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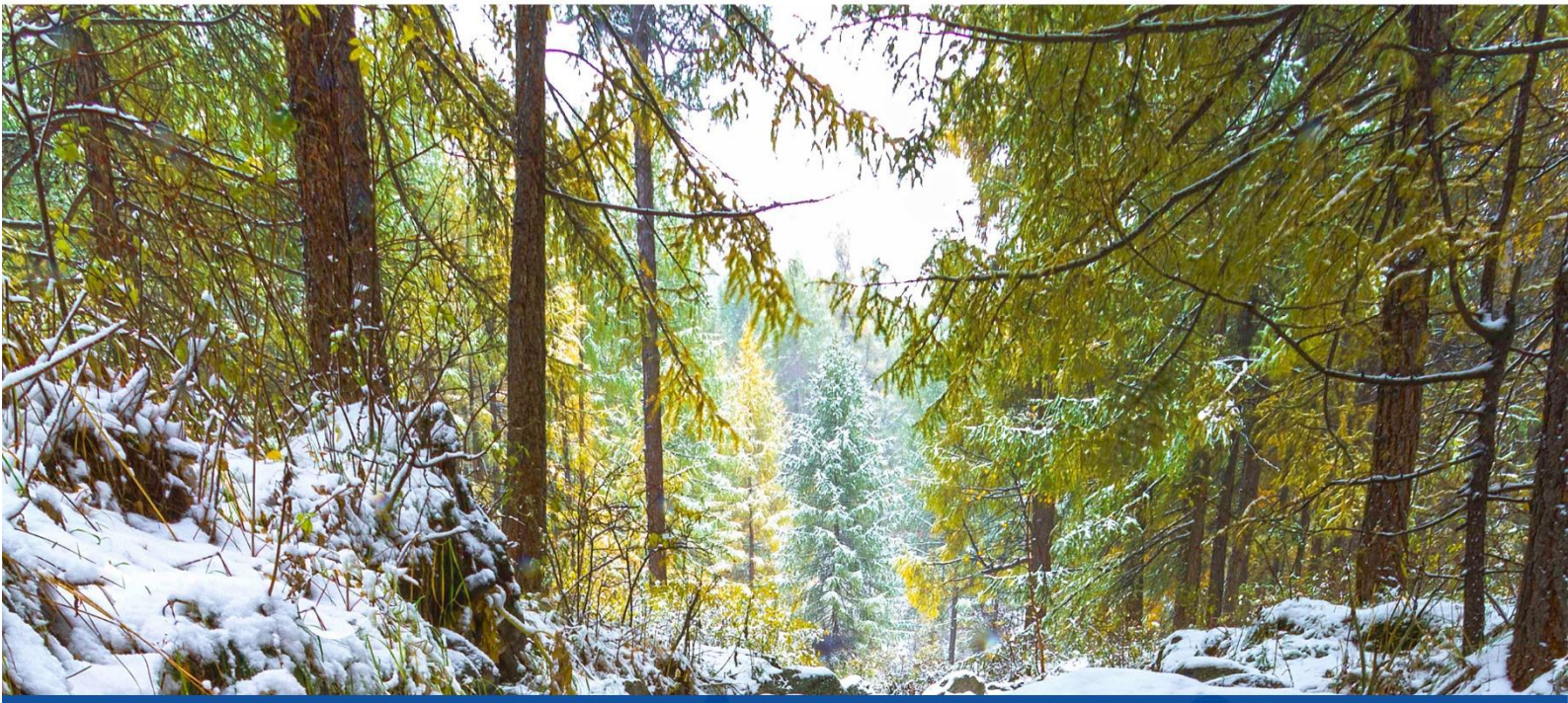

Assessment of Financing Mechanisms and Options for Mongolia's REDD + Action Plan

Camille Bann & Ganzorig Gonchigsumlaa

FINAL REPORT

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UN-REDD PROGRAMME

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This report is produced as an output of the Mongolia UN-REDD National Program. The UN-REDD Programme is the United Nations collaborative initiative on Reducing Emissions from Deforestation and Forest Degradation (REDD+) in developing countries. The Programme was launched in 2008 and builds on the convening role and technical expertise of the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP). The UN-REDD Programme supports nationally-led REDD+ processes and promotes the informed and meaningful involvement of all stakeholders, including indigenous peoples and other forest-dependent communities, in national and international REDD+ implementation.

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Disclaimer

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Contact Information

The UN-REDD Programme / Mongolia

National Program Management Office / Mongolia
Tel: +976 976976976
Web site: www.reddplus.mn

EXECUTIVE SUMMARY

KEY FINDINGS

- Sustainable Forest Management (SFM) is important for Mongolia. It can support delivery of the Sustainable Development Goals (SGDs) and help address a number of Mongolia's priority development challenges such as adaptation to climate change, reducing air pollution and the regeneration of rural areas.
- In 2017, total financial inflows into forest conservation and utilization was around MNT 440 billion (US$ 220 million)[1]. Between 2013-2017, around 92% of financial inflows were from private sector investments, 5% from the Government of Mongolia and 3% from donors. The total revenue generated from forestry in 2017 was around MNT 157 billion (US$ 78 million). The government captures around 26% of this total revenue, the rest is net profit to the private sector.
- In 2017 total *Government* funding for SFM was around MNT 12,808 million (US$6.4 million), compared to Government forest related revenues of MNT 51,289 million (US$ 25.6 million) suggesting that increased Government funding for SFM is possible through better earmarking of forest generated revenues.
- The Ministry of Environment and Tourism's (MET) budget allocations to its departments engaged in forestry and forest conservation in 2017 was MNT 9.6 billion (US$ 4.8 million). Pest control receives the biggest proportion of the MET's budget for forests, averaging 43% between 2013 and 2017. Forest fires receive around 5% of the MET's budget in comparison despite being the main driver of deforestation and degradation in Mongolia. Forest utilization activities account for only 9.1% of MET's forest budget, although this is showing an increasing trend.
- There is insufficient funding for SFM and to increase sustainable forest financing a more diversified finance base is required that relies less on Government and donor funding and draws more on private sector finance in support of the development of a sustainable self financing forest sector.
- A range of financial and non-financial mechanisms can help support the forestry sector become self financing, including: increasing the Annual Allowable Cut (AAC); removing tax exemptions on imported wood; incentives (e.g. subsidies, low interest loans, tax exemptions); certification of wood products; green procurement initiatives; investments in infrastructure; support for skills development, encouraging Foreign Direct Investment (FDI) that promotes quality investment; and, promoting Public Private Partnerships (PPP). However, development of the forestry sector is contingent on a change in Government policies in support of greater sustainable utilization, and would need to follow a coordinated and gradual approach that takes into consideration available man power, technical capacity and market demand.
- Green credit is a rapidly developing area in Mongolia building on the initiatives of Xac Bank (a Green Climate Fund Accredited Entity) and the Mongolia Bankers Association. However, the forest is currently viewed as a risky investment and better management, monitoring and reporting are prerequisites for securing private sector finance. Such activities are being supported by UN-REDD.
- Initial actions to enhance Government forest finance should be placed on improving the implementation of existing mechanisms such as forest use fees and diversifying forest related charges including protected area fees. For example, if the Law of Natural Resource Use Fee (which includes forest use fee) had been properly implemented in 2017, an additional MNT 6.3 billion (US$ 3.1 million) would have been invested in the forest. Better prioritization of Government budgets and ensuring measures are cost-effective are also seen as easy wins.
- Climate focused forest finance is considered to be an option, potentially through the Green Climate Fund and the Adaptation Fund, given that climate change adaptation is a key issue facing Mongolia and will require significant investment over the coming years.

[1] Exchange rate: US$ 1 = MNT 2,003 as of average in Jan, 2016, Central Bank of Mongolia

BACKGROUND

Mongolia's UN-REDD National programme is supporting the Government to design and implement its National REDD+ Strategy and to meet the requirements under the United Nations Framework Convention on Climate Change (UNFCCC) Warsaw Framework to receive REDD+ results-based payments.

This study reviews existing and potential financing mechanisms and determines if they could be included in Mongolia's REDD+ Action plan. It is supported by a forest financial flows analysis.

Sustainable Forest Management (SFM) is an important issue for Mongolia. The ecosystem services provided by Mongolia's forests, such as timber, non-timber forest products, water regulation, carbon sequestration, disaster mitigation, tourism and cultural services, support livelihoods and underpin key sectors of the economy such as agriculture, industry and tourism. SFM can support delivery of the Sustainable Development Goals (SGDs), as well as a number of key development and policy challenges facing Mongolia, namely: (i) adaptation to climate change through building ecosystem resilience and supporting alternative livelihoods; (ii) reducing air pollution through the use of wood based fuel instead of coal; and, (iii) employment generation and revitalization of rural areas through increased utilization of the forest and development of market enterprises.

Since 1990, Mongolia's forest policy has promoted conservation, with little support and investment in silviculture and the forest industry. However, the recent National Forest Inventory (NFI) suggests that an increased utilization of the forest would be compatible with SFM and the majority view is that a successful self-financing private sector could be developed in a step-wise fashion. This would increase the Government's revenue base and hence financing to support / enhance the forest in the future.

FINANCIAL FLOWS ANALYSIS

Financial inflows – expenditure on forests. Total financial inflows into forest conservation and utilization is estimated at MNT 440 billion (US$ 220 million), in 2017. Between 2013 and 2017, annual financial inflows averaged around MNT 274 billion (US$ 137 million); 91.8 % of which (MNT 252 billion, US$ 126 million) is from private sector investment, 5.4% (MNT 15 billion, US$ 7 million) from the Government and 2.8% (MNT 8 billion, US$ 4 million) from donors (Figure A).

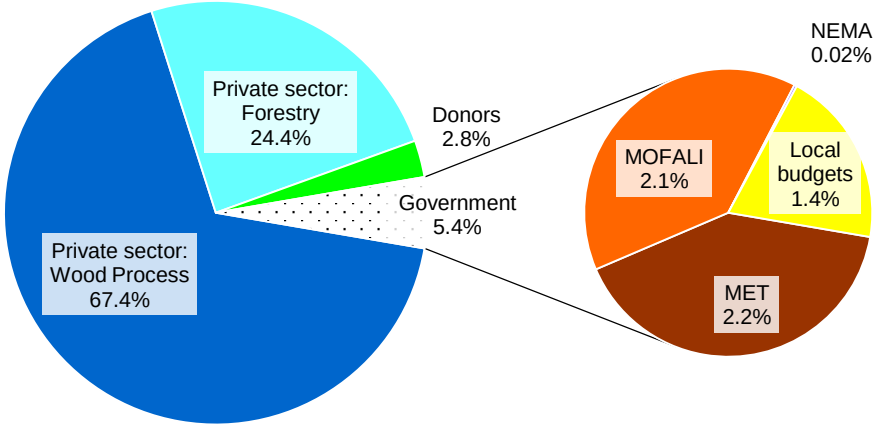

Figure A - 1. Share of financial inflow to forest on average of 2013-2017, by sources (%)

Source: Authors' calculation

The MET's budget allocations to its departments engaged in forestry and forest conservation in 2017 was MNT 9.6 billion (US$ 4.8 million). Most of the budget (97% in 2017) is allocated to the Department of Forest Policy and Coordination (DFPC). The budget for pest control accounts for the biggest proportion of the total MET budget for forest, averaging 43% between 2013 and 2017. In 2017 the National Emergency Management Agency (NEMA) received MNT 205.5 million (US$ 102,600) - 2% of the MET budget for forests, to address forest fires, the biggest driver of forest deforestation and degradation in Mongolia. If three types of activities, namely 'Forest treatment (thinning) & cleaning' and 'FUGs, Forest units, forest enterprises, & developing forest management plans', are considered as forest utilization activities then financing for forest utilization activities (rather than for conservation) accounts for only 9% of MET's forest budget, although this is showing an increasing trend.

