



GOVERNMENT OF MONGOLIA
Ministry of Construction and Urban Development,
Ministry of Energy

SOLID WASTE MANAGEMENT IN MONGOLIA **/Construction and Energy sector's waste recycling** **case/**

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MONGOLIA BASIC INFORMATION

Population: 3.3 million

Area: 1,564,116 sq km

Land boundaries: 8,158 km, with Russia 3,485 km and with China 4,673 km

Average altitude: 1,580 m above sea-level

People: Mongols (86%), Kazaks (6%), about a dozen other Mongolian ethnic groups

Language: Mongolian

Religions: Buddhism, Muslim, Christian and Shamanism

Climate: Average summer temperature +26°C, average winter temperature -26°C

Political system: Parliamentary republic.

Legislature: State Great Khural (Parliament)

National currency: Tugruk (MNT), about MNT = USD 3380 in Jul, 2024

Literacy rate: 92.9%

Fiscal year: January 1 - December 31





STATISTICAL DATA OF THE SOLID WASTE

2.9 million: Our country produces 2.9 million tons of solid waste annually. 1.2 million tons of it comes from Ulaanbaatar city.

7: The amount of waste in Ulaanbaatar city has increased seven times compared to 10 years ago.

72%: of that waste goes to designated landfills, while the rest is dumped.

281,000: The amount of waste going to landfills nationwide is increasing by 281,000 tons every year. However, the capacity of the official waste disposal sites has reached its maximum level, and the waste disposal site established in Narang Hill is about to be closed by the end of this year.

20%: Mongolia's concept of sustainable development stipulates that 20% of waste will be recycled by 2020, so about 17-20% is being recycled. But food waste is not recycled.

41%: In Ulaanbaatar, only food waste accounts for 41% of the total household waste in summer and 36.2% in winter. Most of household waste is food waste.



POLICY AND LEGISLATION OF THE SOLID WASTE

- Law on Waste
- Procedures for cleaning, sorting, collecting, transporting, recycling, reusing, destroying and burying ordinary waste / City Council dated 02.20.2020, 32/03/
- General requirements for sorting, collecting, transporting, recycling, reusing, destroying and burying ordinary waste /Order of the Minister of Environment and Tourism dated 11/17/2018 A-443/
- Instructions on establish, operate, and close a common waste collection point /Annex of order of the Minister of Environment and Tourism No. A-445 of 11/19/2018
- System, composition and data collection procedure of the unified state database of waste /Order No. A-428 of 11.12.2018
- List of some products for which producers and importers are responsible for the generated waste /Joint order of the Ministry of Finance and the Ministry of Environment and Tourism A-429/257 of 13.11.2018/
- Procedures for rewarding individuals and enterprises that introduce environmentally friendly methods and technologies /Appendix of Government Resolution No. 290 of 2017/
- Prohibition of single-use synthetic film bags /Government Resolution No. 189 of 2018/
- Procedures for cleaning, collecting, sorting, transporting, recycling, reusing, destroying and burying construction waste /Order No. 48 of 27.02.2020



WASTE MANAGEMENT PROJECTS IN MONGOLIA

No	Name of Project	Project duration	Purpose of the project
1	Food waste recycling project of Ulaanbaatar city	2020.03.05-2024.06.30	It will be aimed at introducing food waste recycling technology with the participation of citizens.
2	Ulaanbaatar household waste collection and transportation management project	2019.04.01-2023.04.30	By making waste collection and transportation management effective, cost-effective, and accessible to all participants, creating living conditions for the residents of Ger neighborhood in Ulaanbaatar city in a clean and healthy environment
3	Waste and Climate Change Project	2017.07-2021.07	Development of comprehensive national and city-level waste strategies and technologies aimed at reducing and reducing greenhouse gases and short-lived pollutants that affect climate change, and raising public awareness
4	Regional project to reduce open burning of waste	2015.09-2020.09	Reducing the amount of slow-degrading organic pollutants or dioxins from the open burning of waste
5	Waste sorting and classification project based on source	2017.11-	To accustom households, enterprises, and organizations to separate their waste by source, to provide elementary school and kindergarten children with a basic understanding of waste, to instill habits, and to test and introduce advanced technologies.



