REPORT ON
ANALYTIC STUDY ON AVAILABILITY OF FOREST DATA, GAP ANALYIS AND NATIONAL C&I SET FOR SFM IN MONGOLIA

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Ulaanbaatar 2020

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1. INTRODUCTION

1.1.“Monitoring Progress towards SFM” project

Mongolia participate in the project “Monitoring Progress towards Sustainable Forest Management (SFM)” which aimed to support and assist selected countries[1] in developing a comprehnsive and efficient system for monitoring progress towards SFM. Monitoring, assessment and reporting (MAR) and specifically criteria and indicators (C&I) has been a topic of discussion at the international, regional and national levels since the establishment of the United Nations Forum on Forests (UNFF). The Forum called upon Member

Mongolia participated

In May 2018, the thirteenth session of the Forum (UNFF13) adopted format for voluntary national[4] reporting At the 13th session of the UN Forum on Forests (UNFF13) in May 2018, the Forum adopted the format for voluntary national reporting on progress towards implementation of the UNSPF and invited Members States of the Forum to submit their voluntary national reports by mid November 2019. f UNSPF. The voluntary national reports focus on action taken since 2015. The 2015 baseline is also consistent with the FAO Global Forest Resources Assessment (FRA) process, and the previous report to the Forum on progress towards SFM was also presented in 2015. Furthermore, the 2030 Agenda for Sustainable Development was adopted in 2015. They are the main source of information for assessing progress towards the achievement of the global forest goals. The Forum supplements information received from countries with quantitative FAO FRA data and information from other Collaborative Partnership Forum members and sources. Several global forest goals, especially GFG 4, GFG5 and GFG6 all refer to policy developments, some of which cannot be monitored through measurable outcomes; accordingly, it will not be possible to develop numerical indicators for every target.

(E/CN.18/2018/4, annex I)

The table below summarizes required information from voluntary national reports and other sources for assessing progress towards the achievement of the global forest goals and their targets.

Goal 1. Reverse the loss of forest cover worldwide through sustainable forest management, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation and contribute to the global effort of addressing climate change.		
Target	***Required information for assessing progress towards the achievement***	***Remarks***
1.1 Forest area is increased by 3 per cent worldwide.	FRA 2020 reporting tables 1a (Extent of forest and other wooded land), 1b (Forest characteristics) and 1c (Annual forest expansion, deforestation and net change)	FAO provide a global overview in quantitative terms
1.2 The world's forest carbon stocks are maintained or enhanced	FRA 2020 reporting tables 2d (forest carbon stock in tons per hectare) 1a (Extent of forest and other wooded land) any additional available information other on other stocks, such as harvested wood products from FAO and UNFCCC	FAO provide a global overview in quantitative terms for totalforest carbon stocks and their changes in
1.3 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	Sub indicators of Sustainable Development Goal indicator 15.2	

2.5 The contribution of all types of forests to biodiversity conservation and climate change mitigation and adaptation is enhanced, taking into account the mandates and ongoing work of relevant conventions and instruments	FRA 2020 reporting table 1e (Specific forest categories) on changes in area of primary forest 3a (Designated management objective) on the proportions of forests managed for conservation of biodiversity as a designated management objective and as a primary management objective. UNFCCC Net greenhouse gas emissions (source)/ removals (sink) of forests, and carbon balance of harvested wood products	
Goal 3. Increase significantly the area of protected forests worldwide and other areas of sustainably managed forests, as well as the proportion of forest products from sustainably managed forests		
3.1 The area of forests worldwide designated as protected areas or conserved through other effective area-based conservation measures is significantly increased	FRA 2020 reporting table 3a (Designated management objective) on the proportions of forests managed for conservation of biodiversity as a designated management objective and as a primary management objective. 3b (Forest area within legally established protected areas and forest area with long-term forest management plan) to provide a global overview	
3.2 The area of forests under long-term forest management plans is significantly increased	FRA 2020 reporting table 3b (Forest area within legally established protected areas and forest area with long-term forest management plan)	
3.3 The proportion of forest products from sustainably managed forests is significantly increased	Proportion of forest products from certified forests (including forests certified under internationally and/or nationally approved schemes).	
Goal 4. Mobilize significantly increased, new and additional financial resources from all sources for the implementation of sustainable forest management and strengthen scientific and technical cooperation and partnerships		
4.1 Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation	Official development assistance and public expenditure on conservation and sustainable use of forests	"mobilize" means securing financial resources and using them to finance sustainable forest management.
4.2 Forest-related financing from all sources at all levels, including public (national, bilateral, multilateral and	Official development assistance and public expenditure on conservation and sustainable use of forests	