Aimags and Ulaanbaatar spent about MNT 2.8-3.0 billion (US$ 1.4-1.5 million) for forestry and forest conservation activities at local level between 2013 and 2017, around 39% of the state budget. Reforestation and pest control activities account for around 83% local expenditure.

In 2017, donor projects contributed MNT 12.5 billion (US$ 6.2 million) to forest related activities, which is higher than MET budget for the forest in the same year.

Total expenditure by the private sector, based on National Statistics Office (NSO) data, was MNT 414.5 billion (US$ 206.6 million) in 2017. This is comprised of MNT 99.2 billion (US$ 49.5 million) for forestry activities and MNT 315.3 billion (US$157.4 million) for wood processing and production activities.

Financial revenues (outflows from the forest). The total revenue generated from forestry in 2017 was around MNT 157 billion (US$ 78 million) in 2017. Revenue from the forest has increased year on year over the period 2013-2017, mainly driven by the increase in private sector revenue, especially associated with the processing sector.

Total revenue generated by the public sector (Government), through forestry fees, charges and taxes, was about MNT 51.3 billion (US$ 25.6 million) in 2017. Around MNT 11.2 billion (US$ 5.6 million) accrued to local Governments (mostly from forest resource use fee). The MET accrued MNT 23.8 billion (US$ 11.9 million) mostly from pine nuts export licenses), the Environment and Climate Fund (ECF) MNT 0.3 billion (US$ 0.14 million) from payments for forest related crimes, and state and local tax offices MNT 16.0 billion (US$ 8 million) related to taxes paid by the private sector for forestry, wood processing and production activities (Figure B).

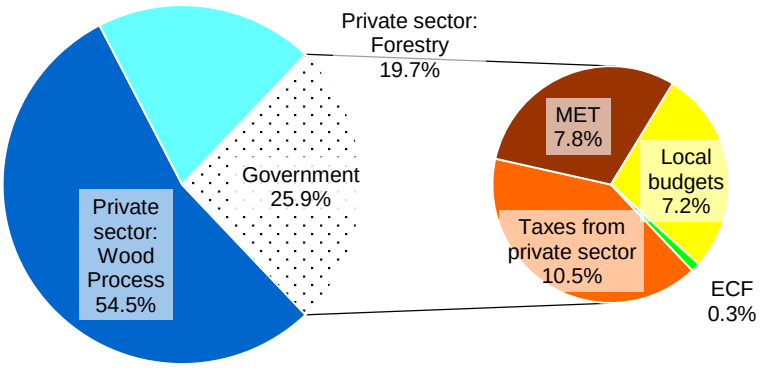

Figure A - 2. Share of financial outflows from the forest by type of beneficiaries (%) (average for 2013-2017)

Source: Authors' calculation

The total revenue from pine nuts increased from MNT 6.7 billion in 2015 to MNT 30.5 billion in 2017. However, the revenue from pine nut collection and export is not reinvested back into the forest. Although, the revenue from pine nuts is significant, there are concerns over harvesting and processing practices which could affect the sustainability of the resource. Pine nuts are already listed as endangered.

In 2017 total Government funding for SFM was around MNT 12,808 million, compared to forest related revenues of MNT 51,289 million suggesting increased Government funding for SFM is possible through better earmarking of forest generated revenues.

ASSESSMENT OF FINANCING MECHANISM

Figure C presents the opportunities for increasing funding for SFM related to four main categories of financial mechanisms – Government, private sector, Market Based Instruments and donor.

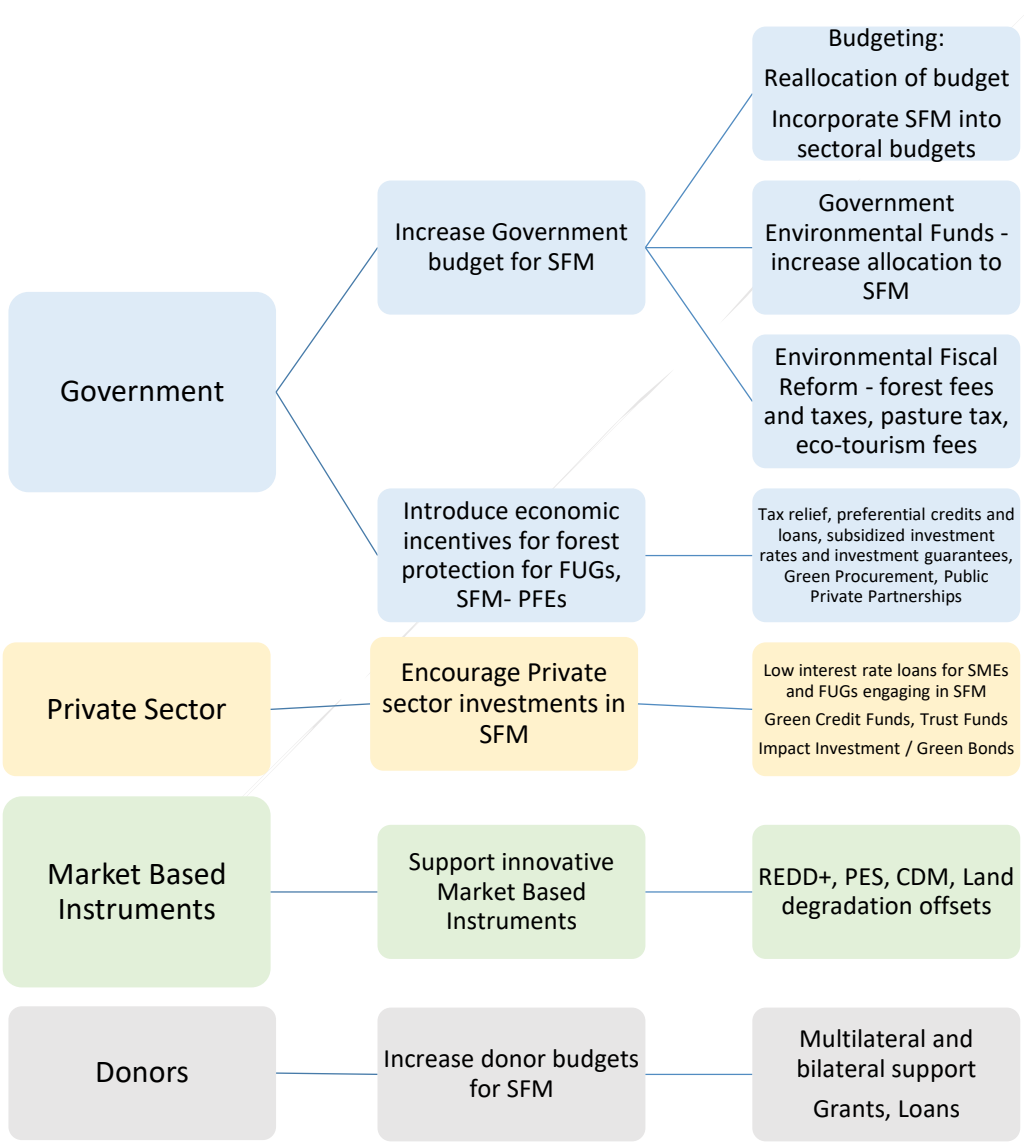

Figure A - 3. Overview of opportunities to increase funding for SFM and potential financial mechanisms

GOVERNMENT FUNDING FOR SFM

The economic climate in Mongolia is challenging given the ongoing economic downturn and insufficient accumulation of state revenue. Given the current tight fiscal constraints, it is unlikely that any significant increase in funding for SFM will materialize via the state budget in the near term. However, there are potential opportunities to use the existing budget more efficiently through a reallocation of budgets to priorities and improving the cost-effectiveness of forest measures and in the longer term to develop mechanisms for other sectors to contribute to forest management based on the benefits they receive from the forest.

The **Environment and Climate Fund** (originally called the Nature Conservation Fund) has seen its budget fall from MNT 6.1 billion (US$ 3 million) in 2014 to MNT 1.8 billion (US$ 0.9 million) in 2017. There is currently a move towards reducing the use of such Government special funds due to inefficiency issues. BIOFIN is currently undertaking a feasibility study on the re-establishment of a **Mongolian Environmental Trust fund (METF),** however**,** interest in capitalizing the fund and the value added for fund contributors is not yet clear. If the METF were approved it would be good if the fund was structured in a way that ensured sufficient funding was allocated to SFM, potentially through a SFM window or sub-account within the Fund. Forestry projects that address economic, social and environmental issues should be attractive to fund managers and REDD+ forest activities backed by the National Forest Monitoring System (NFMS), safeguards and UNFCCC could encourage uptake of forest investments within a METF. Given the number of existing funds and the proposed METF under review, a separate Forest Fund is not currently seen as feasible, but this could be reviewed if the METF is not progressed.

In terms of **Environmental Fiscal Reform (EFR)** it makes sense to first ensure existing fiscal mechanisms are working as intended, and to remove fiscal mechanisms that are creating perverse incentives, before introducing new mechanisms. A priority is to fully enforce the *Natural Resource Use Fee Law.* In 2017, MNT 3 billion (US$ 1.5 million) was re-invested in forest protection activities, instead of the legally required MNT 9.3 billion (US$ 4.6 million). A lot of money collected from fees goes into the general account and is not re-allocated back to the environment. Once the existing law is being fully implemented, the fee structure may be developed by increasing fees in line with cost recovery principles and broadening the application of fees and charges to the full range of forest goods and services.

Development of eco-tourism fees in Protected Areas. The PA entrance fee of about MNT 300 (US$ 0.15) per person has not changed for many years and has been devalued by rising inflation. Furthermore, only a few PAs have entrance fees and collection is difficult due to the lack of rangers and specific entry points. PA entrance fees therefore need to be increased and collection facilities and processes improved. Anecdotal evidence suggests that PAs have the potential to generate income, for example over two seasons MNT 16 million (US$ 8,000) was collected in fees from two parks – Orkon valley NP and Ikh Nart NP, through the introduction of fees. A new approach is also being tested which entrusts PAs management to NGOs, local citizens' organizations or private companies to increase their financial autonomy. For example, Khustai Nuruu National park is managed by the Khustai Trust fund NGO and is the most successful PA in Mongolia.

