NATIONAL STATISTICS
OFFICE OF MONGOLIA

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

Mongolia: Strengthening Statistical Capacity of member states to address data availability challenges for environmental-related SDGs under RPTC funding

Project duration: Oct 15, 2020- March 31, 2021

PROJECT REPORT

April 2021

ABBREVATIONS

NSO	National Statistics Office (of Mongolia)
OECD	Organization for Economic Co-operation and Development
PSUT	Physical Supply and Use Table
PTB	Physical Trade Balance
SEEA-CF	System of Environmental-Economic Accounts – Central Framework
SEEA-Water	System of Environmental-Economic Accounts – Water
SNA	System of National Accounts
ton	Refers to 1000 kg, otherwise known as a metric ton or tonne
₮	Tugrik (Mongolia currency symbol)
VAT	Value-Added Tax
UNECE	United Nations Economic Commission for Europe
UNESCAP	United Nations Economic and Social Commission for Asia & the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
UNSD	United Nations Statistical Division
ISIC	The International Standard Industrial Classification of All Economic Activities
MET	Ministry of Environment and Tourism
MCUD	Ministry of Construction and Urban Development
SDG	Sustainable development goals
BOH	Environmental statistics form
IWRP	Integrated water management plan

Acknowledgments

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Our heartfelt thanks are extended to the Ministry of Environment and Tourism and Urban development department of Ulaanbaatar Mayor's Office for their professional and methodological support as well as the provision of the necessary data and databases.

The Water and Waste PSUT was prepared under the responsibility of the NSO of Mongolia and ESCAP. Technical expertise and advising was provided by Julie L. Hass, international Consultant of ESCAP, who is a specialist in SEEA accounts.

Although the project has been extended and delayed by the pandemic, we would like to thank the stakeholders such as Ministry of Nature, Environment and Tourism, Water agency, Water Supply and Sewerage Authority of Ulaanbaatar, Water services regulatory commission, Energy Regulatory Commission for their understanding and contribution to the compiling of this first Water physical flows account.

1. INTRODUCTION TO THE PROJECT

The National Statistical Office (NSO) of Mongolia is implementing the SEEA Central Framework (SEEA-CF) in a step-by-step approach. Currently the NSO has developed the following SEEA-CF sub-accounts: Economy-Wide Material flow account, Physical flow account for Energy, Environmental tax account, and the Environmental protection expenditure account. These four accounts are being compiled annually. The methodologies for the Air emission account, and the Physical flow accounts for Water and for Solid waste are being developed. There are plans for these three accounts to be compiled in 2021.

This technical assistance (TA) project for compiling Solid Waste and Water accounts in Mongolia was implemented between October 15, 2020 and December 31,2020 by the National Statistics Office of Mongolia with support from the ESCAP. An extension to March 31, 2021 was agreed due to the COVID 19 pandemic and the resultant limitations this caused.

The main additional resource provided under this TA was the expertise of Dr. Julie L. Hass who was the international consultant hired by UNESCAP. Dr. Hass provided valuable methodological guidance for developing these two SEEA physical flow accounts. Due to COVID-19 travel restrictions, this assistance was provided using online meetings and email consultations.

Due to lockdowns, which meant that there was no access to the government computer systems including those at the NSO and at various relevant Ministries, the focus had to shift from data collection and the construction of physical supply and use tables (PSUT) to: (a) developing methodologies and getting them approved by NSO; (b) locating data sources and the systems used to collect data (BOH-forms); and (c) trying to evaluate the data.

During the TA, the national compilation methodology for two accounts were developed in accordance with the international guidelines and some data were obtained from the relevant government institutions.

There are two statistical strategies which provide the framework for implementing these statistics.

1. In 2012 the 43rd session of the United Nations Statistical Commission endorsed the System of Environmental-Economic Accounts – Central Framework (SEEA-CF) and encouraged countries to implement the SEEA-CF.
2. As part of the National Strategy for the Development of Statistics (NSDS) 2017-2020 (in Mongolian only) the implementation of the SEEA-CF is planned.

The compilation of the two SEEA-CF accounts will help Mongolia improve monitoring for Waste management, National Development Plan and measure key indicators for the Mongolia Sustainable Development Vision 2030 and the Sustainable Development Goals (SDGs).