triangular), private and philanthropic financing is significantly increased		
4.3 North-South, South-South, North-North and triangular cooperation and public-private partnerships on science, technology and innovation in the forest sector are significantly enhanced and increased	Different types of international cooperation to promote sustainable forest management.	This target also relates to the second part of the goal, namely, strengthen scientific and technical cooperation and partnerships. The "North" means developed countries and the "South" means developing countries. For example, North-South cooperation refers to the exchange of expertise between one or more developed countries and one or more developing countries, and South-South cooperation means cooperation between two or more developing countries. Triangular cooperation involves Southern-driven partnerships between two or more developing countries supported by a developed country or countries or multilateral organization(s) to implement development cooperation programmes and projects.
4.4 The number of countries that have developed and implemented forest financing strategies and have access to financing from all sources is		

complementary across ministries, departments and authorities, consistent with national laws, and engage relevant stakeholders, local communities and indigenous peoples, fully recognizing the United Nations Declaration on the Rights of Indigenous Peoples	and subnational policies and programmes as well across ministries, departments and authorities at the national level.) FRA 2020 reporting table 6a (Policies, legislation and national platform for stakeholder participation in forest policy) Mechanisms to involve stakeholders, including local communities and indigenous peoples, in sustainable forest management policy formulation, planning and implementation.	FRA 2020 reporting table 6a provides a global overview of the number of countries with a national platform for stakeholder participation in forest policy.
5.4 Forest-related issues and the forest sector are fully integrated into decision-making processes concerning land use planning and development	Mechanisms to involve the forest sector in cross-sectoral coordination among government agencies in	

2.2. AVAILABILITY OF DATA

In accordance with distinguished classes of required data, a sound picture of the consistent national datasets for Mongolia was established through the assessment of their metadata features. The consistent datasets consist of comprehensive data, which share the following common metadata features:

Definite source
Standardized method of data collection and processing,
Temporal resolution and
Spatial resolution

The consistent datasets shall be later used to develop numerical indicators to measure achievements of GFGs and their quantitative targets.

The metadata descriptions of consistent data are presented in table 2, where each GFG and associated targets are assigned to distinguished consistent datasets, described below briefly.

Legal environment and institutional arrangement

With respect to Law on Environmental Protection, Law on Forest, Law on Land and Law on Statistics, the consistent datasets are generated through the following three main sources: the Ministry of Environment and Tourism (MET), the National Statistics Office of Mongolia (NSO), and the Agency for Land Administration and Management, Geodesy and Cartography (ALAMGC), Implementing Agency of the Government of Mongolia.

Environmental Information Center

The Environmental Information Center (EIC) is mandated[5] to gather data and maintain the National Environmental information database (NEID), an online database in the MET. base.. NEID consists of 22 individual databases including the Forest Information database (https://eic.mn/index_forest.php)[6]. In 2013,

FI-2 Forest stock, and their changes
FI-3 Forest fire information
FI-4 Reports on forestry activities
FI-5 Forest ownership report
FI-6 Forest conflict report
FI-7 Expenditure report on forestry activities

The Department of Forest Policy and Coordination in the MET makes decisions and prepares annual reports based on information provided in FI tables.

The figures of *annual harvested wood volume and expenditure on reforestation and forestry activities* are published in the environmental statistics chapter of Statistical Yearbook, compiled by the National Statistics Office (

In order to manage forest, forest maps are always required.