Introduction of pasture tax. BIOFIN have recommended the re-introduction of a pasture tax, with the primary aim of reducing livestock numbers. This could benefit SFM given that livestock grazing results in forest degradation and is responsible for the failure of a number of reforestation initiatives. An integrated approach to livestock management and SFM is essential. BIOFIN estimates that it would be possible to generate MNT 5.6 billion (US$ 2.8 million) from a pasture tax, at least MNT 1.7 billion (US$ 0.8 million) a year (i.e. 30 %) of

which should, according to the *Law of Natural Resource Use Fee, be spent* on pastureland management.

Remove perverse incentives. Imported wood is currently exempt from custom tax and VAT. This supports a supply of wood to Mongolia's wood processing industry, which cannot be met through domestic wood supplies due to the low Annual Allowable Cut (AAC) and is consistent with current forest policy centered on conservation. If the forest policy changes to allow increased sustainable utilization of the forest resource and development of the forestry sector, the tax exemption of imported wood should be removed to encourage the private sector.

There are few **incentives** targeted at the forest sector and tax relief, preferential credit and loans, subsidized interest rates and investment guarantees could help the SFM become more competitive and stimulate new investment and value-added. **Green procurement initiatives** could also be used to stimulate private sector investment in SFM by providing a guaranteed market. For example, local Governments could procure forest products to build, furnish and heat schools and hospitals. Such approaches align with the Ministry of Finance's on-going work to incorporate sustainability principles into the national public procurement framework.

Public Private Partnerships can play a role in the development of the forestry industry, critically through the leveraging of private finance to support limited public funds and developing an equitable sharing of responsibilities in SFM. Further study is required in Mongolia to ensure the existing regulatory environment supports such initiatives.

PRIVATE SECTOR MECHANISMS

A key question is can the forestry sector become sustainable and self financing and in doing so generate additional funding for the Government to reinvest back into forest conservation and sustainable utilization?

Enhanced forest utilization is being explored by a number of donor projects and there is growing support for developing the forestry sector as a means of supporting SFM, contributing to the economy, providing jobs and improving livelihoods in rural areas and reducing air pollution. However, development of the forestry industry is contingent on a change in the Government's forestry policy in favor of greater forest utilization. Furthermore, an increase in forest utilization would need to be carefully planned and rolled out in a step-wise manner to ensure that the right capacity and skills are in place, the forest resource is sustainably harvested, activities are properly monitored, wood production is in sync with Mongolia's processing capacity and that there is a market for the harvested wood and processed products.

To date the main focus of Mongolia's 1,281 Forest User Groups **(**FUGs) has been on forest protection, although efforts are ongoing to develop FUG harvesting, processing and marketing activities as a means of income generation. Enhanced economic incentives (payments) for forest protection (forest fire detection and fighting, monitoring illegal logging and potentially pest management) are required along with the creation of new jobs in forest sanitation cuttings through low interest rate loan system for Small and Medium Sized Enterprises (SMEs) and FUGs who are trained, and for the local processing of wood and NTFPs.

Loans and investment capital for SFM remains difficult to access in Mongolia, but are key to increasing the participation of the private sector. The banking sector in Mongolia is taking concrete steps to support green development investments. For example, Xac Bank is a

Green Climate Fund (GCF) Accredited Entity and is managing US$ 20 million of climate finance from the GCF as part of a US$ 60 million project to support micro, small and medium-sized enterprises (MSMEs) finance low-carbon initiatives (energy efficiency and renewable energy) in Mongolia. The **Mongolian Bankers Association** was established in 2013 and includes all of Mongolian's 14 commercial banks, accounting for 96% of the Mongolian financial system. Its objective is to ensure that social, environmental and economic dimensions are given equally consideration in investment decisions. A **Mongolia Green Credit Fund** led by the Mongolian Banking Association is being developed to serve as a national financing vehicle that will provide long-term finance to projects and programs that stimulate green growth. It will initially focus on four key green development areas - energy, housing, waste management and sanitation. Forestry is not currently seen as a possible area for investment by Mongolia's banking sector, due to the risks associated with it and the lack of monitoring in place making it hard to judge whether a project is sustainable or not. Better enforcement and monitoring of forestry activities are among the prerequisites for securing bank loans.

One suggestion is that the **Annual Allowable Cut** (**AAC) could be used as collateral** to access loans, however, the use of AAC as collateral is currently seen as highly risky by banks in Mongolia and there would need to be a mechanism specifying how banks would recover their investment if the project failed. The MET plan to explore the potential for **green bonds in 2018** with the Minister of Finance. This financing mechanism may therefore be applicable in the medium to long term. The use of green bonds to support SFM would need to be supported by a detailed market analysis of the forest sector, along with the development of a pipeline of potential projects / investments. Since 2015 all banks in Mongolia have undertaken Environment, Social and Governance (ESG) screening on investments over US$ 20,000 under the **Mongolian Sustainable Finance Principle (SFP)**. This serves to direct investments to sustainable projects and should facilitate the uptake of impact investments in Mongolia. **Certification** of forest sites and products also offers assurance to impact investors and offers the potential of attracting a price premium and hence increasing the economic viability SFM initiatives.

Forest Risk Insurance. SFM investors face commercial, market and political risks and may require mitigation facilities to help share or manage the risk such as credit guarantees to cover defaults, and various insurances against losses due to specific risks. This is an area warranting further study to help unlock private finance in Mongolia.

MARKET BASED INSTRUMENTS

Market Based Instruments are not likely to offer a significant source of forest finance in the short term. **REDD+ results based payments** have limited scope in Mongolia given that Mongolia's forest provide a net benefit in terms of CO_2 emissions and the scope for emission reductions is relatively limited; around 140,000 hectares of forest are degraded annually by fire and pests, and around 8,000 hectares of forest are lost annually due to land use change (UN-REDD, *in prep*). However, REDD+ performance payments may be feasible for SFM such as better forest enforcement, given that 90% of fires are caused by humans and payments for pest management.

The Forest State Policy and the Green Development Policy supports **Payments for Ecosystem Services** (PES) schemes but there is no law facilitating the implementation of PES. A feasibility study on piloting a watershed PES in the Upper Tuul basin was carried out in 2010, however, despite the initial interest in this PES initiative it was not progressed by the Government. Furthermore, the opportunities for applying PES schemes nationally are not obvious due to the low population levels and weak economy in rural areas, although such schemes could work in cities dependent on a river for its water supply.

Land degradation offsets have been under development for the past 4-5 years. Forest can be impacted by mining and offsetting is a potential mechanism to address damages, if correctly implemented. The GEF-MET-UNDP project "Land Degradation Offset and Mitigation in Western Mongolia" is developing guidelines and procedures for land degradation offsets, with a focus on mining offsets. While all 272 mining companies have developed Environment Management Plan (EMP), only 55% of companies (typically the larger companies) have implemented offsets.

The **Clean Development Mechanism (CDM)** in Mongolia is focused on the energy sector, and is not considered viable as a forest finance mechanism due to the low level of forest related emissions. The **Joint Crediting Mechanism (JCM)** in Mongolia potentially covers 15 sectors including forestry, but is focused on funding renewables, and energy projects. Forestry projects have not been considered due to the lack of capacity in forest monitoring, verification and reporting. There is the potential to apply for JCM funds for wood based coal replacement initiatives.

DONOR FUNDING FOR SFM

With its graduation to upper-middle income status in 2015, Mongolia is increasingly seen by international donors as a development partner, best suited to loan financing. It will therefore become harder for Mongolia to access donor grants, which are also likely to be performance based in the future. Loan financing for the forestry sector may be possible through, for example, the Asian Development Bank (ADB).

Climate related forest finance is considered to be an option given that climate change adaptation is a key issue facing Mongolia and will require significant investment over the coming years. Much emphasis is being placed on the **Green Climate Fund (GCF)** as a source of funding. The **Adaptation Fund** and **Land Degradation Neutrality (LDN) Fund** also warrant consideration.

REDD+ IMPLEMENTATION & SFM IN MONGOLIA FINANCE PLAN

A strategic and coordinated approach to SFM financing is needed that incorporates the following features:

- Diversified financing base, which blends financial sources and takes into account coherence between funding mechanisms.
- Strong private sector engagement.
- Increased budget allocations at aimag / soum level.
- Strong forest planning and management at central, aimag and soum level potentially supported through increased budget tracking / coding.
- Emphasis on co-benefits and value added.

In the short term (phase 1) efforts should be placed on mechanisms that have the highest chance of success. It makes sense to start with improving the implementation of mechanisms that are already in place (notable Natural Resource Fees) rather than introducing new more complex mechanisms such as PES schemes. It is also important in the short term to build the foundation for the successful development of a self financing forestry sector through policy and fiscal reforms, and to undertake the necessary research and stakeholder awareness raising to better understand the suitability of mechanisms that may have application in the medium to long term. The proposed Phase 1 finance strategy is presented in Table A.

The precise activities to be undertaken in Phase 2 will depend on the outcomes of Phase 1, but are likely to include:

- Further Environmental Fiscal Reform (EFR) – for example increasing natural resource fees (once collection rates have been improved), broadening the range of services for which fees are charged and developing spatially sensitive revenue collection system (assuming there is political support for this).
- Further supporting and developing a self financing forestry sector. It is hoped that the forest sector can work towards securing loans from the Green Credit Fund and associated Government Initiatives, for harvesting / processing activities.
- Implementing new financing mechanism based on feasibility studies in Phase 1

Objective	Financial mechanisms	Supporting policies and measures
Optimize budget allocation	- Redistribution of budget	- More effective Mid Term planning to support budget allocations - Cost effectiveness analysis of forest (protection) measures - Budget coding and tracking
	- Increase in cost norms	-
Strengthen existing fiscal and penalty mechanisms	- Enhance collection and re-investment of Natural Resource Use Fees	- Capacity building at Aimag / Soum level - Possible revision of budget Law (as proposed by BIOFIN) - Possible restructuring of the ECF
	- Full utilization of ECF	- Enhanced budget planning - Revision of Law on Special Government Funds and Law on Budget
	- Developing tourism fees in PAs & ensure their re-investment back into PAs - Expand management by NGOs and private companies	- Monitoring and Enforcement - Amendment of PA Law
	- Penalties for causing forest fire	- Monitoring and Enforcement
Encourage Development of Self Financing Forestry Sector	- Subsidies and preferential loans for PFEs, FUG and processing sector	- Policy change in support of forest utilization - Policy coherence and enabling legal environment - In-depth market analysis to identify viable opportunities - Strengthened forest units to enable them to control activities - Develop MRV
	- Removal of tax exemption on imported logs	
Support proposed BIOFIN mechanisms	- Pasture Tax	
	- Mongolian ETF	
Explore Donor Funding	- Scope out and develop proposals to GCF, Adaptation Fund, and Land Degradation Neutrality Fund to attract finance for SFM focused on adaptation benefits - Explore MDB Loan Finance options	
Feasibility studies for mechanisms with potential in the medium term	- Explore / develop mechanisms to promote cross sectoral mainstreaming - integration of forests into the spending of other sectors - Scope REDD+ payments - Explore / develop PES – Upper Tuul Watershed - Explore / develop green Bonds & impact investment - Explore / develop Risk insurance	- Economic studies to set appropriate fees and charges and determine benefits - Enhanced scientific understanding of ES - Increase awareness of ES - Introduce law on PES if schemes prove viable
Research, capacity building and pilot testing to develop forestry sector	- Capacity building on Ecosystem Services - Economic studies – forest industry, ecosystem services valuation, cost benefit analysis of PAMs, value chain analysis	

