organizations;
- Arrange for financing and organize activities related to waste sorting, collection of recyclable resources, reuse, recycling, regeneration of waste to get benefit through economic circulation;
- Organize activities aimed at limiting coverage and reducing negative impact of waste on human health and environment in situations when such an impact or its risk is present;
- Find financing and take measures to gradually decrease number of pit latrines that contribute to soil contamination in respective territories;
- Approve a regulation on operation of public inspectors on waste management and payment of monetary incentives to them;

Soum, **District Governor**

- Enforce the laws and regulations on waste management in their constituencies;
- In accordance with the Law on procurement of goods, works and services on state and local budget funds, select a business entity or organization and make agreement on provision

of waste cleaning, collection, transportation services;

- Organize cleaning, collection and transportation of waste on and around auto roads of international, national and local level located on respective territories;
- Spend the revenues accumulated from waste service fees for waste collection, transportation and landfilling;
- Organize cleaning of waste from public use areas;
- Organize, support and promote organization of training and public awareness events providing education on waste
- Monitor implementation of waste management legislation, enable operation of public inspectors on waste management;
- Monitor collection of waste service fees from citizens, legal entities and organizations;
- Provide support in increasing revenues from waste service fee collection;
- Provide support to waste related activities of community groups;
- Locate sufficient number of waste bins in areas for public use;
- Define 50 m border zone of public area around business entity and organization who shall clean the waste and snow of it;
- Organize activities aimed at limiting coverage and reducing negative impact of waste on human health and environment in situations when such an impact or its risk is present; and
- Define an amount of incentives for public inspector and get approval on annual budget

Bag, Khoroo

- Enforce the laws and regulations on waste management.
- Involve individuals, legal entities and organizations in the clean-ups of local areas;
- Monitor collection of waste service fees from citizens, legal entities and organizations;
- Provide support in increasing revenues from waste service fee collection;
- Monitor activities related to cleaning, sorting, collection and transportation of waste;
- Organize public awareness on waste management, involve citizens, legal entities and organizations;
- Establish informal community groups to initiate and organize activities aimed at reducing waste and obtaining economic benefit from waste.

Financing

The waste programme will be financed by the following sources:

- State and local budgets;
- Solid waste service fees;
- International organizations, loans and grants by donors; and
- Funds obtained from business establishments and corporations.

4 \ Mongolia Waste Management Action Plan

This section describes the action plan at the national level, which has been prepared to be in line with strategies formulated under the National Solid Waste Management Improvement Strategy and Action Plan for Mongolia.

Objectives of the Waste Management Action Plan

The objectives of the action plan are:

- To identify priority actions for each of the strategies listed Section 3
- To identify key stakeholders at national and local levels including *aimags* and *soums*, among others, in order to implement recommendations on strategy, actions and activities.

Proposed Actions

Objective 1: Improve the legal framework for facilitating better enforcement of the law to achieve sustainable waste management

Strategy 1.1

Improve the legal framework to regulate solid waste management and institutionalize regulation on economic incentives for waste segregation, recycling, and reuse.

Actions

1.1.1 Conduct needs assessments through reviewing existing policies, legal and regulatory frameworks and carry out gap analyses;

1.1.2 Establish an expert committee on solid waste management which would be responsible for introducing legislation and developing recommendations to improve solid waste management;

1.1.3 Conduct studies on different waste streams, including e-waste, waste tyres, automobile batteries, disaster waste and develop regulations, guidelines and waste management plans for each type of waste;

1.1.4 Establish environmental pollution and quality standards and emissions limit for the following related to each waste stream:

- General waste segregation, collection, transportation, recycling, recovery, and re-use;
- Handling and disposal of C&D, healthcare and organic waste; and
- Occupational health and safety of waste workers.

1.1.5 Establish mechanisms for solid waste data collection, registration, monitoring and reporting;

1.1.6 Establish mechanisms for handling and disposal of various waste streams, and calculate cost for waste collection, treatment and disposal into norms and budgets; and

1.1.7 Further, develop regulations on economic incentives aimed to facilitate solid waste segregation, transportation, recycling, recovery and reuse.

Strategy 1.2

Establish a legal framework for the manufacturers and importers. Fix responsibility for the waste generated from their products/goods and monitor waste imports.

Actions

1.2.1 Establish regulations to monitor, restrict or prohibit imports of second-hand goods, e.g., electronics and automobiles; and

1.2.2 Create EPR-based regulations with polluter pay's principle, where importers and manufacturers are made legally, physically and financially responsible for solid wastes generated from their imported or produced products.

Strategy 1.3

Improve on the legal framework related to management and coordination of hazardous waste.

Actions

1.3.1 Develop regulations, waste classifications, standards, procedures, and guidelines to implement management of hazardous wastes. This includes:

- Handling and disposal of hazardous wastes: Conduct studies on distinctive features and waste composition of different waste streams and on optimal methods for their final treatment;
- Handling and disposal of emerging waste types such as e-waste, waste tyres, automobiles, car batteries and ash from ger areas; and
- Construction and operation of waste disposal areas (landfills) for general and hazardous wastes.

1.3.2 Carry out institutional assessments, specifying roles and responsibilities; and

1.3.3 Map identified institutional mechanisms under the master plan vis-à-vis existing institutional roles and responsibilities.

Strategy 1.4

Reduce the negative impacts of solid waste on public health and the environment through monitoring of emissions from recycling, reuse and disposal-related activities.

Actions

1.4.1 Define norms/standards for waste generation, composition, collection, transportation and disposal for all waste streams;

1.4.2 Define forms and reports for waste databases and establish information systems according to the waste hierarchy;

1.4.3 Conduct country-wide quantitative surveys of solid wastes in order to generate a consolidated database and registry for waste management;

1.4.4 Improve the content of forms and reports used to generate waste data to create a comprehensive database with more accurate data;

1.4.5 Building capacity of implementing agencies/ organizations/specialists working on waste information systems (WIS):

- Define institutional roles and responsibilities related to WIS;

- Organize training for institutions and staff involved in data registration, collection and submission to the MET and to meet their WIS responsibilities;
- Organize institutional arrangements if local capacity is not available to provide the required WIS information;
- Enter all data into an electronic database according to the developed standards, forms and formats;
- Issue reports on an annual and quarterly basis on solid waste management; and
- Use WIS data for local and national waste management planning.