As the statistics on the two accounts were compiled in accordance with international guidelines, Mongolian data will be comparable with other countries' data and can be reported to international agencies, including the UN Statistical Division.

The NSO plans to compile the two accounts annually, and expand to other SEEA accounts including, but not limited to, the Water resource asset account, and the Land account in the next year.

Part A. WASTE ACCOUNT

2.1 Introduction

Solid waste has negative impacts to human health, habitats, and other aspects of the environment. Mongolia is experiencing increasing levels of population growth, a rapid increase in urbanization, and industrialization, with the result that solid waste is increasing fast. In this regard, in order to improve waste management and evaluate the implementation of projects and programs on waste, the need for comprehensive and detailed information on waste is increasing.

Solid waste accounts provide an integrated system showing the flows of waste production leading to waste collection and finally to waste treatment. Solid waste is generated from production activities of industries and final consumption activities of households and government. The waste is often collected by informal and formal actors - that can be part of the waste collection industry (ISIC 38.1) - and taken for treatment and processing activities and final disposal (activities in ISIC 38.2). There can also be external trade in waste – both imports for treatment and disposal and exports – often of waste to be recycled. Own-use treatment of waste – often burning or simply dumping waste directly into the environment are also part of the waste production – collection – treatment chain.

Waste management in Mongolia has started to change from the practice of collecting waste in the cities/area, transporting it beyond the cities/area limits, and then dumping it in the environment to more organized, planned and regular waste collection and disposal to designated places and controlled landfill areas.

The priorities in waste management during the last decade were the improvement of municipal solid waste (MSW) management and healthcare waste management. These improvements were a response to immediate needs and enabled by the development of critical infrastructure. However, achieving change in the management of waste, and especially of hazardous waste generated by manufacturing, mining and agriculture, requires close cooperation with other ministries.
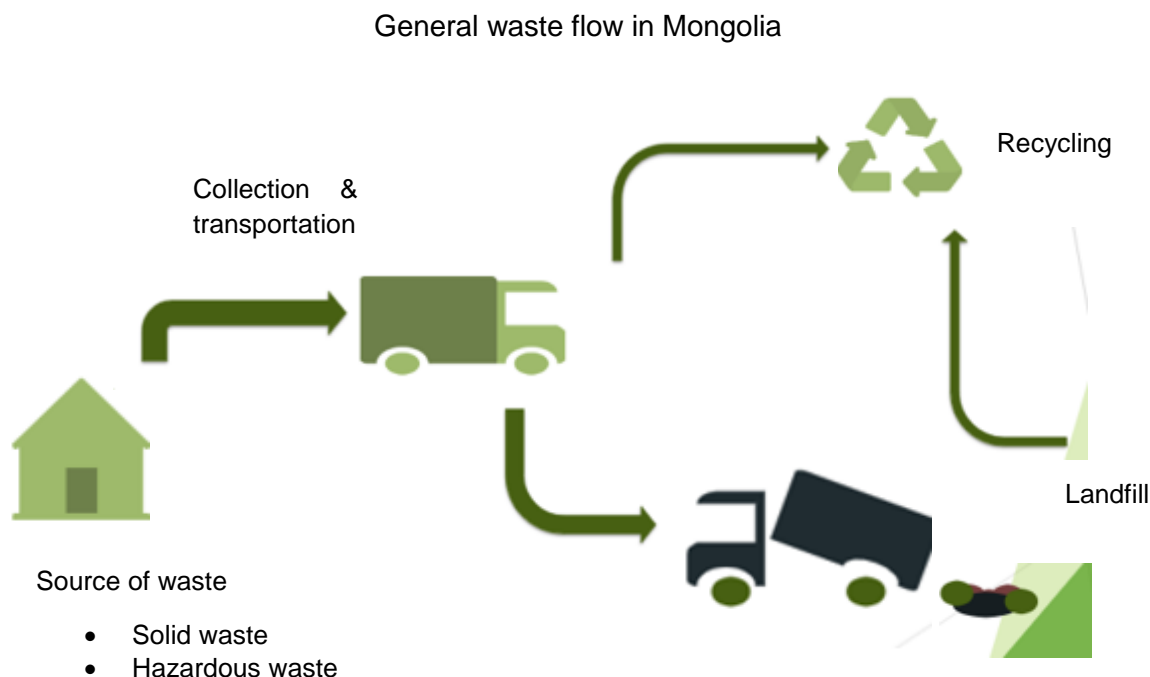
Recycling Separation of recyclables from municipal waste is well developed, with a system of buy-out points. This system encourages the separation of recyclable materials at the source – before they go to landfill. In addition, there are also material recovery activities at the landfills. However, most recyclables are exported because Mongolia lacks recycling capacities.