Table A - 1. Phase 1 Action Plan for Financing REDD+ Implementation / SFM in Mongolia

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ACRONYMS

AAC	Annual Allowable Cut
CDM	Clean Development Mechanism
DFPC	Department of Forest Policy and Coordination, MET
DLMIWRPR	Department of Land Management and Integrated Water Resources Policy and Regulation, MET
DENRM	Department of Environment and Natural Resources Management, MET
ECF	Environment and Climate Fund
ETF	Environmental Trust Fund
FAO	Food and Agriculture Organization of the United Nations
FRDC	Forest Research and Development Center
FI-7	Forest Information Sheet-7
FU	Forest unit
FUG	Forest User Group
GDP	Gross Domestic Product
GIZ	German Agency for International Cooperation
GoM	Government of Mongolia
LDF	Local Development Fund
MET	Ministry of Environment and Tourism
MoF	Ministry of Finance
MOFALI	Ministry of Food, Agriculture and Light Industry
MNT	Mongolian Currency Tugrik
NAMEM	National Agency of Meteorology and Environmental Monitoring
NEMA	National Emergency Management Agency
NFI	National Forest Inventory
NFMS	National Forest Monitoring System
NSO	National Statistics Office of Mongolia
NRUF	Natural Resource Use Fee
NTFP	Non-Timber Forest Product
PAAs	Protected Area Administrations

PAAD	Protected Area Administration Department, MET
PAs	Protected Areas
PAGE	Partnership for Action on a Green Economy of the United Nations
PES	Payments for ecosystem services
PFE	Private Forest Enterprise (or Forest Enterprise)
PAMs	Policies and Measures
PPP	Public Private Partnerships
REDD+	Reducing Emissions from Deforestation and Forest Degradation in developing countries
SDGs	Sustainable Development Goals
SFM	Sustainable Forest Management
SME	Small or medium sized enterprises
UNCCD	United National Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
US$	United States Dollar

BACKGROUND

Objective of study

Mongolia's UN-REDD National programme is supporting the Government to design and implement its National REDD+ Strategy and to meet the requirements under the United Nations Framework Convention on Climate Change (UNFCCC) Warsaw Framework to receive REDD+ results-based payments[2].

The objective of this study is to review existing and potential financing mechanisms and determine if they could be included in Mongolia's REDD+ Action plan.

The study, as specified in the Terms of Reference, aims to:

- identify financing opportunities related to REDD+ or the forestry sector and determine which have the most potential to support REDD+ activities linked to sustainable forest management, deforestation and forest degradation; and,
- reach a conclusion on whether a separate REDD+ Fund is suitable for Mongolia, given the context of donor flows and the low feasibility of REDD+ Result Based Payments (RBP).

Funding is recognized to be a key constraint to implementing REDD+ policies and measures (PAMs) in Mongolia (UNDP, 2017). Implementation of the REDD+ Action plan therefore rests on the development of a credible financing strategy. This report evaluates the existing and potential options for forest financing and sets out a strategy for developing the funding base for Sustainable Forest Management (SFM).

Background

Forests in Mongolia can be divided into two broad types: the northern, mainly coniferous, forests of the forest-steppe, boreal forest and mountain zones; and the Saxaul shrub lands of the southern desert and desert steppe. Mongolia's boreal forest area covers 13.1 million ha (FRDC, 2016) and includes 9.3 million hectares of well-stocked forest. These forests are largely comprised of Siberian larch, pines and birch forests with an average volume of approximately 164 cubic meters (MET, 2016). Mongolia's boreal forests are affected by various drivers of deforestation and degradation, including human induced forest fire, insect pests and grazing, and environmental factors often linked to climate change, which result in precipitation change, permafrost melting, drought and an increased risk and vulnerability to fires and pests. Strategies for enhanced forest management include improved forest fire and insect control methodologies, and maintaining and enhancing forests through both protection and sustainable forest harvesting.

Sustainable Forest Management (SFM) is an important issue for Mongolia. The ecosystem services provided by Mongolia's forests, such as timber, non-timber forest products, water regulation, carbon sequestration, disaster mitigation, tourism and cultural services, support livelihoods and underpin key sectors of the economy such as agriculture, industry and

[2] For Mongolia to receive Results-Based Payments in the context the UNFCCC, four elements need to be in place: (i) a national REDD+ strategy; (ii) a national forest reference emission level (or forest reference level); (iii) a national forest monitoring system; and (iv) a system for providing information on safeguards.

tourism[3]. SFM can support delivery of the Sustainable Development Goals (SGDs), most directly - Goal 1 to end poverty, Goal 8 creation of employment opportunities, Goal 10 to reduce inequality, Goal 13 to combat climate change and Goal 15 to sustainably manage forests and combat and reverse land degradation. However, given that the SDGs represent a deep web of inter-relationships and dependencies, where progress toward one goal can enhance progress on others (UNDESA, 2015), the potential role of SFM in supporting delivery of the 2030 Development Agenda is significant.

SFM aligns with a number of key development and policy challenges facing Mongolia, namely: (i) adaptation to climate change through building ecosystem resilience and supporting alternative livelihoods; (ii) reducing air pollution through the use of wood based fuel instead of coal. Reducing air pollution is a policy priority given that Ulaanbaatar is one of the world's most polluted cities - PM2.5 can reach levels well above 1,000 micrograms per cubic meter in *ger* areas in the winter, 40 times the maximum recommended by the World Health Organization. According to the Ministry of Environment and Tourism (MET) Mongolia plans to ban the burning of low-grade coal in Ulaanbaatar within a decade; and, (iii) employment generation and revitalization of rural areas through increased utilization of the forest and development of market enterprises. This could help sustain traditional lifestyles in rural areas and have the important benefit of reducing migration to Mongolia's capital Ulaanbaatar, which is facing a number of urban development problems linked to an increasing population, limited infrastructure, unplanned development and extreme air pollution issues.

The Government of Mongolia (GoM) has committed to a green development path, notably through the preparation and approval of the Green Development Policy (2014), Policy on Forests, and Policy on Sustainable Development Vision in Mongolia (2016). Its Sustainable Development Vision (2016), among other objectives, commits Mongolia to reduce greenhouse gas emissions by 14% by 2030, and talks about a country with no poverty. REDD+ has the potential to contribute to green development by protecting global environmental resources (forest carbon stocks and biodiversity), helping to reverse land degradation, promoting the improvement of rural livelihoods and aiding adaptation to climate change.

Based on National Statistics Office data, the GDP of the forestry sector is estimate at MNT 141.8 billion (2017),[4] 0.5% of Mongolia's GDP in 2017[5]. Since 1990, Mongolia's forest policy has promoted conservation, with little support and investment in silviculture and the forest industry. However, the recent National Forest Inventory (NFI) suggests that an increased utilization of the forest would be compatible with SFM. There is an on-going discussion around the pros and cons associated with greater forest utilization. Some people are concerned that signals in favor of utilization would lead to unmanaged and chaotic harvesting given the lack of effective monitoring. There are also several barriers to developing the forestry industry including the capacity to harvest and process value added products, a lack of detailed assessments of market demand to guide investment decisions and competition from global markets and neighboring countries. Nonetheless, the majority view is that a successful self-financing private sector could be developed in a step-wise

[3] A study in 2013 estimated the economic value of boreal forest goods and services at MNT 431.5 billion (US$310 million) a year or an average of MNT 42,900/ha (US$ 31) (UN-REDD 2013a). This is a *partial* analysis based on rough estimates and conservative assumptions.

[4] MNT 60.3 billion for the forestry sector and MNT 81.5 billion for wood processing and production for, that is (the total value added of the sector).

[5] Mongolia's GDP is around US$ 11.2 billion, or MNT 27,182.4 billion, IMF 2017.

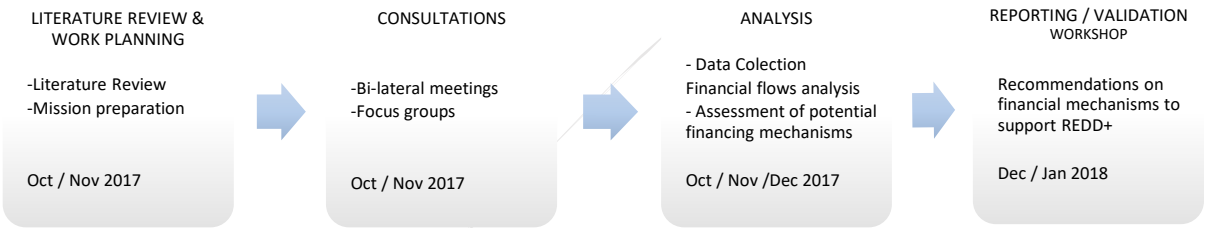
fashion. This could result in multiple benefits including – an increase in the Government's revenue base and hence financing to support / enhance the forest in the future, employment in rural areas which can help address poverty, increased resilience to climate change through the provision of alternative / supplementary income to animal husbandry, regeneration of rural areas and reduced air pollution if wood is used to replace coal.
The forest sector is managed by two ministries. The Ministry of Environment and Tourism (MET) is essentially in charge of forest conservation (pest and fire control), while the Ministry of Food, Agriculture and Light Industry (MOFALI) is in charge of wood processing and production. SFM, including finance, hence requires close co-ordination and collaboration between these two ministries along with the Ministry of Finance.

Approach and scope

The assessment of potential financing mechanisms to support implementation of the REDD+ Action Plan is based on an extensive literature review, stakeholder consultations and financial data collected from key Government organizations. The main methodological steps undertaken are presented in Figure 1.

A series of bilateral and focus group meetings on current and potential financing mechanisms were undertaken to inform the draft findings, both prior to and during the project mission (November 2017). A list of people consulted is provided in Annex 1.

Figure 1. Figure 1. Overview of Approach



The data and information for the analysis of forest financial flows was generated through a number of sources, including the Ministry of Environment and Tourism (MET), the National Emergency Management Office (NEMA), the Ministry of Food, Agriculture and Light Industry (MOFALI), the National Statistics Office of Mongolia (NSO), Aimag/capital Government offices and development projects.

The MET (2013) has an approved template to record forest budget expenditure and revenue data called "Forest Information Sheet-7 (FI-7)". This was requested from the departments of environment and tourism of all 21 aimags in Mongolia, plus Ulaanbaatar capital city[6] to inform this study. However, it is evident that this monitoring mechanism is not working effectively as the template is generally not filled out properly and there is no designated authority to collect the data captured in the templates. The FI-7 categorizes costs and revenue and is consitent with the categorization of 12 types of key activities supported by the state budget developed by this study.

[6] Ulaanbaatar city data is taken from two Government organizations - the Department of Environment and Tourism of Ulaanbaatar city administration office and the Department of Urban Landscape and Waste Management of Mayor's office of Ulaanbaatar. The first is in charge of forestry and forest conservation outside of the city and the second within the city. The data for both areas has been aggregated into one for Ulaanbaatar city.