Strategy 1.5

Develop and implement solid waste management master plans for each province, city, soum, and district, and within this framework, estimate expenses, investment requirements and carry out cost-benefit analyses of waste reduction and recycling.

Actions

1.5.1 Prepare waste management master plans for each *aimag*/city using strategic management tools including a waste management planning system, waste management information system and registration system for all waste streams;

1.5.2 Conduct studies on distinctive features and waste composition of different waste streams as well as on optimal methods for final treatment and disposal as part of the master planning process;

1.5.3 Prepare cost estimates and conduct cost benefit analyses for waste reduction and recycling for all types of waste;

1.5.4 Determine institutional arrangements and responsibilities for national solid waste management planning; and

1.5.5 Develop guidelines to implement identified institutional mechanisms.

Objective 2: Reduce final waste disposal by 30 per cent through the use of economic incentives for recycling and recovery of waste.

Strategy 2.1

Establish a collection system for recycling and recovery of solid waste.

Actions

2.1.1 Introduce buy-back or take-back mechanisms so that consumers can return products to manufacturers/producers and introduce financial mechanisms for customers purchasing new products based on EPR;

2.1.2 Establish systems for the collection and transportation of the waste;

2.1.3 Establish linkages between collection and transportation systems to recycling facilities;

2.1.4 Link target-based collection with financial mechanisms to facilitate recycling; and

2.1.5 Advertise, promote and distribute information on recyclable waste collection centers, locations and purchase rates of recyclable materials.

Strategy 2.2

Create (encourage) favorable (convenient) condition and support for private entities to invest in waste collection, transportation, recycling, reuse and recovery activities.

Actions

2.2.1 Assessment of existing financing mechanisms, incentive systems and economic instruments for solid waste management in Mongolia;

2.2.2 Identification of practical examples, cases, success stories and articles from international experience to develop and introduce financing mechanisms and incentive systems in the solid waste management sector;

2.2.3 Give tax rebates and discounts to investors and entities who recycle and recover waste;

2.2.4 Establish regulations to encourage green procurement, import equipment, material, spare parts for recycling, recovery, disposal, landfilling, and 3R-related activities through favorable taxation, economic policies and incentive systems;

2.2.5 Encourage higher resource use efficiency by promoting activities to introduce advanced and high-end technologies that have low or no waste discharges in the production process. Also promote production using recyclable materials to reduce resource use;

2.2.6 Reduce or exempt custom duties for advanced technologies and equipment which have high efficiency of natural resource use, reduce pollution and waste generation;

2.2.7 Promote sales and purchases of recycled goods and encourage bidders who offer recycled, recovered raw materials and products by giving preference/priority in procurement of goods, works, and services with state and local budget funds; and

2.2.8 Organize training and advocacy to create a citizen's initiative for sorting, recycling and reusing practices.

Strategy 2.3

Engage the private sector – through public-private partnerships (PPP) – to get involved in solid waste collection, transportation, recycling and disposal.

Actions

2.3.1 Create a system such that the organization or individual introducing new technology or manufacturer implementing 3Rs is able to apply for a soft loan from commercial banks and other financial institutions;

2.3.2 Encourage private sector participation through PPP for solid waste management by enabling incentives highlighted in Strategy 2.2 in order to reduce capital cost;

2.3.3 Establish a revenue-based business model with a reasonable return on investment that is acceptable to the private sector; and

2.3.4 Encourage the establishment of ecoparks through PPP for recycling, recovery and treatment of waste.

Objective 3: Establish holistic waste management for hazardous waste

Strategy 3.1

Establish a hazardous waste inventory system.

Actions

3.1.1 Conduct a hazardous waste inventory every five years to determine the level of hazardous waste generation and composition from various sources:

- Define and classify hazardous wastes and conduct baseline studies to determine the existing scenario;
- Establish a hazardous waste registration and reporting system for hazardous waste management; and
- Develop standards to determine hazardous waste components and composition.

3.1.2 Enhance capacity and capability of existing laboratories that can determine components and composition of hazardous waste:

- Identify laboratories that can undertake hazardous waste testing and analysis;
- Carry out assessments of the laboratories' capacities and capabilities;

- Develop standards for the establishment and operation of testing laboratories;
- Enhance their capacities and capabilities as per required standards.

3.1.3 Establish and maintain a system for registration, awarding permits and reporting on hazardous waste generators/generation, collectors/collection, transporters/transportation, recyclers/recycling and disposers/disposal operations.

Strategy 3.2

Establish a hazardous waste management system for collection, transportation, recycling and disposal.

Actions

3.2.1 Introduce EPR system to take-back hazardous materials and wastes generated from produced goods;

3.2.2 Establish ecoparks consisting of recycling and treatment facilities for hazardous wastes and other processing activities/facilities:

- Conduct a study on hazardous waste generation and its geographical distribution;
- Develop a feasibility study on the establishment of temporary storage, disposal, treatment and recycling facilities based on geographical location of these facilities;
- Conduct environmental impact assessments prior to the establishment of hazardous waste facilities;
- Develop a policy to build an ecopark in close proximity to the landfill in order to facilitate reuse, recovery, recycling with reduced load on disposal;
- Establish household hazardous waste drop-off centers in urban areas such as *soums* and duuregs;
- Supply healthcare waste disinfection equipment to hospitals in *soums*;
- Construct healthcare waste incineration facilities in larger urban areas/cities.

3.2.3 Create a hazardous waste monitoring system for sorting waste at source, safe storage and transfer to an authorized organization/operator for recycling, recovery activities:

- Conduct a review and gap analysis of the existing hazardous waste monitoring system; and
- Establish a monitoring system for hazardous waste management.

Objective 4: Reduce waste generation at source by providing public education to ensure habitual waste segregation

Strategy 4.1

Develop and implement a waste education programme.

Actions

4.1.1 Develop an education programme on waste management at all levels of formal education from kindergarten to university;

4.1.2 Update books and education materials at all levels of education to include content about integrated solid waste management;

4.1.3 Prepare trainers/teachers and training material for educating the public/students on integrated solid waste management; and

4.1.4 Support and encourage schools to have an eco-club and conduct activities such as campaigns to disseminate information and raise awareness.

Strategy 4.2

Intensify training and advocacy targeted for business entities and organizations.

Actions

4.2.1 Raise awareness of business entities on integrated solid waste management, such as by introducing waste reduction or prevention options, using modern technology and equipment and maximizing the use of recyclables; and

4.2.2 Reduced use of packaging and container materials in the transport and distribution of products, voluntary collection of used or consumed products through cooperation among manufacturers, distributors, and retailers.