The regulation of waste practices is becoming stricter and the legislative base has been strengthened step by step.

The following waste related policy programs and projects are being implemented:

- Law on Solid waste (2017)
- Green Development Policy of Mongolia (2014)
- Government Policy on Industries (2015)
- National Program for Improving Waste Management (2014)
- National Strategy and Action Plan to Improve Waste Management for 2017-2030
- "ECO-PARK" project on the waste recycling industry and technology
- "AUTORECYCLING PARK" project on recycling and technologies for processing decommissioned vehicles and the waste generated from vehicles use

- "Improving resource-efficiency and cleaner production in the Mongolian construction sector through material recovery" project, jointly with CARITAS CZECH REPUBLIC
- Project on waste and climate change

General waste flow in Mongolia

Collection & transportation

Recycling

Landfill

Source of waste
- Solid waste
- Hazardous waste

Source: Waste management summit report, 2019

2.2 Data sources

Data on generation and management of waste are crucial information for effective decision-making.

Other waste management-related data exist, but they are not aggregated to the national level.

The lack of waste management data impedes the development of projects and the provision of information to the public. It does not provide an adequate picture of achievements or remaining challenges in the waste sector.

The Ministry of Environment and Tourism and the National Statistics Office (NSO) cooperate to produce official environmental statistics. The two institutions try to produce good quality environmental statistics, which are a prerequisite for the production of high quality environmental reports, the implementation of the System of Environmental-Economic Accounting and the production of indicators for the follow-up and review of the 2030 Agenda for Sustainable Development.

The 2017 Law on Waste Management envisions the implementation of a waste database. As part of this regulation, an environmental information database was created, which is named www.eic.mn. This online database contains all related regulations and data of the number of

dumpsites/landfills, size of dumpsites/landfills, number of entities with permission to engage in waste collection, transportation and recycling. In 2019, the environmental data collection forms (known as BOH-forms) have been updated and approved by an order issued by the NSO Chairman.

Information on hazardous waste is limited. The main sources of hazardous waste are sludge from tanneries, waste from processing and use of crude oil, and soil containing cyanide and mercury from gold ore processing. Additionally, there are banned chemicals and acids from the recycling of car batteries. Improved reporting mechanisms on hazardous waste are needed for Mongolia.

The solid waste account compilation is based on existing statistics including administrative data and some project reports

Administrative data

- Solid waste annual report (BOH-6.1)
- Hazardous waste annual report (BOH-6.2)
- Waste reuse and recycling annual report (BOH-6.3)
- NSO Statistical Yearbook

Databases

- Waste export and import data – from Customs database
- Waste fee database – Tax authority database

The main data source for solid waste is the Annual report of Solid waste and Hazardous waste.

The solid waste annual report (BOH-6.1) contains the following types of waste and the amounts collected from Businesses, Household (ger area and apartment area) and public spaces.

Paper waste
Glass waste
Metal waste
Plastics waste: PET, HDPE, LDPE, Plastic bags etc.,
Construction and demolition waste
Food waste
E-waste
Vehicle parts
Others

The businesses and entities make an agreement with the collection and transportation company for the picking up the waste and they also pay disposal charges. There is a state owned company engages in collection and transportation the solid waste.

The Annual report on Hazardous waste includes the collected waste from the following economic activities and household.

From hospital and medical service organization
From education and scientific organization
From power plant and heat industry

7

From mining activity

From chemical production

From waste processing industry

From construction and construction material factory

From leather, fur, wool and cashmere, and spinning mill

Household consumption

From the tax data base, we collect the information of waste fees paid by each economic activity to develop a distribution key to assign the amount of hazardous waste (one category) to the appropriate ISIC-category. Also, we collect some additional data from Ulaanbaatar Mayor's Office and a company, which is collection and treatment in order to check the volume of waste and consistency.

2.3 Quality of data

Although waste data have been collected for more than a decade, their quality is low.

We have collected some aggregated information such as number of dumpsites/landfills, size of dumpsites/landfills, number of entities with permission to engage in waste collection, transportation, and recycling.