A validation workshop was held in January 2018 to present the draft report findings, and comments received were incorporated into the final report.

The assessment builds on and compliments the work of BIOFIN in the Mongolia, who are investigating financing mechanism for biodiversity conservation in general, which includes Mongolia's forests as an important repository for biodiversity.

This study was undertaken over a 4-month period (October 2017 – January 2018)[7]. The study covers forest related financial flows, it does not consider agricultural financial flows, as agriculture is not a key driver of deforestation and forest degradation in Mongolia. In the time and resources available for this study it was not possible to definitively define, or determine the cost and benefits of, the financing mechanisms proposed. However, estimates of additional revenue that could be generated through key mechanisms is presented where available. Such evaluations should be part of a follow up phase following endorsement from the Government of the proposed financing strategy presented in this report. This study precedes an evaluation of the financial needs for implementing Mongolia's PAMs, as the PAMs are still under development.

Layout of report

The rest of the report is organized as follow: Section 2 presents an overview of current financial flows into and out of the forest. It covers Government, Private Sector and Donor financial flows; Section 3 assesses existing and potential financing mechanisms in Mongolia in the context of the opportunities they present to increase forest finance in the short and medium term; and, Section 4 concludes and outlines a forest financing strategy.

Overview of current forest financial flows

This section details forest related financial flows. Financial flows as defined in this report cover: (i) financial inflows in support of forest conservation and utilization and use by public, private and donor entities (Section 2.1); and, (ii) financial outflows - financial revenue from forest utilization by private entities in the form of fees and taxes and penalties for mis-use of the forest resource which flow back into Government budgets, and revenue from the wood processing and production sector (Section 2.2).

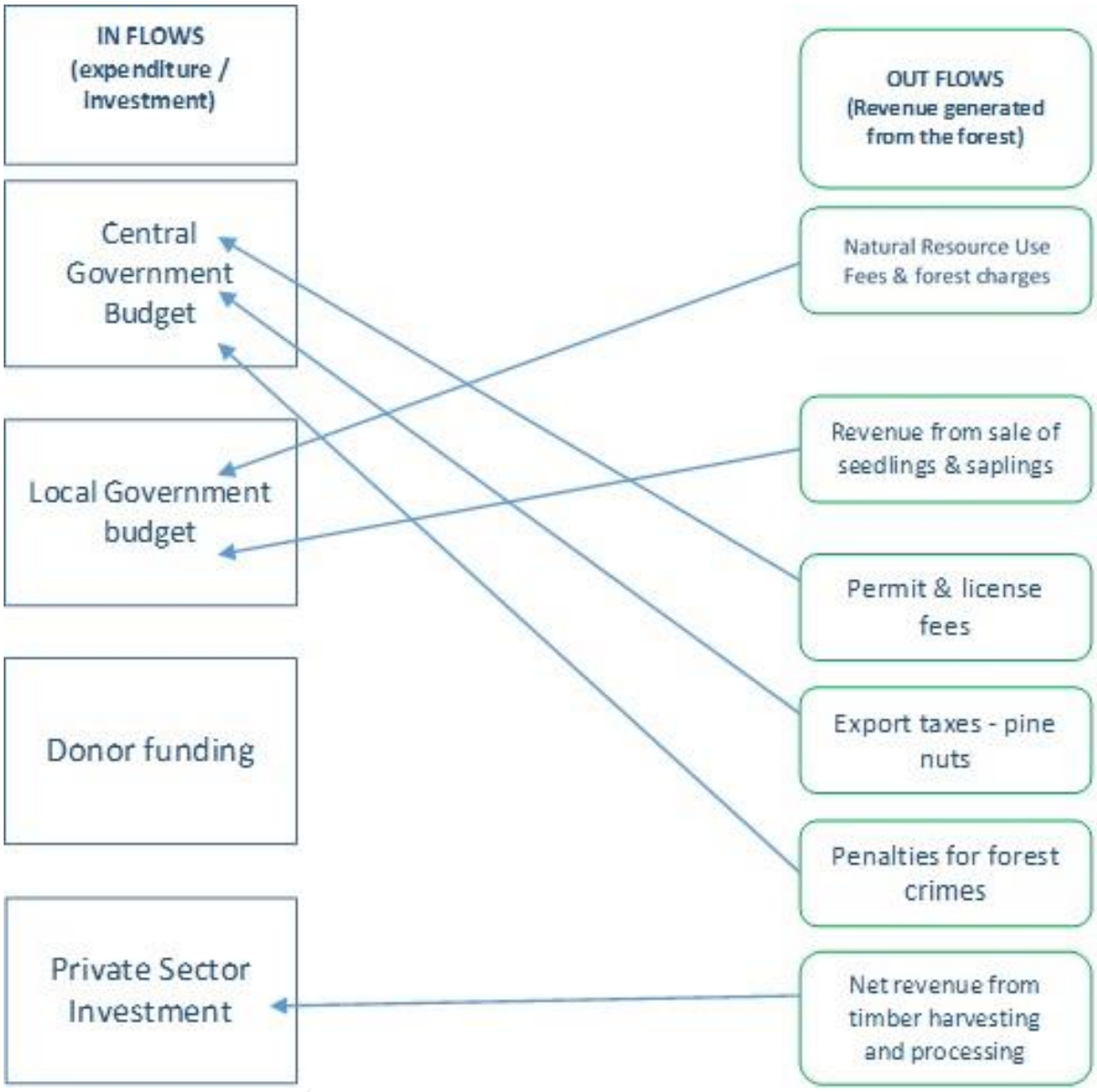
In summary, the analysis shows that total financial inflows into forest conservation and utilization was around MNT 440 billion (US$ 220 million) in 2017 [8]. Between 2013-2017, around 92% of financial inflows were from private sector investments, 5% from the Government of Mongolia and 3% from donors. The total revenue generated from forestry in 2017 was around MNT 157 billion (US$ 78 million). The government captures around 26% of this total revenue, the rest is net profit to the private sector.

In 2017 total *Government* funding for SFM was around MNT 12,808 million (US$6.4 million), compared to Government forest related revenues of MNT 51,289 million (US$ 25.6 million) suggesting that increased Government funding for SFM is possible through better earmarking of forest generated revenues.

Figure 2 provides a simplified overview of forest financial flows in Mongolia, which are discussed in more detail below. The arrows indicate where forest revenues (outflows) are ultimately captured.

[7] Consultancy inputs totalled 85 person-days (40 days for the International Consultant and 45 days for the National Consultant).
[8] Exchange rate: US$ 1 = MNT 2,003.

Figure 2. Overview of forest financial flows



Financial expenditures - inflows to the forest

Overview

Total financial inflows are presented in Table 1.

Table 1. Financial inflows to the forest (Million. MNT)

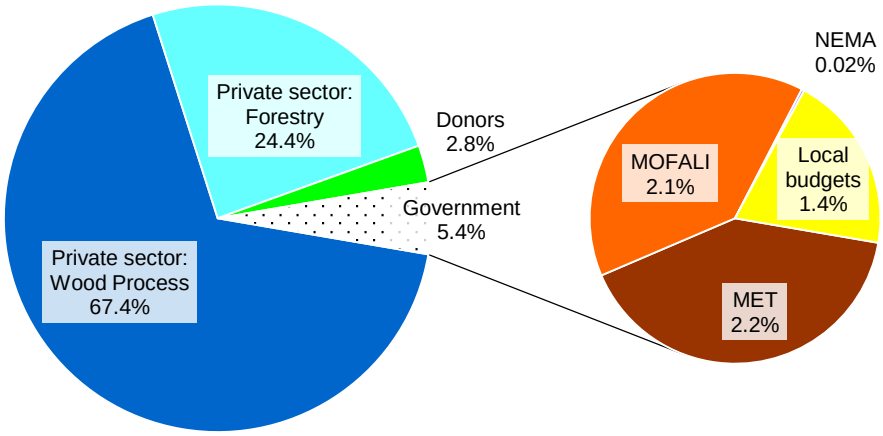
№	Forest expenditures by types of organizations			Row ID	2013	2014	2015	2016	2017
1	**Govern-ment (Million MNT)**	State budget	MET	A	6,126.5	5,235.1	6,201.4	3,104.2	9,584.6
2			NEMA	B	0.4	2.1	7.1	1.3	205.5
3			MOFALI	C	400.0	20,825.7	7,670.0	0	0
4			**Total**	**D=A+B+C**	**6,526.8**	**26,062.9**	**13,878.5**	**3,105.5**	**9,790.1**
5		Local budgets		E	2,782.6	3,008.2	3,083.0	2,763.3	3,018.0
6		**Total**		**F=D+E**	**9,309.4**	**29,071.1**	**16,961.5**	**5,868.9**	**12,808.1**
7	**Developing partners-donors (Million MNT)**			G	**2,371.6**	**3,984.4**	**7,726.5**	**11,960.5**	**12,528.0**
8	**Private sector (Million MNT)**	Forestry sector[1]		H	29,425.6	60,985.8	66,521.0	78,409.8	99,192.3
9		Wood processing and production		I	107,629.4	126,897.2	158,373.8	215,614.8	315,264.9
10		**Total**		**J=H+I**	**137,055.1**	**187,882.9**	**224,894.8**	**294,024.6**	**414,457.2**
GRAND TOTAL (Million MNT)				**K=F+G+J**	**148,736.0**	**220,938.4**	**249,582.8**	**311,853.9**	**439,793.3**

Source: Authors' calculations based on sources described in next sections

Notes: 1/ The forestry sector relates to the extraction of timber from the forest and initial processing such as clearing branches in preparation for processing and production.

In 2017, total financial inflows into forest conservation and utilization is calculated at MNT 440 billion (US$ 220 million). Between 2013 and 2017, average annual financial inflows were around MNT 274 billion (US$ 137 million), of which 91.8 % (MNT 252 billion, US$ 126 million) was from private sector investment, 5.4% (MNT 15 billion, US$ 7 million) from the Government and 2.8% (MNT 8 billion, US$ 4 million) from donors (Figure 3).

Figure 3. Share of financial inflow to forest on average of 2013-2017, by sources (%)



Source: Authors' calculation based on sources described in next sections

Between 2013 and 2017, total forest expenditure shows an increasing trend, largely due to the threefold increase in private sector spending over the period. Possible explanations for this increase include the expansion in the domestic market related to the economic growth, Government policies such as import tax exemptions on wood processing equipment and imported timber, and MOFALI's cheap loan policies through Chinggis bond, discussed

further below.