Strategy 4.3

Improve press and media's role and state their responsibilities relating to public awareness of waste management.

Strategy 4.4

Raise public awareness in terms of domestic waste separation, recycling and proper handling of chemical substances and individual social responsibility.

Actions

4.4.1 Build capacity at the community level through trainings and events in order to promote the formation of healthy habits such as sorting and segregation of waste, utilizing appropriate bags or bins and disposal areas and encouraging communities to voice their opinions and ideas;

4.4.2 Organize all-inclusive waste reduction campaigns through local governments. *Aimags*/cities play important roles in informing and educating the public to raise the awareness and, consequently, motivate them to practice the 3Rs, which are key to achieving the goals of sustainable waste management;

4.4.3 Raise awareness of 3Rs on youth through education in schools and promoting participation in community-based 3R activities such as waste separation drives in *aimags*/*soums*;

4.4.4 Promote public campaigns and participation of youth in the 3Rs activities. These activities may include source separation of recyclable materials led by *soums* associations, communities and NGOs [MNRA];

4.4.5 Promote 3Rs through focused training and events;

4.4.6 Enhance the capacity of *aimags*/cities/*soums* in terms of replicating or customizing their own policies/local regulations through:

- Setting up local SWM boards with focal points in charge of developing and recommending waste fees and tariffs including fines and penalties; and
- Develop cost accounting of SWM services.

4.4.7 Create feedback mechanism and grievance redressal systems to continually improve the solid waste management system.

Objective 5: Greenhouse gas reductions by transitioning to environmental-friendly technologies for final waste disposal.

Strategy 5.1

Reduction in negative impacts of solid waste disposal sites to public health and the environment

Actions

5.1.1 Create primary waste collection and treatment centres in *soums* and urban areas;

5.1.2 Create C&D waste and e-waste collection centers in each *soum* and disctrict;

5.1.3 Encourage and promote the private sector to build waste-to-energy plants in Ulaanbaatar, Darkhan and Erdenet cities;

5.1.4 Introduce modern technologies and build organic waste-to-gas fuel plants;

5.1.5 Establish a system to register/give permits and monitor organizations involved in collection, transportation, recycling, recovery and disposal of waste;

1. Upgrade waste disposal sites of *aimag* centers and city to first and second category with following stages:

- 2020 -20 % (5);
- 2025 -40% (10);
- 2030 -100% (11); and

2. Upgrade waste disposal site of *soum*'s center to transfer to second and third class category with following stages:

- 2020 -20% (66);
- 2025 -40% (132);
- 2030 -100% (132).

Strategy 5.2
Reduction in the amount of waste disposed through support to waste reuse, recycling and recovery activities.

Actions

5.2.1 Identify policy gaps and prioritize supplemental policies to be developed on the reduction and conservation of resources and raw materials, in consultation with key stakeholders in the manufacturing sector:

- Carry out waste assessments including quantity and composition by each line ministry for sectors including agriculture, mining and industry; and
- Carry out gap analyses with respect to the policy framework for each type of waste.

5.2.2 Develop policies on solid waste management, e.g., waste segregation, segregated waste collection, anti-littering and other prohibited practices:

- Develop policy framework and guidelines in line with national policy and create guidelines for each type of waste;
- Develop standards for establishing recycling/ recovery facilities and temporary storage facilities; and
- Develop guidelines for delegating SWM officers, certification of trainers and professionals.

5.2.3 Develop and implement a management plan by the relevant ministries for the proper treatment, recovery and disposal of waste generated in manufacturing processes;

5.2.4 Develop a waste management plan to control waste streams from industries and manufacturing processes by the relevant ministries; and

5.2.5 Develop guidelines to mainstream and establish methane avoidance, reduction and capture approaches as part of the sectoral contribution of solid waste management in Mongolia's Nationally Appropriate Mitigation Actions (NAMAs) under the UNFCCC:

- Expand a monitoring network for environmental contamination caused by wastes and toxic substances. Engage in capacity building of environmental laboratories so that correct and factual information on the nature and extent of environmental pollution can be determined and monitored.

Strategy 5.3

Ensure technical and advisory support to create the necessary national capacity needed to achieve targets set in the INDCs, with a particular focus on reducing GHGs and SLCPs from the waste sector.

Actions

5.3.1 Undertake technical and institutional capacity building activities to increase the ability of stakeholders to meet the international GHG mitigation commitments (INDCs) through specific policy interventions, as well as the identification of suitable environmentally sound technologies to mitigate GHGs and SLCPs emissions from the waste sector:

- Identify different stakeholders at national, city and local levels responsible for meeting the targets provided in INDCs from the solid waste sector;

5.3.2 Strengthen the capacity of policy makers and practitioners in Mongolia to reduce GHGs and SLCPs from the solid waste sector, based on the concept of circular economy:

- Undertake capacity building needs assessments of identified stakeholders including policy makers and industry;

5.3.3 Support national and local governments to create an enabling legislative, financial and technological environment for the introduction and uptake of suitable environmentally-sound technologies (ESTs) in the waste sector:

- Undertake technology needs assessments of the solid waste management sector, especially in relation to waste-to-energy to reduce GHGs and SLCPs based on the concept of 3Rs and circular economy;

5.3.4 Undertake mitigation measures to reduce GHG emissions from the solid waste sector through implementation of the 3Rs, introduction of environmentally sound technology and by increasing effectiveness and efficiency of the manufacturing sector:

- Design and undertake capacity building programmes for stakeholders to improve human resource capacity, expanding research and development and carrying out technology assessments on the solid waste management sector; and

5.3.5 Identify and design technologies for solid waste management including waste-to-energy based on best practices, successful case studies and their suitability.

Strategy 5.4

Install waste disposal sites that meet health and well-being in all aimags or local communities.

Actions

5.4.1 Adopt a step-by-step approach to change disposal sites in cities and *aimags* to first and second category waste disposal systems; and

5.4.2 Adopt a step-by-step approach to change disposal sites in *soums* to second and third category waste disposal systems.

5.4.3 Objective 6: Establish required organizational structures and financial systems for sustainable waste management to ensure its operational stability.

Strategy 6.1

Establish required structure to develop a sustainable waste management system and ensure its operational stability.