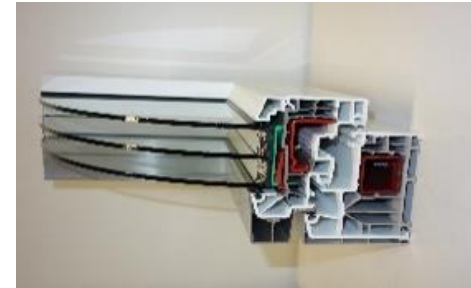
- **Aggregate:**

- Aggregate for backfilling
- Aggregate for concrete
- Aggregate for mortars



- **Plastic window**

- Window plastic frames



- **Plaster boards /Polisterol, Gypsum/**

- **Thermal insulations**

- Sheep wool
- Recycled glass



- **Cement and light concrete**

- Fly and bottom ash



The challenges

- Substantial financial & ecological costs are involved in transportation and deposition of CDW
- More than 85% of C&DW end up in landfills representing significant financial and ecological burden
- Only less than 15% is re-used for landscaping, often illegal, or as fillings under pavements
- It is of limited use due to instability and are often non-compliant with eco-toxic limits

Recycling of Construction & Demolition Waste (CDW) into mainstream building materials remains to be tackled worldwide

“Recycling Concrete” for the economical and at the same time “Eco-Friendly” concrete with “Positive CO2 effect” in the world which achieves financial savings of between 15 % to 45 % min. For standard products depending on usage in various sectors of construction business compared to the concrete made of natural aggregates



paper pulp sealing plates



PVC



steel from cable channels



wood



gypsum



roof felt



carpets



cables



isolation materials



The solution

- We **recycle inert C&DW** into concrete mixtures **replacing up to 100% of sand and gravel**
- Processing of rubble consisting of **bricks, concrete, ceramics & sanitary products, roof tiles etc.**
- The process concerns adding commonly used **Nano-material** in a highly controlled way for structural strengthening of C&DW particles making the resulted concrete stable, inert and water resilient
- **No added chemicals** are allowed for repetitive recycling to completely eliminate the ecological burden





MNS 6830:2020



МОНГОЛ УЛСЫН СТАНДАРТ
ДАХИН БОЛОВСРУУЛАЛТААС ГАРГАН АВСАН БЕТОНОН ДАЙРГА.
ТЕХНИКИЙН ШААРДЛАГА
MNS 6830 : 2020



ЗАХИАЛАГЧ: КАРИТАС ЧЕХ РЕПАБЛИК

Стандартын мэдээлэл, лавлагаа, сургалтын үндэсний төв.
Худалдан борлуулахыг хориглоно.

2020-06-09

- MNS 6830:2020 Recycled aggregate from concrete waste. Technical Requirement
- MNS EN 933-11:2020 Tests for geometrical properties of aggregates - Part 11: Classification test for the constituents of coarse recycled aggregate
- MNS EN 1744-6:2020 Tests for chemical properties of aggregates - Part 6: Determination of the influence of recycled aggregate extract on the initial setting time of cement



Opportunities for use fly ash in construction sector:

- Cement industries
- Light concrete industries
- Ceramic brick industries
- Landshaft /Rehabilitation of landfills, filling in uneven areas, etc./

Energy sector's standards and codes for use fly ash:

- “Thermal power plant fly ashes for construction materials production. General technical requirements” /**MNS 3927:2015**/ standard
- “Thermal power plant fly ashes for concrete. Technical requirements” /**MNS 6469:2014**/

Some research on Energy sector:

- With the implementation of the 15.4MW waste power plant project, 438,000 tons of waste will be received, sorted and recycled annually, resulting in 107 million kWh of electricity and 25.57 thousand Gcal of heat per year. will be able to produce power.



- The reuse and recycling rate of waste materials from construction and demolition waste is very high in the majority of developed countries.
- The use of these materials is mostly connected with the quality of the demolition and recycling process.
- Waste materials which are deconstructed during demolition process have a high potential for recycling and reusing.
- The optimization of demolition and recycling processes are very important to obtain high quality secondary raw materials which will be technical, ecologically and economically comparable with primary raw materials.

THANK YOU FOR YOUR ATTENTION

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