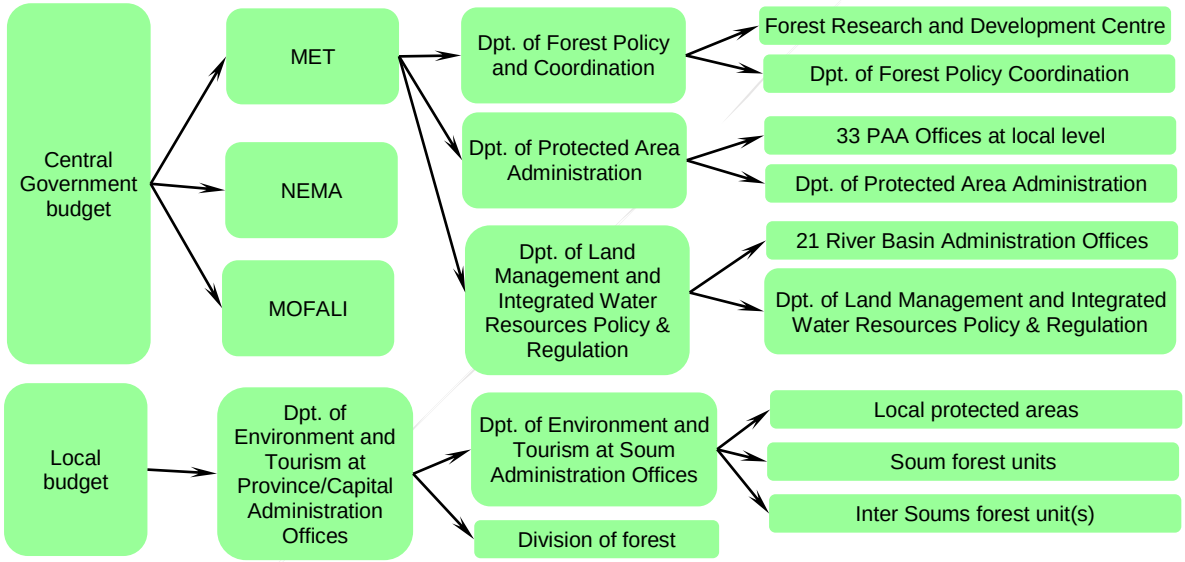
Government funding has varied over the period, with the highest overall budgets occurring in 2014 and 2015 due to high contributions from the MOFALI which related to the Government's policy to support industries with cheap loans. They were subsequently terminated in 2016, by the new Government who judged that the economic returns from the loans were too low. Government expenditure for forestry and forest conservation was about MNT 12.8 billion (US$ 6.4 million) in 2017, of which MNT 9.6 billion (US$ 4.8 million) was funded by MET budget. The MET budget increased significantly in 2017 due to a higher allocation for the pest control.

Financing from donor-funded development projects (including REDD+) is also significant, totaling about MNT 12.5 billion (US$ 6.2 million) in 2017, almost the same as Government expenditure for sustainable forest management activities in 2017. It has increased year on year over the period 2013-2017.

Government Budget Expenditure

Figure 4 presents an overview of Government financial flows supporting the forests, which are described in detailed below.

Figure 4. Overview of Government financial inflows supporting SFM



Source: Authors' Figure

1.1.1.1 Ministry of Environment and Tourism

Table 2 presents the MET's budget allocations to its departments engaged in forestry and forest conservation from January 2013 to November 2017.

Table 2. MET budget allocations for forestry and forest conservation (Thous.MNT)

№	Name of Department	2013	2014	2015	2016	2017
1	**Forest Policy and Coordination***	5,773,100	4,773,100	5,656,000	2,828,000	9,308,400
2	**Protected Area Administration****	9,114	8,348	9,898	7,378	7,378
3	**Land management and Integrated water resources policy and Regulation****	344,254	453,663	535,511	268,804	268,804
	Total	**6,126,467**	**5,235,111**	**6,201,409**	**3,104,182**	**9,584,582**

Source: * MET (2013-2017), ** PAAD and DLMIWRPR (2017)

Budget allocations have ranged from MNT 3.1 billion (US$ 1.5 million) to MNT 9.5 billion (US$ 4.7 million) per year over this period (MET 2013-2017; PAAD and DLMIWRPR 2017)[9]. The budget for forestry and forest conservation in 2018 will be MNT 10 billion[10,11] (with 63% assigned for pest control[12]).

Most of the budget (97.1% in 2017) is allocated to the Department of Forest Policy and Coordination (DFPC). The budget of the DFPC is divided between the department itself and the Forest Research and Development Center (FRDC), a Government funded state owned enterprise. No official data are available on actual expenditures because the DFPC does not collect actual expenditure data and assumes that all the allocated budget is utilized as intended.

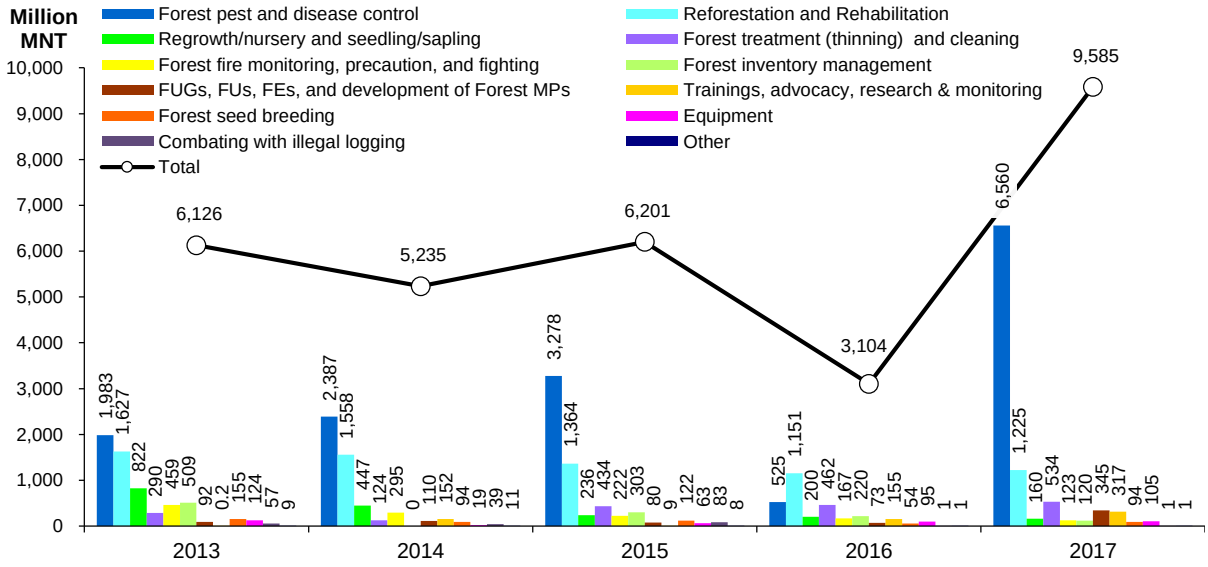
The Protected Area Administration Department (PAAD) offices at the local level spend a small amount of their budget on reforestation activities in Protected Areas (PAs) e.g., 0.08% of the total forest budget of MET in 2017. On the other hand, the Department of Land Management and Integrated Water Resources Policy and Regulation (DLMIWRPR)[13] spends about MNT 268 million (US$ 134,000) to MNT 535 million (US$ 267,000) for reforestation and forest conservation activities; mostly on planting trees around watersheds and water sources and forest pest and disease control (PAAD and DLMIWRPR 2017).

The overall budget for the MET in 2017 was MNT 68.9 billion (US$ 34.4 million)[14] indicating that forests receive 13.5% of the Ministry's total budget. MNT 44 billion (US$ 22 million) of the total MET budget (MNT 68.9 billion) is spent on operational costs, mostly salaries. However, the MNT 9.3 billion (US$ 4.6 million) allocated to forests does not include salary costs – it mostly covers investment costs. This suggests that forestry receives around 37% of the MET's investment budget of MNT 24.9 billion (US$ 12.4 million). The forest budget is low compared to the budget of other sectors in 2017, for example agriculture received MNT 277.1 billion (US$ 138 million) and road and transportation MNT 653 billion or US$ 326 million (Parliament of Mongolia, 2017).

Figure 5 shows forest conservation activities financed by the MET between 2013 and 2017. Based on DFPC budget items (MET 2013-2017) 12 general cost items have been identified, into which the budget was divided. The PAAD and DLMIWRPR's expenditures were included to the relevant cost items to derive the total MET budget by forest activity.

[9] The budget for 2016 was very low because the budget for pest control was reduced significantly, as result of stakeholder feedback that budget for pest control was too high. More detailed data is provided in Annex 2 Table 1.
[10] Personal communication Mr Batjargal Khandjav, Head of Department of Public Administration and Management at MET
[11] The BIOFIN expenditure review concluded that while the environment budget has gone up most of the funds have gone towards renovating the ministry and air pollution. Also, taking inflation into account funding has in fact stagnated.
[12] Personal communication Mr Ganzorig Batkhishig, pest officer of FRDC.
[13] These data are based on responses to a data request form, developed by the authors, distributed to all Protected Area Administrations and Water Basin Administrations at the local level from PAAD and DLMIWRPR.
[14] Source:
http://www.legalinfo.mn/law/details/12249

Figure 5. MET budget allocations by forestry and forest conservation activity (Million MNT)



Source: Authors' calculation based on data of MET (2013-2017), PAAD and DLMIWRPR (2017)

From 2013 to 2017, on average MNT 6.05 billion (US$ 3 million) a year was spent on forests from the MET budget (**Error! Reference source not found.** 5). The MET forest budget shows an increasing trend, with the exception of 2016, due to a decision by the MET and the Ministry of Finance (MoF) to reduce the budget for forest pest and disease control (referred to hereafter as 'pest control'). In 2017, the total MET budget for forest increased significantly compared to previous years, due to an additional MNT 3.5 billion (US$ 1.7 million) approved in November, 2017 for pest control on top of the total budget approved in February 2017 of around MNT 5.8 billion (US$ 2.9 million).

The budget for pest control accounts for the biggest proportion of the total MET budget for forest, ranging from 17-68% between 2013 and 2017, about 43% on average (Figure 6)[15]. The MET allocates budget for pest control to the FRDC, and the FRDC procure Professional Forest Enterprises (PFE) to carry out the pest control activities. Pest control is expensive because of the high cost of imported chemicals, which must comply with environmental standards and transportation (e.g. hiring planes).

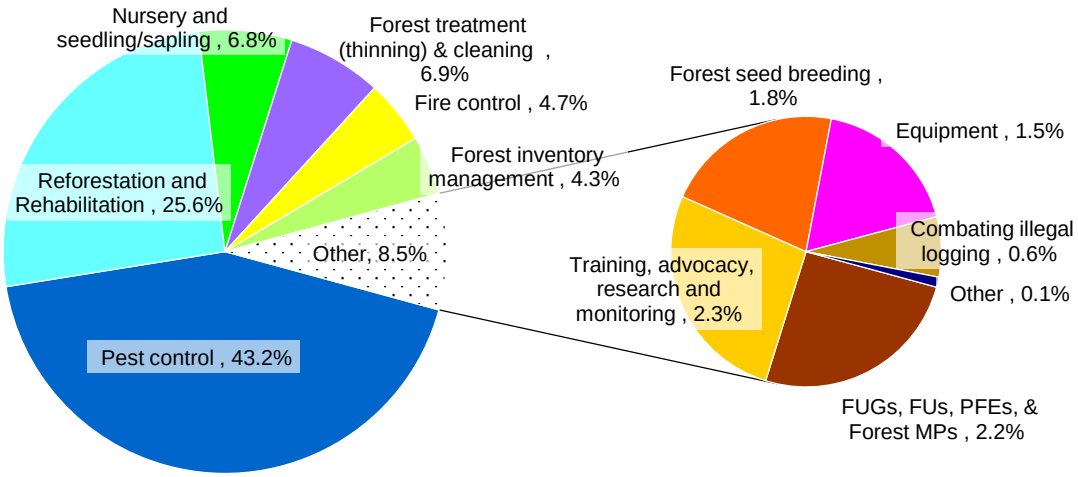
In 2017 the budget for pest control, MNT 6.6 billion (US$ 3.3 million), increased by 3.2 times compared to the previous three years' annual average budget. The main reason for this increase is that the 2016 budget for pest control was relatively low, MNT 525 million (US$ 262,000), and correlated with a notably higher pest incidence in the following year. This resulted in complaints to local administration offices, MET and parliament members, prompting an increase in budget allocations in 2017[16]. The budget for pest control in 2018 may be MNT 6.3 billion (US$ 3.1 million)[17].