Actions

6.1.1 Update the relevant legal documents to include provisions for employment of in-charge of waste management in all the state organizations;

6.1.2 Update the organization structure of the department or state organization including specialist responsible for the waste management; and

6.1.3 Ensure stable employment condition for specialist in charge for the waste management at all the levels of state organization.

Strategy 6.2

Improve financing mechanisms by recovering expenses required for implementing and operating waste management systems through the transfer of waste service charges and fees based on polluter pays and extended producer responsibility principles.

Actions

6.2.1 Establish a waste management fund that includes fines and penalties imposed, donations, endowments, grants and contributions from domestic and foreign sources:

- Improve collection of waste service fees as well as augment income from levies on polluter pays principle/EPR;
- Identify potential sources of funds for solid waste management infrastructure development, capacity building, skills development, communication and information dissemination; and
- Create a fund with seed money from the government, which will serve as a repository of tax, fines, penalties, donations, endowment, grants and contributions from domestic and foreign sources;

6.2.2 Establish a regulation to allocate some amount of royalty to the local waste management fund;

6.2.3 Establish a mechanism for converting waste to value-added products and diverting waste from disposal as in a circular economy;

6.2.4 Develop streamlined systems to guide *aimags*/cities/*soums* in understanding how to access financial resources to fund solid waste management services and pay for related infrastructure;

› Provide information on resources requirement and sources of funding annually; and

Recommend measures to generate resources, funding and implementation of projects and activities as specified in approved action plans/ master plans.

Table 2 Proposed Action Plan for the Implementation of National Waste Management Improvement Strategy in Mongolia

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Objective 1: Improve the legal framework for facilitating better enforcement of the law to achieve sustainable waste management					
Strategy 1.1 Improve the legal framework to regulate the waste management and institutionalize regulation on economic incentives for waste segregation, recycling, and reuse.	1.1.1 Conduct needs assessments through reviewing existing policies, legal and regulatory frameworks and carry out gap analyses.	2018-2020	The Ministry of Environment & Tourism (MET)	State budget, technical and financial assistance from international organization	Improved legal environment on wastes, and reformed or developed norms, normative and procedures meeting national and international standards
	1.1.2 Establish an expert committee on solid waste management which would be responsible for introducing legislation and developing recommendations to improve solid waste management.	2018-2020	MJIA AUCGO		
	1.1.3 Conduct studies on different waste streams, including e-waste, waste tyres, automobile batteries, disaster waste and develop regulations, guidelines and waste management plans for each type of waste.	2018-2020	MF, MET, MJIA		
	1.1.4 Establish environmental pollution and quality standards and emissions limit for the following related to each waste stream General waste segregation, collection, transportation, recycling, recovery, and re-use; Handling and disposal of C&D, healthcare and organic waste; and Occupational health and safety of waste workers.	2018-2020			
	1.1.5 Establish mechanisms for solid waste data collection, registration, monitoring and reporting.	2018-2020			
	1.1.6 Establish mechanisms for handling and disposal of various waste streams, and calculate cost for waste collection, treatment and disposal into norms and budgets; and Further, develop regulations on economic incentives aimed to facilitate solid waste segregation, transportation, recycling, recovery and reuse.	2018-2020	MCUD, MF, MET		
Strategy 1.2 Establish a legal framework for the manufacturers and importers. Fix responsibility for the waste generated from their products/ goods and monitor waste imports.	1.2.1 Establish regulations to monitor, restrict or prohibit imports of second-hand goods, i.e., electronics and automobiles; and	2018-2020		State budget, technical and financial assistance from international organization	Improved legal environment on wastes, and reformed or developed norms, normative and procedures meeting national and international standards
	1.2.2 Create EPR-based regulations with polluter pay's principle, where importers and manufacturers are made legally, physically and financially responsible for solid wastes generated from their imported or produced products.	2018-2020	**MET, MJIA, MASM, MF, CGA**		

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Strategy 1.3 Improve legal framework related to the management and coordination of hazardous waste.	1.3.1 Develop regulations, waste classifications, standards, procedures, and guidelines to implement management of hazardous wastes. This includes: Handling and disposal of hazardous wastes: Conduct studies on distinctive features and waste composition of different waste streams and on optimal methods for their final treatment;Handling and disposal of emerging waste types such as e-waste, waste tyres, automobiles, car batteries and ash from ger areas; and Construction and operation of waste disposal areas (landfills) for general and hazardous wastes.	2018-2020 2018-2020	**MET, MASM**	State budget, technical and financial assistance from international organization	Improved legal environment on wastes, and reformed or developed norms, normative and procedures meeting national and international standards
	1.3.2 Carry out institutional assessments, specifying roles and responsibilities; and	2018-2020			
	1.3.3 Map identified institutional mechanisms under the master plan vis-à-vis existing institutional roles and responsibilities	2018-2020	**MET, MASM**		
Strategy 1.4 Reduce the negative impacts of solid waste on public health and the environment through monitoring of emissions from recycling, reuse and disposal-related activities.	1.4.1 Define the norms/standards for waste generation, composition, collection, transportation and disposal for all waste streams.	2018-2020	MET	State and local budget, technical and financial assistance from international organization	Effective and efficient WIS Short term – 40% Medium term – 60% Long term – 100%
	1.4.2 Define forms and reports for the waste databases and establish information systems according to the waste hierarchy;	2018-2020	MET		
	1.4.3 Conduct country-wide quantitative surveys of solid wastes in order to generate a consolidated database and registry for waste management:	2018-2020	MET, associate ministries, all level of government		
	1.4.4 Improve the content of forms and reports used to generate waste data to create a comprehensive database with more accurate data;	2018-2020	MET, associate ministries, all level of government MET		
	1.4.5 Building capacity of implementing agencies/ organizations/specialists working on waste information systems (WIS): Define institutional roles and responsibilities related to WIS; Organize training for institutions and staff involved in data registration, collection and submission to the MET and to meet their WIS responsibilities; Organize institutional arrangements if local capacity is not available to provide the required WIS information; Enter all data into an electronic database according to the developed standards, forms and formats; Issue reports on an annual and quarterly basis on solid waste management; and Use WIS data for local and national waste management planning.	2018-2020			