As well as, we have downloaded the BOH 6.1, BOH 6.2 data for 2019 from the on-line database ([www.eic.mn/waste)](www.eic.mn/waste). There were some obvious errors with balancing and decimal errors since the size of the figures are so different. Then we processed (data cleaning, balance check etc.) all the collected data. In order to validate the reliability of these data, we perform a consistency check with some policy reports and study reports. It consumes a lot of time.

The total figures are consistent with other sources. Possible sources of error and uncertainty are mainly relevant for the distribution of Solid waste by industries. The distribution keys are developed based on the waste fee database. The results from the calculations used for the industry breakdowns will reflect the uncertainties in the source material and the estimation methods that are used.

2.4 Methodology

The Solid waste compilation methodology is developed according to the international standard the System of Environmental-Economic Accounting (SEEA) central framework and the Manual on waste statistics, a handbook, Eurostat, 2013.

During the developing process we have also studied the Law on Waste, National program for improving waste management, Structure, complement and centralization procedures of National Waste Database System, and other countries' experience such as Australia, Fiji and Norway.

The National Statistical Office of Mongolia had collaboration with an expert from Environment department of Ministry of Environment and Tourism, and an expert from Urban development department of Ulaanbaatar Mayor's Office. They have provided fruitful suggestions and recommendations.

The draft methodology introduced to the Statistical Methodological Council Meeting.The meeting agreed to send the methodology onwards for approved by the Board Meeting of Chairman.

The methodology for Solid waste account consists of 4 parts:

Part 1. General rationale

1.1 Legal basis
1.2 Objective and importance
1.3 Relationship with other accounts
Part 2. Main concepts and coverage

2.1 Concept definition
2.2 Coverage
Part 3. Methodology

3.1 Account structure, PSUT
3.2 Classification
3.3 Data source
3.4 Distribution solid waste by industry
3.5 Balancing
Part 4. Usage of account's result
Appendix. Example of Solid Waste account
Reference

2.5 Preliminary results

Due to population growth, urbanization, and industrialization, the amount of Solid waste has increased by 176.8 thousand tons per year.

The amount of solid waste in Mongolia has increased by 7.6 percent between 2018 and 2019.

Table 1. Collected Solid waste by type, million metric tons

Waste type	2018	2019
Total	**2,435.8**	**2,612.6**
All types of paper waste: printing paper, newspapers, cartons etc.,	291.3	312.4
Glass waste	180.3	193.3
Metal waste	80.7	86.5
Plastics waste: PET, HDPE, LDPE, Plastic bags etc	158.0	169.5
Construction and demolition waste	198.1	212.5
Food waste	206.9	222.0
E-waste	71.4	76.6
Vehicle parts	71.5	76.7
Others*	1,177.6	1,263.1

*Other waste included ash and livestock manure

The category 'Other wastes' is primarily composed of ash and livestock manure. This type of waste dominates the waste picture, accounting for about 48.3 percent of total waste. We also have been checked this waste composition with UB Household waste composition study report.

Table 2. Generation of hazardous waste by industry, million metric tons

Generation type	2018	2019
Total	**284.0**	**316.4**
From hospital and medical service organization	32.0	35.7
From education and scientific organizaton	1.7	1.9
From power plant and heat industry	91.3	101.8
From mining activity	112.9	125.8
From chemical production	1.8	2.0
From waste processing industry	0.0	0.0
From construction and construction material factory	2.3	2.5
Household consumption	31.2	34.8
From leather, fur, wool and cashmere, and spinning mill	4.1	4.6
Other	6.7	7.4

Hazardous waste is generated by different sectors including mining, manufacturing, heat and power production industries, healthcare facilities, laboratories, construction and demolitions, sludge and urban agriculture. For hazardous waste, the data collected based on the classification of hazardous waste. The Ministry and Tourism, the State Professional Inspection Agency (SPIA), and the National Emergency Management Agency monitor hazardous wastes and enforce regulations.

2.6 Next steps

- To check data quality again
- Find/estimate missing data for own-use treatment/disposal amounts
- To estimate the total supply of solid waste broken down by industry and type of waste using distribution keys
- To estimate the total use table of solid waste
- To complete the account with balancing of the production (supply) and treatment (use) amounts, analyze results, and write report
- Discuss the preliminary results with stakeholders to get some double checking of the figures, acknowledgement of the importance of data collection, and buy-in for continuing to improve the accounts.
- To disseminate the result – and establish procedures to develop and publish the accounts annually.