- Cost efficient way to cover necessary information needs and fulfill international reporting requirements; and
- Support for strategic planning and utilization of forest resources, and climate change related policy decisions.

The NFI was based on a 2-phase sampling approach where a systematic grid was set on the top of boreal forest areas. In the first phase, area estimates were collected visually from remote sensing data using Open Foris (OF) Collect Earth (CE) tool. During the second phase, field inventory data from the permanent 4,367 sampling units (i.e. clusters) were collected.

Because the NFI is the first of its kind, at this stage it is not possible to generate estimates on changes in carbon stocks. However, the NFI is designed as a monitoring system with repeated measurements on permanent sample plots thus allowing the production of time series necessary to assess changes in the forest resources. The field sampling method was developed and endorsed by the MET in 2014.

National Statistical Office

The Law on Statistics of Mongolia describes the mandate, role, rights and obligations of the National Statistical Office of Mongolia (NSO) and to some extent other producers of official statistics. It is not only the main producer of official statistics in the country but also has de-jure Law on Statistics has a strong coordination role over all other producers of statistical information[12].

The Law regulates interactions among bodies of the Statistics Authority of Mongolia and also between the NSO and major stakeholders such as the Parliament, Government, administrations at all territorial levels, holders of administrative data and users. Presently, there are no clear criteria about which activities from other producers, and which other producers, are considered part of official statistics. In Mongolia the production of official statistics is, from a functional point of view, centralised within the NSO and territorial statistical bodies. NSO is not only the main producer of official statistics in the country but also has de-jure Law on Statistics has a strong coordination role over all other producers of statistical information[13].

NSO provides the state, citizens and enterprises with economic, social and environmental statistical data on equal basis at national, regional, provincial and the capital city levels. The relevant ministries and agencies are responsible for the production of statistical data such as money, loan, finance, custom; tax, environment, art, culture, education, science and technology, health, social welfare, food security and justice statistics and for submitting them to the NSO.

In accordance with Article 7 of Law on Statistics, The NSO is responsible for conducting the following censuses and surveys related to socioeconomic indicators of forest sector:

Household socio-economic survey every quarter;
Business register every quarter
Industrial statistics annually
Establishment census every 5 years
Agricultural census every 10 years and inter-census survey for every 5 years;

Endorsed methodological approaches for data collection and processing of statistical survey and census are well documented and accessible via https://metadata.1212.mn/methodology.aspx?ln=Mn

Household socio-economic survey:

The Statistics Office has conducted the a Household Income and Expenditure Survey (HIES) since 1966. In July 2007, NSO started carrying out a Household Socio-economic Survey starting from by combining the HIES and the Living Standards Measurement Survey. The survey sampled a number of households in Mongolia representing the regional and settlement and whole country to study and compile data on age,

sex, education and employment of the selected household members as well as on household income, expenditure and consumption.

Since 1998, the “minimum subsistence level of population” has been calculated at the capital and regional levels. It refers to a minimum consumption level expressed in monetary value and to a scientifically set quantity of consumption to meet basic needs as defined in the food and non-food consumption baskets. This indicator serves as a standard to determine the amount of social insurance, social welfare benefits, minimum wages, compensation and to provide monetary assistance by the government to the citizens.

The poverty head count index is the most widely used poverty index and demonstrates the share of the population whose consumption is below the poverty line. It is comparably easy to interpret and understand.

Statistical Business register (SBR):

The Business Register is regularity updated and complete structure of units engaged in the production of goods and services, which is maintained for statistical purposes.

The statistical business register records enterprises as well as their branches, which are active in all social and economic sectors.Initially, it was based on the result of the Establishment census 1998. Currently it is updated quarterly according to result of the Establishment census 2006 and 2011, quarterly survey of SBR, and the database of other administrative records.

Industrial statistics:

This section provides statistics on the economic state of the industrial sector by number, size, expenditures, volume of production (real and price), sales and the main indicators of fixed assets and financing of establishments. These statistics are compiled by using the monthly and annual reports of enterprise, census and surveys.