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Strategy 1.5 Develop and implement solid waste management master plans for each province, city, *soum*, and district, and within this framework, estimate expenses, investment requirements and carry out cost-benefit analyses of waste reduction and recycling.	1.5.1 Prepare waste management master plans for each *aimag*/city using strategic management tools including a waste management planning system, waste management information system and registration system for all waste streams;	2018-2020	MET, associate ministries, all level of government	State and local budget, technical and financial assistance from international organization	All *Aimags* develop local ordinances on waste management coupled with local strategy and action plan Short term – 20% Medium term – 40% Long term – 100%
	1.5.2 Conduct studies on distinctive features and waste composition of different waste streams as well as on optimal methods for final treatment and disposal as part of the master planning process;				
	1.5.3 Prepare cost estimates and conduct cost benefit analyses for waste reduction and recycling for all types of waste;				
	1.5.4 Determine institutional arrangements and responsibilities for national solid waste management planning; and	2018-2020	*Aimag*/City		
	1.5.5 Develop guidelines to implement identified institutional mechanisms.	2018-2020	MET		
Objective 2: Reduce final waste disposal by 30 per cent through the use of economic incentives for recycling and recovery of waste.					
Strategy 2.1 Establish a collection system for recycling and recovery of solid waste.	2.1.1 Introduce buy-back or take-back mechanisms so that consumers can return products to manufacturers/producers and introduce financial mechanisms for customers purchasing new products based on EPR.	2019-2025	MET, AUCGO, MFALI, MMHI	State and local budget, technical and financial assistance from international organization	Created effective and efficient economic leverage and incentive system to reduce wastes Short term – 10% Medium term – 30% Long term – →30%
	2.1.2 Establish systems for the collection and transportation of the waste.	2019-2025			
	2.1.3 Establish linkages between collection and transportation systems to recycling facilities. Link target-based collection with financial mechanisms to facilitate recycling.	2019-2025	MET, MASM, CGA, corresponding Ministries		
	2.1.5 Advertise, promote and distribute information on recyclable waste collection centers, locations and purchase rates of recyclable materials.	2019-2025			

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Strategy 2.2 Create (encourage) favorable (convenient) condition and support for private entities to invest in waste collection, transportation, recycling, reuse and recovery activities.	2.2.1 Assessment of existing financing mechanisms, incentive systems and economic instruments for solid waste management in Mongolia;	2018-2020	MET, The Ministry of Food, Agriculture & Light Industry (MFALI), MMHI	State and local budget, technical and financial assistance from international organization	Created effective and efficient economic leverage and incentive system to reduce wastes Short term – 10% Medium term – 30% Long term – 30%
	2.2.2 Identification of practical examples, cases, success stories and articles from international experience to develop and introduce financing mechanisms and incentive systems in the solid waste management sector;	2018-2020	MET, MET, GASI, AUCGO MFALI		
	2.2.3 Give tax rebates and discounts to investors and entities who recycle and recover waste;		AUCGO, MET		
	2.2.4 Establish regulations to encourage green procurement, import equipment, material, spare parts for recycling, recovery, disposal, landfilling, and 3R-related activities through favorable taxation, economic policies and incentive systems;	2018-2020	MET, CTO, The Ministry of Finance (MF)		
	2.2.5 Encourage higher resource use efficiency by promoting activities to introduce advanced and high-end technologies that have low or no waste discharges in the production process. Also promote production using recyclable materials to reduce resource use;	2018-2030	MET, Government Procurement Agency of Mongolia (GPAM)		
	2.2.6 Reduce or exempt custom duties for advanced technologies and equipment which have high efficiency of natural resource use, reduce pollution and waste generation;	2018-2020			
	2.2.7 Promote sales and purchases of recycled goods and encourage bidders who offer recycled, recovered raw materials and products by giving preference/priority in procurement of goods, works, and services with state and local budget funds; and	2017-2020			
	2.2.8 Organize training and advocacy to create a citizen's initiative for sorting, recycling and reusing practices.				

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Strategy 2.3 Engage the private sector – through public-private partnerships (PPP) – to get involved in solid waste collection, transportation, recycling and disposal.	2.3.1 Create a system such that the organization or individual introducing new technology or manufacturer implementing 3Rs is able to apply for a soft loan from commercial banks and other financial institutions;	2017-2020	MET, GASI, AUCGO MFALI	State and local budget, technical and financial assistance from international organization	Created effective and efficient economic leverage and incentive system to reduce wastes Short term – 40% Medium term – 50% Long term – 100%
	2.3.2 Encourage private sector participation through PPP for solid waste management by enabling incentives highlighted in Strategy 2.2 in order to reduce capital cost;				
	2.3.3 Establish a revenue-based business model with a reasonable return on investment that is acceptable to the private sector; and	2017-2020	MET, GASI, AUCGO MFALI	State and local budget, technical and financial assistance from international organization	
	2.3.4 Encourage the establishment of ecoparks through PPP for recycling, recovery and treatment of waste.	2017-2030		State and local budget, technical and financial assistance from international organization	Created effective and efficient economic leverage and incentive system to reduce wastes Short term – 40% Medium term – 50% Long term – 100%
Objective 3: Establish Holistic Waste Management for the Hazardous Waste					
Strategy 3.1 Establish hazardous waste inventory system.	3.1.1 Conduct a hazardous waste inventory every five years to determine the level of hazardous waste generation and composition from various sources: Define and classify hazardous wastes and conduct baseline studies to determine the existing scenario; Establish a hazardous waste registration and reporting system for hazardous waste management; and Develop standards to determine hazardous waste components and composition.	2018-2020	MET		WIS for Hazardous Waste Short term – 20% Medium term – 50% Long term – 100%
	3.1.2 Enhance capacity and capability of existing laboratories that can determine components and composition of hazardous waste: Identify laboratories that can undertake hazardous waste testing and analysis; Carry out assessments of the laboratories' capacities and capabilities; Develop standards for the establishment and operation of testing laboratories; Enhance their capacities and capabilities as per required standards.	2018-2020	MET, AUCGO, MECSS, AS		
	3.1.3 Establish and maintain a system for registration, awarding permits and reporting on hazardous waste generators/generation, collectors/collection, transporters/transportation, recyclers/recycling and disposers/disposal operations.	2018-2020	MET, AUCGO		