Part B. WATER ACCOUNT

3.1 Introduction

Most of the territory of Mongolia is in an area with little precipitation and dry climate. In the recent years, economic growth and urbanization are intensifying in certain regions of Mongolia. As a result, water consumption has increased dramatically, and the amount of solid and liquid waste from industrial and domestic use has increased.

As a result, in some areas, water resources are polluted, ecosystem imbalances are created, and water resources are no longer able to be used for drinking and other domestic use purposes. In addition, some areas with high water consumption are experiencing water shortages, while other areas are at risk of flooding.

Water related data is produced by several government organizations but the data itself is inconsistent and overlapping. In other words, water related data in Mongolia are not integrated. Another problem is that it is not clear which organization's information is considered accurate.

Therefore, it is essential to establish water accounts to improve the coverage and consistency of the data in order to provide policy makers with the information they need to make evidence-based water related decisions.

In IWRP of Mongolia stated that Mongolia's total water resources are on average 608,300 million m^3 per year, of which 34,600 million m^3 are in rivers, 500,000 million m^3 are in lakes, 62,900 million m^3 are part of glaciers and 10,800 million m^3 are found in groundwater aquifers. About 80 percent of Mongolia's water consumption is supplied by groundwater, which is 1.9 percent of the total resources, and there are insufficient laws and regulations governing the use and protection of groundwater.

3.2 Water management institutions and types of data collected

Ministry of Environment and Tourism

According to the Law on Water, the Ministry of Nature, Environment and Tourism (MET) and specifically the Water Agency are the state administrative body in charge of water statistics. MET is responsible for the environmental dissemination portal where it provides environment statistics that are collected using the BOH data collection form which is developed and approved by the NSO of Mongolia.

- BOH 2.2 Annual report on Water use.
  Main data variables collected are:
    - Total amount of water use (used for drinking and household consumption, used for services, used for production), million m3
    - Amount of reused water, million m3
    - Amount of recycling water, million m3
    - Revenues from water and mineral resources fee, million tugrik
    - Expenditure on protection of water resource, water quality and restoration, million tugrik

Water Agency

The Water Agency was established in 2019 under the responsibility of Minister of Environment and Tourism and it is responsible for an assessment of the use of water to large water user organizations, assessment of the available resources to be used and an assessment for wastewater disposal.

The Water Agency has compiled "Water use balance-2019" based on mostly assessments for use of water and other water related data.

- Water use Balance - abstracted water by industries
- Assessment for water use
- Assessment for wastewater disposal

Water services regulatory commission

It is responsible for setting water service fees, water supply and sewerage use, service tariffs, licensing legal entities.

- Report on annual water and sewage service charges

Water supply and sewerage authority of Ulaanbaatar

It is responsible for supplying fresh, drinking water to Ulaanbaatar businesses and household as well as for disposing its wastewater. / Only connected water supply networks and sewerage network and Ger area portable where there is no drainage system, water supply networks)

- Distributed water for drinking and domestic use /tap water/ through supply networks
- Sewerage networks
- Sewage portable Water pumping service
- Ger area freshwater service / portable/

Energy Regulatory Commission:

It is responsible for issuing licenses to conduct energy production activities in accordance with the Law on Energy of Mongolia including using water for electric power generation or other use of water flows (renewable energy).

- water used for generating hydroelectric power

National statistics office of Mongolia

- Report on exports and imports of goods / exported and imported bottled water/

Draft Physical Supply and Use Tables for water – with potential data sources identified

USE TABLE	Industries (by ISIC categories)							Households	Rest of the world	Total
	01-03	05-33, 41-43	35	36	37	38,39, 45-99	Total			
From the	**1 - Total abstraction** (=1.a+1.b = 1.i+1.ii)							Estimation from Water use		
	1.a Abstraction for own use									