The allocated budget for pest control activities reportedly covers about 30-40% of the total area needing treatment, hence there is a view that the budget for pest control is not enough (interview with Mr. B.Ganzorig, Pest control officer at FRDC). However, there may be more cost-effective methods that could be adopted that would help increase coverage, while there is also a view that the forest protection policy that has prevailed since the 1990s may have made the forest more attractive to pests. Deadwood, lying on the ground, and dense

[15] Based on data for 2013-2017, on average most of the pest control budget is utilized for control measurements (86.6%), the rest is used for monitoring and research of the pests (11.4%).
[16] *pers com* B.Ganzorig, FRDC and Kh.Batjargal, Head of Department of Public Administration and Management at MET.
[17] *pers com* B.Ganzorig, FRDC.

forested areas attract the pests and are more vulnerable to fire. Therefore an increase in sustainable forest utilization could result in a lower pest incidence.

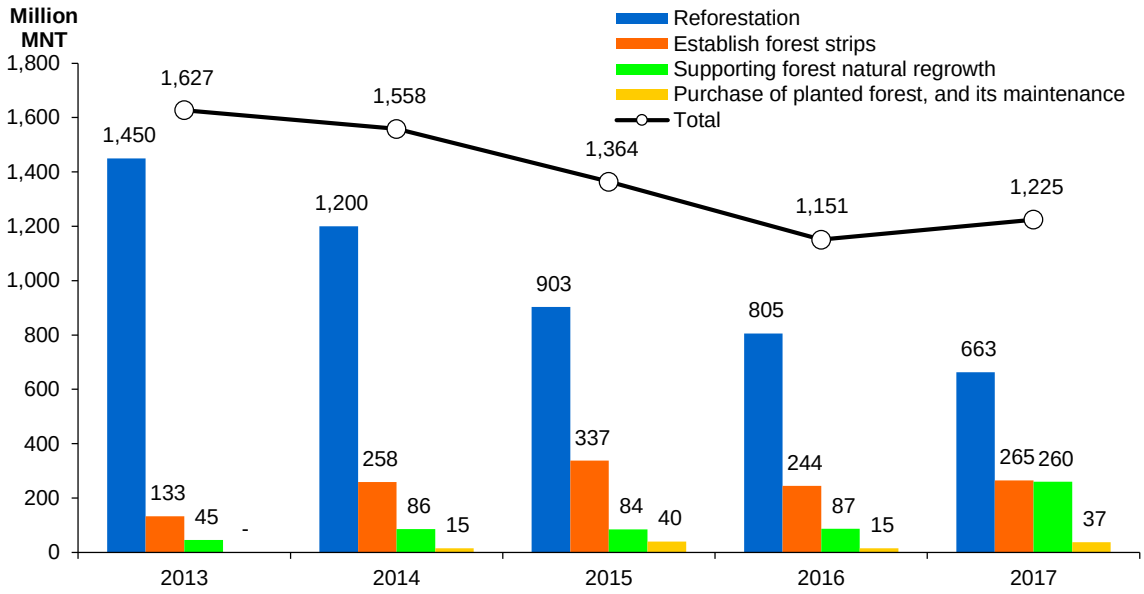
Figure 6. Share of average annual budget expenditure of MET for forestry and forest conservation in 2013-2017, by types of activities (%)



Source: Based on MET (2013-2017) and PAAD and DLMIWRPR (2017)

Forest reforestation and rehabilitation is the second biggest area of expenditure from the MET's forest budget (Figure 7). However, the growth rate of the forest is very low and reforestation activities have had a low success rate (Muehlenberg, M. et al. 2006; H.Ykhanbai 2010).

Figure 7. Reforestation and rehabilitation budget of MET (Million MNT)

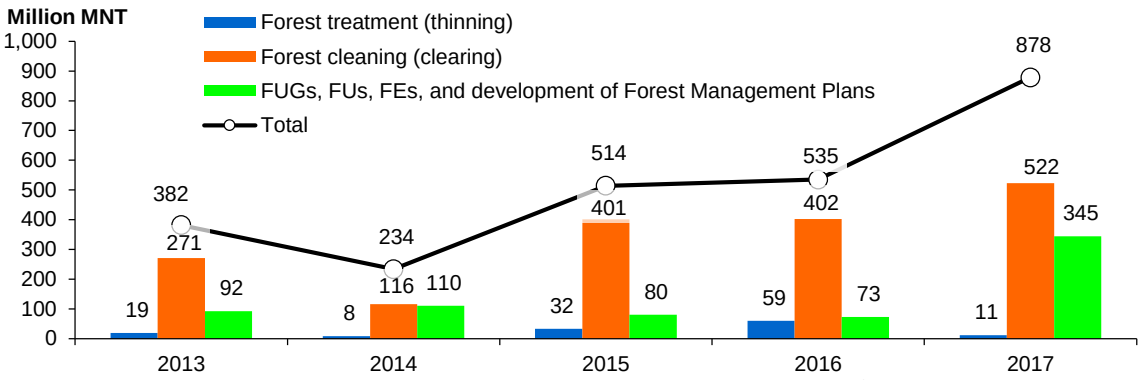


Source: MET (2013-2017) and PAAD and DLMIWRPR (2017)

Overall the total reforestation and rehabilitation budget has fallen over the last five years, however it did increase slightly in 2017 compared to 2016. The decrease is largely explained by a significant reduction in the reforestation budget, which has fallen from MNT 1.45 billion (US$ 0.7 million) in 2013 to MNT 663 million (US$ 331,000) in 2017. There have been modest budget increases for establishing forest stripes and supporting natural forest regrowth, reflecting a growing importance placed on these activities relative to reforestation.

If three types of activities, namely 'Forest treatment (thinning) & cleaning' and 'FUGs, Forest units (FU), forest enterprises (FE), and developing forest management plans', are considered as forest utilization activities then financing for forest utilization activities accounts for only 9.1% of MET's forest budget, the rest is allocated to forest conservation activities (Figures 6 and 8) The GIZ inventory study suggests that more sustainable utilization activities would be beneficial both to the local economy and the environment (Olsson 2009; NFI project 2016).

Figure 8. MET budget for forest utilization (Million MNT)



Source: MET (2013-2017) and PAAD and DLMIWRPR (2017)

The MET budget for forest utilization shows an increasing trend, with significant increases observed for the budgets for 'forest cleaning (clearing)' and 'FUGs, FUs, FEs and development of management plans' in 2017.

1.1.1.2 National Emergency Management Agency

The National Emergency Management Agency (NEMA) is in charge of fighting forest fires and thus plays an important role in forest protection. Authorities report that the main cause of the forest fire is human activities, for example during the harvesting of non-timber forest products (NTFPs) like pine nuts and fruits[18]. Table 3 presents NEMA's expenditure on forest fire fighting provided from the state budget. The expenditure data for fire fighting is not disaggregated into forest and steppe by NEMA. Therefore, expenditure on forest fire fighting has been calculated based on the proportion of forest and steppe areas burnt by fire, assuming that the cost of forest fire fighting is twice the cost of steppe fire fighting. The area lost to forest fire varied between 157 – 45,649 hectares between 2010 and 2016, but was very high in 2017 at 120,918 hectares, thus the NEMA's budget expenditure increased significantly in this year. MNT 205.5 million (US$ 102.6 thousand) was spent on fighting forest fires in 2017.

Table 3. NEMA budget expenditure for forest fire fighting (Thous. MNT)

Year	Fire burnt area (Ha)			Fire burnt area (%)			Expenditure on fire fighting (Thous.MNT)		
	Forest	Steppe	Total	Forest	Steppe	Total	Forest fire	Steppe fire	Total*
A	B	C	D	E	F	G	H=J*(E*2)	I=J-H	J
2010	39,770	58,000	97,770	40.7	59.3	100.0	44,334	10,161	54,495
2011	3,063	2,090,000	2,093,063	0.1	99.9	100.0	169	57,511	57,680
2012	157	4,695,317	4,695,474	0.0	100.0	100.0	0	3,135	3,135
2013	5,854	5,601,953	5,607,807	0.1	99.9	100.0	362	172,939	173,301
2014	18,275	3,000,000	3,018,275	0.6	99.4	100.0	2,122	173,118	175,240
2015	45,649	6,602,607	6,648,256	0.7	99.3	100.0	7,113	510,841	517,954
2016	31,302	3,215,020	3,246,322	1.0	99.0	100.0	1,326	67,407	68,732
2017	120,918	466,517	587,435	20.6	79.4	100.0	205,534	293,721	499,255

[18] Collectors may stay overnight and illegally build fires for cooking and heating purposes or smoke in the forest.

Source: Based on NEMA (2017) unpublished raw data

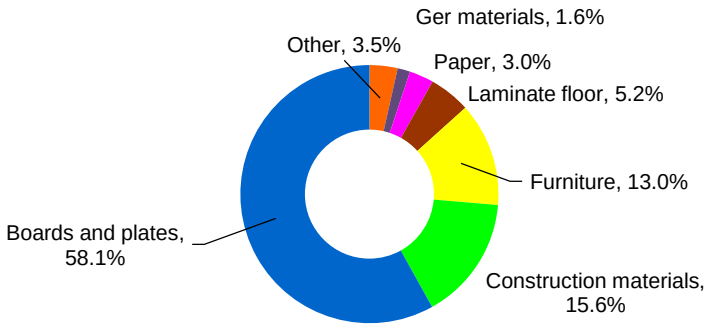
* The total budget expenditure for fire fighting provided by NEMA (2017).

1.1.1.3 Ministry of Food, Agriculture and Light Industry

The Ministry of Food, Agriculture and Light Industry (MOFALI) is in charge of policy development and implementation for light industry, including wood processing and production (referred to hereafter as the 'wood processing sector') of wooden materials and end-products such as doors, windows and furniture. Financial support for the wood processing sector was limited before the first Mongolian Government bond - "Chinggis Bond", was issued in international financial markets in December 2012. At this time the Government of Mongolia (GoM) announced *cheap loans*[19] for industrial companies, including wood processing companies. Under this programme, the MOFALI financed 51 wood processing projects (benefitting 31 companies and 20 individuals) with loans totaling MNT 28.9 billion (US$ 14.4 million) in 2013-2015, MNT 400 million (US$ 200,000) in 2013, MNT 20,825.7 million (US$ 10.4 million) in 2014, and MNT 7,670 million (US$ 3.8 million) in 2015 (D.Enkhbayar 2017)[20].