The production output refers to the products and services for the particular establishment market and the products and services for their final use. Selling of products is defined as the amount of the production sold and services executed out in current year.

The entities that produce different types of products and services are classified by the products and services which they produce mostly. As recommended from United Nations to its member countries, ISIC version 4.0 is used for the classification of products and services that industrial sector produce.

2.3. GAP ANALYSIS

The potential gaps are identified by those GFGs and targets, which cannot be assigned by any existing reliable datasets. The table 2 presents existing gaps.

Goal 1. Reverse the loss of forest cover worldwide through sustainable forest management, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation and contribute to the global effort of addressing climate change.					
TARGET	SOURCE	RELIABLE DATA	TEMPORAL RESOLUTION	SPATIAL RESOLUTION	REMARKS
1.1	FRDC	NFI	10 years	National	Sampling design, forest carbon stocks assessments and derived figures are consistent with UNFCCC communication requirements and FRA terms. Forest is defined as land spanning with minimum tree canopy coverage of 10%, a minimum height of the tree species of 2 m at the location site and minimum extent of 1 ha[14].

2.2	NSO	Establishment census	5 years	Soum and District	NSO censuses and survey applies following classification system, developed by UN Statistics Division: Central Product Classification (CPC 2.1), constitutes a complete product classification covering all goods and services; International Standard Industrial Classification of All Economic Activities (ISIC 4.0)
		Agricultural census	10 years	Soum and District	
		Business register	Quarterly	Soum and District	

3.1	FRDC	NFI	10 years	National	Forests within protected areas
3.2	FRDC	NFI	10 years	National	Figures on forest areas designated as forest management unit
	EIC	FI-5	annually	Soum and district	Forest Ownership information reported in FI-5 table
3.3	MET	No reliable data			In the paragraph 3.3.7 of State Policy on Forest stated that *Establish a national standard for certification of forest organizations in line with international standards, so that by 2020, transferred into system in which only certified companies and organizations are authorized to use forest resources.*

Goal 4. Mobilize significantly increased, new and additional financial resources from all sources for the implementation of sustainable forest management and strengthen scientific and technical cooperation and partnerships

3. NATIONAL CRITERIA AND INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT IN MONGOLIA

3.1. Mongolian forestry

National circumstances

Mongolia is the 19th largest country in the world with a surface area of 1,564,116 square kilometers and average altitude of 1,580 m above the sea level. Half of its territory lies over 1,400 m, 63% higher than 1,200 m, and 81% over 1,000 m above the sea level. It is also the world's second-largest landlocked country with mountains covering the northern and western regions and the Gobi Desert located in the south. Precipitation is low with annual average of about 230 mm, higher in mountainous areas in the North but less than 100 mm in desert regions in the South. Its continental climate is much harsher than that in other countries of the same latitudes, and is characterized by the extremes in both temperature and fluctuations[19]. Its six basic natural zones are high mountains, taiga forest, mountain forest steppe, steppe, desert steppe, and desert that are different in climate, landscape, soil, flora and fauna. They have a mixture of plant and animal species, many of which are endemic. So are almost 150 of the some 3,000 vascular plant species. Moreover, numerous globally threatened and endangered species occur[20]. There are 4,000 lakes and almost all rivers flow northwards, including the inflow to Lake Baikal in Siberia that is the largest freshwater reservoir in the world.[21]

highlighted that in 2013, only 36 soum-level forestry units had been established, of which only 22 were operational. With a total forest area around 13 million ha, forest units are responsible for large forest areas well above 300,000 ha. According to the government resolution No. 255 of 2012 on “Approval of Norms, Normative, and Locatio

various change areas as a result of various drivers of change classes.

Recognizing the impending threat of forest degradation and deforestation, the Mongolian government in July 2015 adopted a revised forest policy (with a planning horizon until 2030), geared primarily towards forest protection, forest rehabilitation and sustainable forest management. IN 2019, the MET endorsed a midterm action plan (2019-2021) on reducing emission from forest degradation and deforestation..