	Hydroelectric power generation	Report on water used for generating hydroelectric power/ Energy Regulatory Commission/	Balance /in rural area citizens usually supply water from well, and spring for own use	
	Irrigation water Mine water Urban run-off Cooling water Other	Report on total abstracted water by industries / Water Agency/ for own use or for distribution		
Within the economy	**2. Use of water received from other economic units** (=2.a+2.b +2.c)			
	2.a Reused water	Unknown	Report on annual water and sewage service charges /Water services regulatory commission/	Report on exports and imports of goods / NSO custom record/
	2.b Wastewater to sewerage	Report on wastewater collected through sewerage system /Water supply and sewerage authority of Ulaanbaatar/- only Ulaanbaatar available for now		
	2.c Distributed water	Report on distributed water for drinking and domestic use /Water supply and sewerage authority of Ulaanbaatar/- only Ulaanbaatar available for now		
	3. **Total use of water** (=1+2)			

Explanation:
ISIC 01-03-Agriculture   *ISIC 36- Water supply industry*
ISIC 05-09-Mining industries   *ISIC 37- Sewerage industry*
ISIC 10-33, 41-43-Manufacturing industries   *ISIC 38, 39, 45-99-All other industries*
ISIC 35- Electricity industry

SUPPLY TABLE	Industries (by ISIC categories)							Households	Rest of the world	Total
	01-03	05-33, 41-43	**3 5**	**36**	**37**	38,39, 45-99	Total			
Within the economy	**4. Supply of water to other economic units**									
	4.a Reused water	**Unknown**							Report on exports and imports of goods / NSO custom record/	
	4.b Wastewater to sewerage	Report on wastewater collected through sewerage system /Water supply and sewerage authority of Ulaanbaatar/- only Ulaanbaatar			-	Report on wastewater collected through sewerage system /Water supply and sewerage authority of Ulaanbaatar/- only Ulaanbaatar				
	4.c Distributed water			Report on distributed water for drinking and domestic use /Water supply and sewerage authority of Ulaanbaatar/ - only Ulaanbaatar						
To the environment	**5. Total returns** (= 5.a+5.b)	Unknown						Estimation from Water use Balance /in rural area citizens usually supply water from well, and spring		
6. Total supply of water (= 4+5)										
7. Consumption (3-6)										

3.3 Quality of data

BOH form

The environmental administration statistical form (BOH form) was revised in September 2019 and consists of 7 sets of forms. The form was improved and new reporting variables (indicators) were added and improved to estimate SDG indicators and to assess and report on the implementation of global and national policies and programs, such as the framework for the development of environmental statistics (FDES), the Sendai framework, the SEEA, the Mongolian Green development policy, and the Government's Environmental Policy. The data are reported by province and district level.

Issues with data:

1. It is not possible to create dynamics with the new indicators of the form, the data for 2019 is only available now.
2. Relevant ministries do not examine or edit/revise the data due to lack of manpower and data transmission programs. There are some data errors such as logical fallacies, mathematical mistakes, or typing error (often producing decimal errors – for example, reporting in 100 units instead of the requested 1000 units).
3. BOH does not use ISIC categories for industrial water use and does not have many ISIC categories

The NSO requires MET to improve the quality of their data and is working together to do so.

Water use Balance by Water Agency

The report shows the total amount of water abstracted by industries nationwide.

Nonstandard categories are used for industrial abstracted water in the current Water Use Balance.

It is classified by purpose of water abstraction like this:

- Population drinking
- "Manufacturing" (which includes Agriculture, Mining and quarrying, manufacture of mining products, Manufacture of food products, Manufacture of other products)
- Construction (construction of building, manufacture of building materials, Construction of roads and railways)
- Watering public green areas and roads
- Services (Public service organization, animal breeding, tourism, other services)

However, this information cannot be used directly into water PSUT. This is because water distributed to households and industries from water collection, treatment, and supply (ISIC 3600) cannot be derived. In other words, the drinking water consumption of the population is estimated based on water norm per person and number of resident populations of Mongolia, and industrial abstraction water is estimated based on Water use assessment issued by Water Agency to water users. Also, the water used for hydroelectric power generation is not included because usually, such water is directly abstracted by the power plant and returned immediately into the environment which means such water does not change much in amount and quality. So, they think It is not important to record the amount of water used and discharged by a hydropower facility.

Missing data

Wastewater

Industries usually supply their wastewater to a sewer system or directly discharge to the environment or discharge it on their own site or to an industrial wastewater treatment plant.

In terms of discharged wastewater collected through sewerage networks, information is not integrated but it can be obtained by collection of households and industrial wastewater from entities licensed for water supply and wastewater disposal.