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Strategy 3.2 Establish a hazardous waste management system for collection, transportation, recycling and disposal.	3.2.1 Introduce EPR system to take-back hazardous materials and wastes generated from produced goods;	2017-2030	MET		
	3.2.2 Establish ecoparks consisting of recycling and treatment facilities for hazardous wastes and other processing activities/ facilities: Conduct a study on hazardous waste generation and its geographical distribution; Develop a feasibility study on the establishment of temporary storage, disposal, treatment and recycling facilities based on geographical location of these facilities; Conduct environmental impact assessments prior to the establishment of hazardous waste facilities; Develop a policy to build an ecopark in close proximity to the landfill in order to facilitate reuse, recovery, recycling with reduced load on disposal; Establish household hazardous waste drop-off centers in urban areas such as *soums* and duuregs; Supply healthcare waste disinfection equipment to hospitals in *soums*; Construct healthcare waste incineration facilities in larger urban areas/cities.	2017-2030	MET MRT, AUCG, CAA, NATC, RTDC, MR SOSC, UR JSC, MIAT MET, AUCGO, AGO, MH, UCGO, MCUD, GASI		Hazardous waste segregation, recycling and reusing system Short term – 20% Medium term – 50% Long term – 100%
	.2.3 Create a hazardous waste monitoring system for sorting waste at source, safe storage and transfer to an authorized organization/operator for recycling, recovery activities: Conduct a review and gap analysis of the existing hazardous waste monitoring system; and Establish a monitoring system for hazardous waste management.	2018-2025			

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Objective 4: Reduce waste generation at the source by providing public education to ensure habitual waste segregation.					
Strategy 4.1 Develop and implement a waste education programme	4.1.1 Develop an education programme on waste management at all levels of formal education from kindergarten to university.	2018-2020	MECSS, MET		3R system implemented Short term – 30% Medium term – 50% Long term – 50%
	4.1.2 Update books and education materials at all levels of education to include content about integrated solid waste management.	2020-2025	MET, associated ministries, all level of governor		
	4.1.3 Prepare trainers/teachers and training material for educating the public/students on integrated solid waste management.	2017-2020			
	4.1.4 Support and encourage schools to have an eco-club and conduct activities such as campaigns to disseminate information and raise awareness.	2017-2020	MECSS, AUCGO		
Strategy 4.2 Intensify training and advocacy targeted for the business entities and organizations.	4.2.1 Raise awareness of business entities on integrated solid waste management, such as by introducing waste reduction or prevention options, using modern technology and equipment and maximizing the use of recyclables.	2020-2015	MET, AUCGO		
	4.2.2 Reduced use of packaging and container materials in the transport and distribution of products, voluntary collection of used or consumed products through cooperation among manufacturers, distributors, and retailers.	During the Progamme Period	AUCGO		
Strategy 4.3 Improve press and media's role and state their responsibilities relating to public awareness of waste management.	Establish a regular mechanism for public advocacy, in the social responsibility of press and media organization, on harmful effects caused by waste to public health and the environment, importance of waste recycles and reuse, traditional knowledge of waste.	During the Progamme Period	MET, AUCGO		

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Strategy 4.4 Raise public awareness in terms of domestic waste separation, recycling and proper handling of chemical substances and individual social responsibility.	4.4.1 Build capacity at the community level through trainings and events in order to promote the formation of healthy habits such as sorting and segregation of waste, utilizing appropriate bags or bins and disposal areas and encouraging communities to voice their opinions and ideas;	2018-2030	MET, associated ministries, all level of governor		3R system implemented Short term – 30% Medium term – 50% Long term – 100%
	4.4.2 Organize all-inclusive waste reduction campaigns through local governments. *Aimags*/cities play important roles in informing and educating the public to raise the awareness and, consequently, motivate them to practice the 3Rs, which are key to achieving the goals of sustainable waste management.				
	4.4.3 Raise awareness of 3Rs on youth through education in schools and promoting participation in community-based 3R activities such as waste separation drives in *aimags*/*soums*.	2018-2030			3R system implemented Short term – 30% Medium term – 50% Long term – 100%
	4.4.4 Promote public campaigns and participation of youth in the 3Rs activities. These activities may include source separation of recyclable materials led by *soums* associations, communities and NGOs [MNRA].		MET, associated ministries, all level of governor		
	4.4.5 Promote 3Rs through focused training and events.				
	4.4.6 Enhance the capacity of *aimags*/cities/*soums* in terms of replicating or customizing their own policies/local regulations through: Setting up local SWM boards with focal points in charge of developing and recommending waste fees and tariffs including fines and penalties; and Develop cost accounting of SWM services.	2018-2030			
	4.4.7 Create feedback mechanism and grievance redressal system to continually improve waste management system.				

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Objective 5: Greenhouse gas reductions by transitioning to environmental-friendly technologies for final waste disposal					
Strategy 5.1 Reduction in negative impacts of solid waste disposal sites to public health and the environment	5.1.1 Create a waste primary collection and treatment centres in *soums* and urban areas.	2020-2030	AUCGO Governor of *Aimag*/City *Soum* governor MET, all level of governors	State and local budget, technical and financial assistance from international organization	Change final disposal in city and *Aimag* center to 1st and 2nd category waste disposal Short term [up to 2020] – 20% (5) Medium term [up to 2025]– 40% (10) Long term [up to 2030]– 100% (11)
	5.1.2 Create the bulky waste and e-waste collection centers in each *soum* and districts.				
	5.1.3 Encourage and promote the private sector initiative to build waste to energy plant in Ulaanbaatar, Darkhan and Erdenet city.	2020-2030	*Soum* governor *Soum*/district governor		Change final waste disposal in *soum* center to 2nd and 3rd category waste disposal Short term [up to 2020]– 20% (66) Medium term [up to 2025]– 40% (132) Long term [up to 2030]– 100% (330)
	5.1.4 Introduce modern technologies and build organic waste-to-gas fuel plants.				
	5.1.5 Establish a system to register/give permits and monitor organizations involved in collection, transportation, recycling, recovery and disposal of waste.				