No government agency is directly in c(e)4(st ni)4(tl)-3(y)-259(in)baThf(in)b6polic6ment

To organize works to ensure the implementation of forest legislation within the territory, report to aimag and capital city governors, the public administration;

To create aimag and capital city forest databanks, provide information to the central state administrative body and public administration;

To provide by specialized supervision for their dependent soum, district forest units, oversee their activities; •To be conducted and ordered research of forest resources by professional organization;

To impose and concentrate fees on forest resources utilization in accordance with applicable laws and regulations;

To organize activities for forest protection and sustainable use, rehabilitation, breeding within the territory;

Forest units at soum, inter-soum and district level

To separate a timber harvest area from a forest; Issue certificates of origin to timber harvests and wooden materials

To implement program on forest protection, s

conservation and good governance. In broader terms, C&I have been considered as useful tools to promote improved forest management practices as an integral part of sustainable development by:

- Providing a conceptual framework that characterizes the essential components of SFM;
- Providing a measure of the state of forests and their management, and thus assessing progress towards the achievement of SFM;
- Identifying trends and changes as well as emerging gaps and threats in the conditions of forests and their management;
- Determining the effects of forest management interventions over time;
- Facilitating decision-making in national forest policy processes;
- Providing a reference framework for the formulation and evaluation of national forest policies and programmes;
- Identify enabling conditions and mechanisms, including financial and technical resources that affect national implementation of C&I;
- Clarifying issues related to forest certification and marketing of forest products even though C&I are not performance standards[47].

In that context, Rametsteiner (2001)[48]

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	Assist in the development and evaluation of national and/or sub-national forest policies, strategies, plans and programmes Serve as a basis for cross-sectoral forest related data collection Focus research efforts where knowledge is still inadequate
Forest management	

expert-led (TD) and community-led (BU) approaches in C&I development. It has been noted that C&I are predisposed to 'TD' control and present 'quick-fix' solutions to complex problems[54]. However, formulating sustainable forest policy requires a balance between the multiple socio-economic and environmental objectives of forest stakeholders and their conflicting issues[55]. Efforts have been made to apply indicators developed on national and regional scales to the smaller scale of the forest management unit (FMU) as well. Recently, there has also been a shift to a more scientific point of view regarding the C&I-based assessment of SFM[56]. The unique characteristics of community-managed forest operations, and of traditional and indigenous management practices, are often not sufficiently reflected in existing C&I sets. Limited efforts have been made to consider the local context in C&I development initiatives and even less has been done to encompass the unique management structure of community-owned or managed forest operations[57]. Recent activities involve communities in TD and BU approaches in proposing and identifying sustainability indicators as the basis for improving monitoring and management as well as multi-stakeholder collaboration for SFM[58].

There, howeveris no commonly agreed conceptual framework on how to develop national C&I. The focus should be to identify the smallest number of C&I needed to comprehensively and reliably monitor, report and assess forest management in a cost-effective manner[59].

An that has been used in this study, to indicator selection follows (figureVI) (Linser, 2002, adapted):

1. Train the team to coordinate/facilitate the process of national C&I development on principles, process, methods and skills.

2. Review existing relevant national forest information and forest information systems.

3. Review relevant regional and international C&I processes and sets.

4. Undertake stakeholder mapping to identify relevant stakeholders to engage in the process

5. Facilitate stakeholder engagement, analysis, multistakeholder negotiation and prioritisation of the key priority areas for national level C&I to focus on.

6. Conduct a logical hierarchy process from national goals down to C&I. Drawing upon and adapting indicators relevant to national priorities from regional and national C&I sets and developing new indicators where gaps exist

7. Evaluate the potential ind

8. Examine existing national data collection systems for appropriate data to support the construction of the candidate indicators. If the desired data are not available, examine feasibility of collecting such data if the answer is positive, this should provide a new impulse for data acquisition.