However, for wastewater, not collected by sewerage networks, it cannot be fully obtained by assessment wastewater disposal according to the Water Agency.

Wastewater related indicator is not included in the BOH form.

Industrial reuse wastewater, and urban runoff water is unknown right now.

3.4 Methodology

The work plan of NSO for 2020 included developing methodologies for 2 SEEA sub-accounts such as Water accounts and Waste accounts.

The methodology was developed and approved at NSO by following steps.

1. First, we studied the methodology, handbooks, and manuals for Water accounts published by UN SEEA and Eurostat and water related legislation, water related policy development projects in Mongolia.
2. Then we identified available data sources and assessed the data suitability for the Water account.
3. We held meetings with stakeholders such as MET and the Water Agency to identify the required data to compile a Water PSUT. As well as we sent official letter to Water agency, Water supply and sewerage authority of Ulaanbaatar to get the information they produce.
4. We drafted methodology on Water physical flow account
5. The draft methodology was submitted to the relevant organizations such as MET, water agency to get their comments, suggestions.   were included in the draft methodology.
6. Suggestions and comments of NSO experts and other related organizations were included in the draft methodology and draft methodology was discussed at the meeting of the board of directors and approved by the chairman of NSO.

Contents of NSO's approved methodology on Water physical flow account

Part 1. Overview of the Water account
      1.1   Legal basis
      1.2   Objective and features of the Water account
      1.3   Overview of the water physical accounts, combining with other SEEA sub-accounts, and water aggregates
Part 2. Scope and definitions of Water account
      2.1   Concept and definitions of water PSUT
      2.2   Scope water PSUT
Part 3. Methodology of compiling Water PSUT
      3.1   Water physical supply and use table
      3.2   Classification

3.5 Preliminary results

Physical use table-2019		Industries (by ISIC categories)*							Households	Rest of the world	Total
		01-03	05-33, 41-43	35	36	37	38,39, 45-99	Total			
From the environment	**1 - Total abstraction** (=1.a+1.b = 1.i+1.ii)	**351.7**	**100.4**	**821.2**	**71.2**	**0.0**	**1.4**	**1 345.9**	**11.2**		**1 357.1**
	1.a Abstraction for own use	351.7	100.4	821.2	0.0	0.0	1.4	1 274.8	11.2		1 285.9
	Hydroelectric power generation			790.0				790.0			790.0
	Irrigation water	351.7						351.7			351.7
	Mine water		98.8					98.8			98.8
	Urban run-off							0.0			0.0
	Cooling water			31.3				31.3			31.3
	Other		1.6				1.4	3.0	11.2		14.2
	1.b Abstraction for distribution (=1.b.1+1.b.2+1.b.3)				71.2						0.0
	1.i From inland water resources (=1.i.1+1.i.2+1.i.3)	351.7	100.4	821.2	71.2	0.0	1.4	1 345.9	11.2		1 357.1
	1.i.1 Surface water	351.7		790.0				1 141.7			1 141.7
	1.i.2 Groundwater		100.4	31.3	71.2		1.4	204.2	11.2		215.4
	1.i.3 Soil water										0.0
	1.ii From other sources (=1.ii.1+1.ii.2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
	1.ii.1 Collection of precipitation										
	1.ii.2 Abstraction from the sea										
Within the economy	**2. Use of water received from other economic units** (=2.a+2.b +2.c)	**0.0**	**3.8**	**0.1**	**0.2**	**92.1**	**6.6**	**0.0**	**71.4**	**2.1**	**176.3**
	2.a Reused water										
	2.b Wastewater to sewerage					92.1					
	2.c Distributed water	0.0	3.8	0.1	0.2	0.0	6.6		71.4	2.1	
	3. **Total use of water** (=1+2)	**351.7**	**104.2**	**821.3**	**71.4**	**92.1**	**8.0**	**1 345.9**	**82.6**	**2.1**	**1 533.4**

Note: grey cells indicate zero entries by definition.