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Strategy 5.2 Reduction in the amount of waste disposed through support to waste reuse, recycling and recovery activities.	5.2.1 Identify policy gaps and prioritize supplemental policies to be developed on the reduction and conservation of resources and raw materials, in consultation with key stakeholders in the manufacturing sector: Carry out waste assessments including quantity and composition by each line ministry for sectors including agriculture, mining and industry; and Carry out gap analyses with respect to the policy framework for each type of waste.	2020-2030	MET, The Ministry of Education, Culture, Science and Sport (MECSS), all level of governors MET, AUCGO		Improved legal environment on wastes
	5.2.2 Develop policies on solid waste management, e.g., waste segregation, segregated waste collection, anti-littering and other prohibited practices: Develop policy framework and guidelines in line with national policy and create guidelines for each type of waste; Develop standards for establishing recycling/recovery facilities and temporary storage facilities; and Develop guidelines for delegating SWM officers, certification of trainers and professionals.	2020-2030	MET, MECSS, all level of governor MET, MECSS, all level of governor		Improved legal environment on wastes
	5.2.3 Develop and implement a management plan by the relevant ministries for the proper treatment, recovery and disposal of waste generated in manufacturing processes.				
	5.2.4 Develop a waste management plan to control waste streams from industries and manufacturing processes by the relevant ministries.				
	5.2.5 Develop guidelines to mainstream and establish methane avoidance, reduction and capture approaches as part of the sectoral contribution of solid waste management in Mongolia's Nationally Appropriate Mitigation Actions (NAMAs) under the UNFCCC: Expand a monitoring network for environmental contamination caused by wastes and toxic substances. Engage in capacity building of environmental laboratories so that correct and factual information on the nature and extent of environmental pollution can be determined and monitored.				

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Strategy 5.3 Ensure technical and advisory support to create the necessary national capacity needed to achieve targets set in the INDCs, with a particular focus on reducing GHGs and SLCPs from the waste sector.	5.3.1 Undertake technical and institutional capacity building activities to increase the ability of stakeholders to meet the international GHG mitigation commitments (INDCs) through specific policy interventions, as well as the identification of suitable environmentally sound technologies to mitigate GHGs and SLCPs emissions from the waste sector: Identify different stakeholders at national, city and local levels responsible for meeting the targets provided in INDCs from the solid waste sector;	2018-2030	MET, National Committee of Climate Change (NCCC)	State and local budget, technical and financial assistance from international organization	Achieved the targets set in the INDCs, with particular focus on reduction of GHGs and SLCPs by 14% from the waste sector Short term – 20% Medium term – 30% Long term – 100%
	5.3.2 Strengthen the capacity of policy makers and practitioners in Mongolia to reduce GHGs and SLCPs from the solid waste sector, based on the concept of circular economy: Undertake capacity building needs assessments of identified stakeholders including policy makers and industry;	2018-2030	MET, NCCC		
	5.3.3 Support national and local governments to create an enabling legislative, financial and technological environment for the introduction and uptake of suitable environmentally-sound technologies (ESTs) in the waste sector: Undertake technology needs assessments of the solid waste management sector, especially in relation to waste-to-energy to reduce GHGs and SLCPs based on the concept of 3Rs and circular economy.		MET, NCCC		
	5.3.4 Undertake mitigation measures to reduce GHG emissions from the solid waste sector through implementation of the 3Rs, introduction of environmentally sound technology and by increasing effectiveness and efficiency of the manufacturing sector: Design and undertake capacity building programmes for stakeholders to improve human resource capacity, expanding research and development and carrying out technology assessments on the solid waste management sector; and Identify and design technologies for solid waste management including waste-to-energy based on best practices, successful case studies and their suitability.		MET, NCCC		
Strategy 5.4 Install waste disposal sites that meet health and well-being in all *aimags* or local communities.	5.4.1 Adopt a step-by-step approach to change disposal sites in cities and *aimags* to first and second category waste disposal systems.	2018-2030	MET, City governor, The Ministry of Environment (ME)	State and local budget, technical and financial assistance from international organization	Change final disposal in city and *aimag* center to 1st and 2nd category waste disposal Short term – 20% (5) Medium term – 30% (10) Long term – 30% (11)
	5.4.2 Adopt a step-by-step approach to change disposal sites in *soums* to second and third category waste disposal systems.	2018-2030	MET, ME, MFALI		Change final disposal in *soum* center to 2nd and 3rd category waste disposal Short term – 20% (66) Medium term – 40% (132) Long term – 30% (330)

Strategies	Action	Timeframe of implementation	Responsible Agency	Funds	Performance targets/indicators
Objective 6: Establish required organizational structures and financial systems for sustainable waste management to ensure its operational stability.					
Strategy 6.1 Establish required structure to develop a sustainable waste management system and ensure its operational stability.	6.1.1 Update the relevant legal documents to include provisions for employment of in-charge of waste management in all the state organizations;	2018-20205	MF, MET, AUCGO		Established a sustainable institution for waste management Short term – 30% Medium term – 60% Long term – 100%
	6.1.2 Update the organization structure of the department or state organization including specialist responsible for the waste management.	2018-20205	MF,MET		
	6.1.3 Ensure stable employment condition for specialist in charge for the waste management at all the levels of state organization.				
Strategy 6.2 Improve financing mechanisms by recovering expenses required for implementing and operating waste management systems through the transfer of waste service charges and fees based on polluter pays and extended producer responsibility principles.	6.2.1 Establish a waste management fund that includes fines and penalties imposed, donations, endowments, grants and contributions from domestic and foreign sources: - Improve collection of waste service fees as well as augment income from levies on polluter pays principle/ EPR; - Identify potential sources of funds for solid waste management infrastructure development, capacity building, skills development, communication and information dissemination; and - Create a fund with seed money from the government, which will serve as a repository of tax, fines, penalties, donations, endowment, grants and contributions from domestic and foreign sources;	2020-2025	AUCGO MF, MET, AUCGO		Establish a sustainable source of funding / financing for waste management Short term – 30% Medium term – 60% Long term – 100%
	6.2.2 Establish a regulation to allocate some amount of royalty to the local waste management fund.	2020-2025	MET, MF		
	6.2.3 Establish a mechanism for converting waste to value-added products and diverting waste from disposal as in a circular economy;	2020-2025	MET, all level of governor		
	6.2.4 Develop streamlined systems to guide *aimags*/cities/ *soums* in understanding how to access financial resources to fund solid waste management services and pay for related infrastructure;	2020-2025			
	6.2.5 Provide information on resources requirement and sources of funding annually.		AUCGO		
	6.2.6 Recommend measures to generate resources, funding and implementation of projects and activities as specified in approved action plans/master plans.	2020-2025	AUCGO		

Note:

AS	Academy of Sciences
AUCG	*Aimag* and Ulaanbaatar City Governor
AGO	*Aimag*'s Governor's Office
AUCGO	*Aimag* and Ulaanbaatar City's Governor's Office
CAA	The Civil Aviation Authority
CGA	Custom General Administration
GASI	General Agency for Specialized Inspection
MASM	Mongolian Agency for Standardization and Metrology
MCUD	Ministry of Construction and Urban Development
ME	Ministry of Energy
MET	Ministry of Environment and Tourism
MECSS	Ministry of Education, Culture, Science, and Sports
MF	Ministry of Finance
MFALI	Ministry of Food, Agriculture, and Light Industry
MJIA	Ministry of Justice and Internal Affair
MH	Ministry of Health
MIAT	Mongolian Airlines
MMHI	Ministry of Mining and Heavy Industry
MR SOSC	Mongolian Railway State Owned Shareholding Company
MRT	Ministry of Road and Transportation
NATC	National Auto Transportation Center
NEMA	National Emergency Management Agency
RTDC	Road and Transport Development Center
UCGO	Ulaanbaatar City Governor's Office
UR JSC	Ulaanbaatar Railway Joint Stock Company

5 \ Monitoring and review of the strategy

Implementation of the National waste management improvement strategy

The process of the strategy implementation begins with formal adoption of the NWMISAP, according to the Law on Waste (2017) and Law on Legal documentation, and formal launch of the NWMISAP. The launch should be accompanied by an appropriate public relations campaign.

Following the adoption and launch of the NWMISAP, a number of steps are needed for implementation of the NWMISAP:

- Awareness raising and communication, first among stakeholders in the waste management and among concerned sectors in the government, followed by the wider community;
- Assigning responsibilities and tasks among the players identified in the strategy;
- Mobilising resources such as:
  - Economic instruments, including the charging of fees, introduction of tax incentives and disincentives;
  - Investment incentives for the private sector and for public-private partnerships;
  - Securing the necessary budget from the government; and
  - Negotiating arrangements with relevant private sector participants;
- Identifying and delivering any necessary legislative and regulatory changes;
- Enforcement (in the case of new laws or regulations);
- Gathering and recording of reliable information and data and public dissemination.

As stated in the Mongolian law on waste, the Mongolian government approved the National Programme on Improvement of Waste. Further, Ministry of Environment and Tourism shall

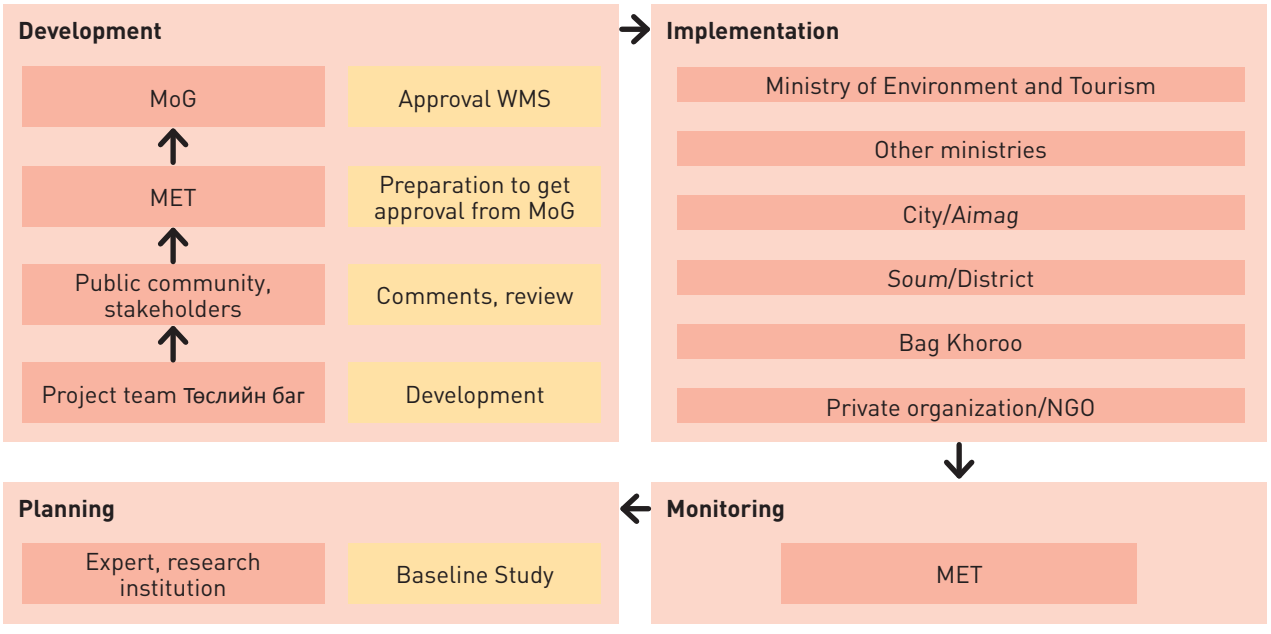


Figure 8 NWMIS development and implementation stakeholders diagram

approve an action plan to implement the National Programme on Waste Management and enforce its implementation.

One essential element in effective implementation is a continuing focus on the progress made as well as on new obstacles. There is a need to monitor progress to ensure that various components of the strategy are being given effect; that the action plans for the priority waste streams and issues are being pursued; that data is being gathered to enable informed decision-making; and that there is a visible and measurable progress towards the targets. If the main committee used in developing the strategy is retained, its major task should be to receive and consider reports of progress, identify obstacles, and adjust policies and resource allocations to address failures, shortcomings and new challenges. If the main committee is not retained, a new committee or alternative structure will need to be established and given this responsibility.

It is essential that the roles and responsibilities of the stakeholders to implement the NWMISAP are well-defined and that line ministries develop their own solid waste management plans, including actions and activities, consistent with the NWMISAP. Other critical elements in the effective implementation are full involvement of line ministries, communication and cooperation with other stakeholders. Communication tools include regular meetings of working groups, reporting progress on official websites, sharing information through the media (e.g., newspaper, radio), and so on.

Assessment of the progress and success of the NWMISAP requires measuring and assessing goals and targets set. This requires:

- Information and data on all waste streams;
- A process of evaluating the success or failure of particular initiatives through the use of indicators, including identifying barriers to success; and
- Reporting the results to the government and other stakeholders.

Monitoring

The realization of the goals and objectives and expectation of the outcomes of the NWMISAP will be monitored as follows:

- MET is responsible to report the progress and result of the NWMISAP to the Government of Mongolia;
- Local governors will report on the progress and results of the NWMISAP to the MET;
- MET and other line ministries will be responsible for implementing and monitoring the NWMISAP;
- The indicators of expected outcomes of each activity of the strategy are described and the strategy will be evaluated using the indicators every two years. If necessary, improvements will be made.
- According to the waste law, police and public inspectors at special inspection agency will monitor the implementation of waste management.

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