9. Select indicators[60].

Figure VI: Process of national C&I indicator development, steps 6 to 9 (listed above)

Source: Linser, 2002, adapted

The three inputs in figure VII must be conducted in a parallel and interconnected way as they influence each other.

Figure VII: Conceptual framework for C&I development.

	improvement is also a means of increasing forest productivity, e.g. by ensuring high levels of wood production in intensively managed forests.
3. Forest health and vitality	There are increasing concerns on the resilience of forests, also in the wake of climate change

Appendix 2 to the “Regulations regarding accounting, forms of report, and their filling instructions of forest information database”

Forest stock, and their changes /FI-2/

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aimag, capital city soum, district

№	Tree species	Growing forest stock /thous.m^3/	Changes occurred in that year	Snag stock /m^3/	Coarse woody debris stock

Appendix 3 to the “Regulations regarding accounting, forms of report, and their filling instructions of forest information database”

Forest fire information /FI

	/thous.tug/	Houses, lodges	thous.tug	
		Barns, stables	thous.tug	
		Vehicles, equipment	thous.tug	
		Hay	thous.tug	
		Other materials	thous.tug	
10	Total loss due to forest fire, thous.tug		thous.tug	
11	Number of people affected by fire	Dead	number	
		Burnt	number	
		Injured	number	
12	Fire source	Anthropogenic	-	
		Natural causes	-	
		Across state border	-	
13	Expenditure spent on extinguishing fire /thous.tug/	Food		
		Fuel	thous.tug	
		Airplane, helicopter expense	thous.tug	
		Per diem, wage	thous.tug	
		Relocation	thous.tug	
		Other	thous.tug	
		Total		
14	Expenditures related to fire preventive measures /thous.tugrug/	Equipment, vehicles and techniques for fire extinguishing	number	
		Awareness raising, promoting	number/thous.tug	
		Patrolling	number/thous.tug	
		Training	number/thous.tug	

15	Expenditure related to the prevention of further distribution of fire /thous.tug/	Dirt belt without vegetation	km	
		Belt with prescribed burning method	km	
		Measures to remove inflammable and fuel materials by cleaning of site	ha	
16	Payment for forest fire damage compensation /thous.tug/	Demanded	thous.tug	
		Compensated	thous.tug	
17	Name and address of person caused fire			
18	Measures taken to those guilty of forest fire	Criminal case		
		Administrative case		
		Punishment, fine		
19	Other			

Appendix 4 to the “Regulations regarding accounting, forms of report, and their filling instructions of forest information database”

Reports on forestry activities /FI-4/

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aimag, capital city soum, district

№	Parameters	Unit	Information
1. Preventive measures against forest insect pests, and diseases			
1.1	Extent of research and survey about the forest insect pest and disease distribution	ha	
1.2	Area where forest insect pest, and diseases distributed	ha	

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2.6	Number of seedlings and saplings raised	1 year-old	number	
		2 year-old	number	
		3 year-old	number	
2.7	Number of seedlings and saplings planted for re/afforestation	Larch	number	
		Scotch pine	number	
		Other	-	
2.8	Amount of seed prepared	Larch	kg	
		Scotch pine	kg	
		Saxaul	kg	
		Other		
3. Forest utilization				
3.1	Amount of timber logged			

Appendix 5 to the “Regulations regarding accounting, forms of report, and their filling instructions of forest information database”

Forest ownership report /FI-5/

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aimag, capital city soum, district

№	Parameters		Unit	Information
1	Number of forest owners	Forest cooperative	number	
		Enterprise	number	
		Other		
		Total		
2	Forest area owned	Forest cooperative	ha	
		Enterprise	ha	
		Other		
		Total		
3	Location of forest owner			
4	Number of order issues for forest ownership			

Appendix 6 to the “Regulations regarding accounting, forms of report, and their filling instructions of forest information database”

Forest conflict report /FI-6/

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Appendix 7 to the “Regulations regarding accounting, forms of report, and their filling instructions of forest information database”

Expenditure report on forestry activities, thous.tugrug /FI-7/

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aimag, capital city	soum, district

№	Forest activity type	Funding