Explanation:
ISIC 01-03-Agriculture   *ISIC 36- Water supply industry*   *ISIC 35- Electricity industry*
ISIC 05-09-Mining industries   *ISIC 37- Sewerage industry*   *ISIC 10-33, 41-43-Manufacturing industries*
ISIC 38, 39, 45-99-All other industries

Physical supply table-2019		Industries (by ISIC categories)*							Households	Rest of the world	Total
		1-3	5-33, 41-43	35	36	37	38,39, 45-99	Total			
Within the economy	**4. Supply of water to other economic units**	**0.0**	**4.2**	**0.4**	**0.2**	**0.0**	**7.2**	**11.9**	**68.4**	**0.1**	**80.3**
	4.a Reused water							**0.0**			0
	4.b Wastewater to sewerage	0.0	4.2	0.4	0.2	0.0	7.2	**11.9**	68.4		80.3
	4.c Distributed water							**0.0**		0.1	0

	5. Total returns (= 5.a+5.b)	0.0	0.0	790.0	0.0	0.0	0.0	790.0	10.7		800.7
	Hydroelectric power generation			790.0				790.0			790.0
	Irrigation water							0			0
	Mine water							0			0
	Urban run-off							0			0
	Cooling water							0			0
To the environment	Losses in distribution because of leakages							0			0
	Treated wastewater							0			0
	Other							0	10.7		10.7
	5.a To water resources							0			0
	5.a.1 Surface water							0			0
	5.a.2 Groundwater							0			0
	5.a.3 Soil water							0			0
	5.b To other sources (e.g. sea water)							0			0
6. Total supply of water (= 4+5)		0.0	4.2	790.3	0.2	0.0	7.2	801.9	79.1		881.0
7. Consumption (3-6)		351.7	100.0	31.0	71.2	92.1	0.8	544.0	3.4		652.4

3.6 Next steps

The account will be compiled for 2019 in the first place. It is planned to compile it for 2015-2020. In addition, the methodology for the other types of water accounts such as water emission accounts and water asset accounts are planned to be developed and compiled during 2021-2025.

In 2021, we have planned to develop Water asset accounts and compile it.

Water Agency would need to help the NSO to develop water accounts. They have specialized knowledge and data sources needed to develop water PSUT. Some type of cooperation with the Water Agency will be needed to establish PSUTs on a regular basis.

Due to lack of consolidated data, databases, and unclear data flows, and not using standardized classification category (ISIC), Water Agency is facing the problem of regularly aggregating the information in the short term.

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APPENDIX

Appendix 1. Water used for generated hydroelectric power and abstracted water

Table 4. Water used for generating hydroelectric power

№	Location	Name of Hydropower plant	Year	Water use, million m³
1	Durgun soum, Khovd aimag	"Durgun"	2015	105.7
			2016	144.8
			2017	150.1
			2018	140.8
			2019	149.5
			2020	169.8
2	Taishir soum, Govi-Altai aimag	"Taishirguulin"	2015	269.0
			2016	378.0
			2017	364.6
			2018	335.6
			2019	429.0
			2020	303.0
3	Uliastai soum, Zavkhan aimag	"River of Bogd"	2015	41.4
			2016	43.2
			2017	44.2
			2018	64.0
			2019	24.0
			2020	42.3
4	Darkhan-Uul soum, Zavkhan aimag	"Tosontsengel"	2015	149.3
			2016	205.7
			2017	151.8
			2018	177.2
			2019	165.5
			2020	150.8
5	Tsetsen-Uul soum, Zavkhan aimag	"Galuutai"	2015	10.8
			2016	8.8
			2017	7.3
			2018	9.7
			2019	11.3
			2020	17.3
6	Zavkhanmandal soum, Zavkhan aimag	"Hungui"	2015	10.0
			2016	9.5
			2017	10.4
			2018	10.0
			2019	10.7
			2020	7.5

Source: Energy Regulatory Commission

Table 2. Total abstracted water in 2019

№	Purpose of water use	Industries	Total mount of abstracted water, millionm^3
1.	Drinking water by population		83.3
2.	Manufacturing	Agriculture	351.7
		Mining and quarry	98.8
		Manufacture of mining products	0.1
		Electric power generation, transmission, and distribution	31.4
		Manufacture of Foods	2.8
		Manufacture of others	1.2
3.	Construction	Construction of building and manufacture of building materials	1.3
		Construction of roads and railways	0.1
4.	Watering public green areas and roads		0.2
	Service	Public service	6.8
		Raising animals	0.5
5.		Other services	0.5
	Total		**578.5**

Source: Report on water use balance-2019 by Water Agency

Appendix 2. The National Methodology for Solid Waste

Appendix 3. The National Methodology for Water flow accounts