Fifty-eight percent of the total Chinggis Bond Loan for the wood processing sector was allocated to the production of boards and plates, 15.6% for construction materials and 13% for furniture (Figure 9 and Annex 2, Table 2).

Figure 9. Chinggis Bond Loan for wood processing sector in 2013-2015, by types (%)



Source: Authors' calculation based on data provided by D.Enkhbayar (2017)

Ninety-eight percent (MNT 28.3 billion or US$ 14.1 million) of the total loan was given to projects to be implemented in Ulaanbaatar (Annex 2, Table 2).

The Chinggis Bond Loan for the wood processing sector was stopped in 2015 by the new GoM, formed in 2016, who argued that the overall debt from the Chinggis bond was inefficient.

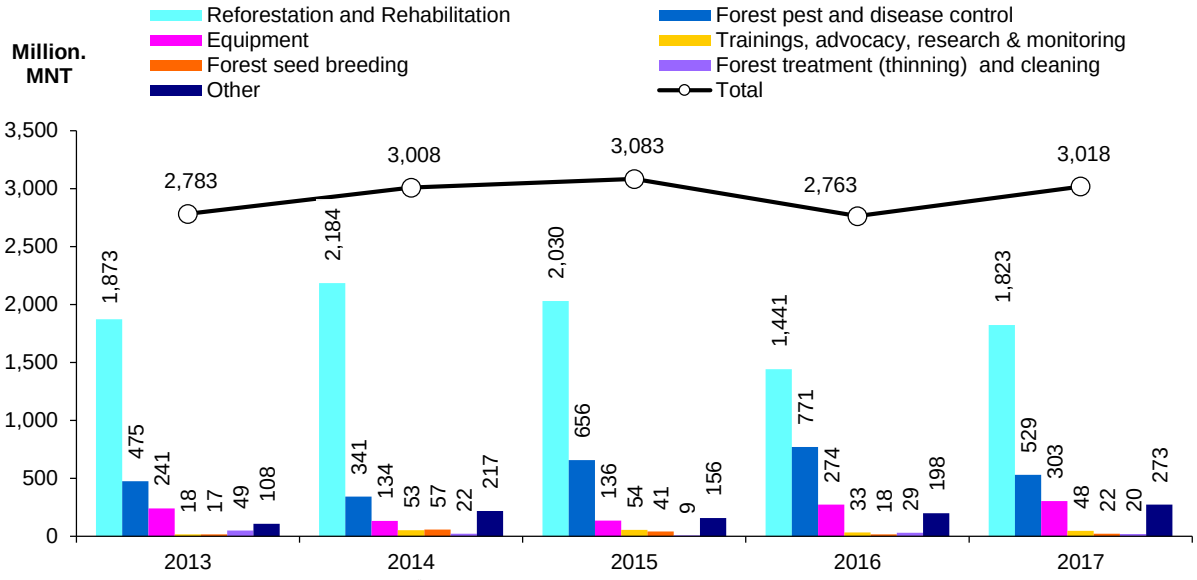
Local Budget Expenditure

In addition to the state budget, Local Governments spend a significant amount of budget on forestry and forest conservation activities derived from natural resource use fees (NRUF). The *Law of Natural Resource Use Fee* states that at least 85% of forest use fees, which accrue in local Government budgets, must be reinvested in environmental protection

[19] The annual interest rate of the loans, financed by Chinggis Bond, was much lower (7.23%, Mongolian National Audit Office 2014, p. 9) than the market interest rate (15-16%, World Bank 2014, p. 22).
[20] Mrs. D.Enkhbayar, officer for wood processing sector at Department for Coordination of Light Industry Policy Implementation, MOFALI.

activities (Parliament of Mongolia 2012). The latest Government regulation states that the forest use fee is to be spent for forestry and forest conservation activities only (Government of Mongolia 2014). However, both the NRUF law and Government Regulation has not been followed properly. For example, in 2017 MNT 10.9 billion (US$ 5.4 million) was collected from forest and NTFP use fees, but only MNT 3 billion (US$ 1.5 million) was spent from local budgets for forestry and forest conservation activities. This equates to 28% of total collected fee, which is about 3 times lower than the minimum rate provisioned in the law. One reason for this is the budget planning process. At the local level, revenue from pine nut fees are not included in the following year's expenditure plan because it is not possible to predict whether or not there will be a harvest as they have a harvest cycle of 4-5 years. Another difficulty derives from the Budget Law, which states that NRUF must be deposited in the Local Development Fund (LDF), where expenditure is determined by the local Citizens' Representatives *Khural* (local parliament) at *Soum* level who may have limited knowledge of the NRUF law and decide to spend the LDF money on non-forest related activities.

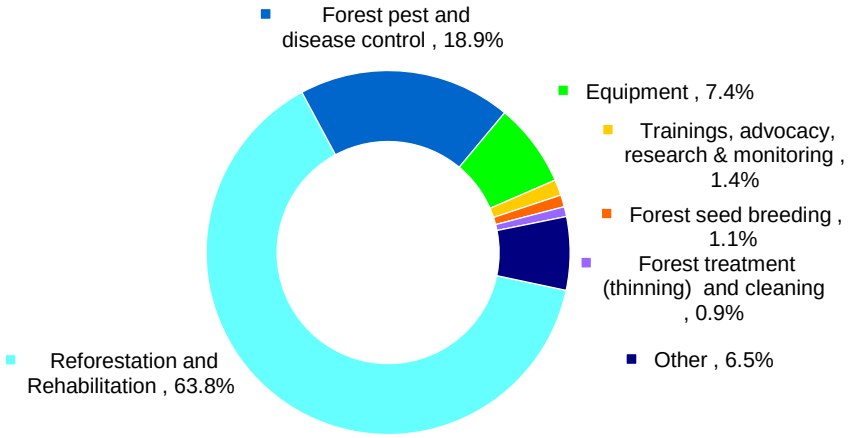
Figure 10. Local budget expenditure by forestry and forest conservation activity (Million MNT)



Source: Based on unpublished raw data collected from Departments of Environment and Tourism of Aimags and Capital City using FI-7 template (2017)

Aimags and the capital city spent about MNT 2.8-3.0 billion (US$ 1.4-1.5 million) for forestry and forest conservation activities at local level between 2013 and 2017; the trend is stable (**Error! Reference source not found.**0). Compared to state budget expenditure by MET, NEMA and MOFALI, local budget expenditure is around 39% of the state budget for the period 2013-2017. At the local level expenditure on reforestation and rehabilitation activities dominates, but has fallen in the last 2 years (**Error! Reference source not found.** 10 and **Error! Reference source not found.**). Together reforestation and pest control activities account for about 82.7% of the total on average between 2013 and 2017 (Figure 11).

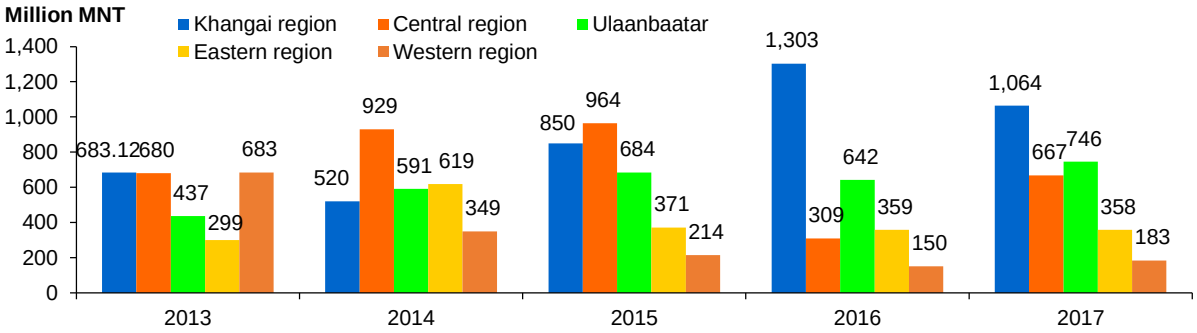
Figure 11. Share of average annual local budget expenditure for forestry and forest conservation in 2013-2017, by types of activities (%)



Source: Based on unpublished raw data collected from Departments of Environment and Tourism of Aimags and Capital City using FI-7 template (2017)

The expenditure data reveals that on average the Khangai region shares the highest (30.2%), and Central region the second highest (24.2%) expenditure on forestry and forest conservation over the past five years (Figures 12 and 13). At the aimag level, Ulaanbaatar city (21.2%), Bulgan (15.4%), Selenge (8.5%), Khuvsgul (7.4%) and Umnugobi (6.6%) aimags have the highest forest expenditure.

Figure 12. Local budget expenditure for forestry and forest conservation, by region* (Million MNT)

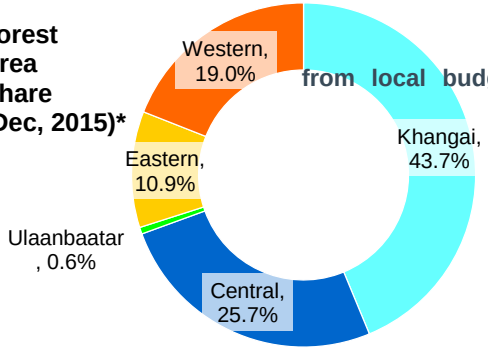


Source: Based on unpublished raw data collected from Departments of Environment and Tourism of Aimags and Capital City using FI-7 template (2017)

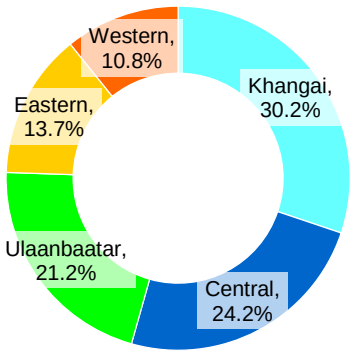
*Khangai: Bulgan, Khuvsgul, Arkhangai, Bayankhongor, Uvurkhangai, Orkhon; Central: Selenge, Umnugobi, Tuv, Gobisumber, Darkhan-Uul, Dundgobi, Dornogobi; Ulaanbaatar capital city; Eastern: Khentii, Dornod, Sukhbaatar; Western: Zavkhan, Bayan-Ulgii, Uvs, Khovd, Gobi-Altai

Figure 13. Share of forest expenditure from local budget and percentage of forest area by region (%)

B) Forest Area Share (Dec, 2015)*



A) Forest Expenditure Share (average of 2013-2017)



Source: Authors' calculation based on unpublished raw data collected from Departments of Environment and Tourism of Aimags and Capital City using FI-7 template (2017) and FRDC (2016).

* FRDC (2016) reported total area of forest in Mongolia, including both boreal and saxual forest, by provinces as of 31st December, 2015.

On average, Ulaanbaatar city shared about one-fifth of the forest expenditure from the local budget in 2013-2017, although the forest coverage (both boreal and saxual forest) is only 0.6%. This is because more than one-third of the total population of Mongolia resides in Ulaanbaatar, hence forest planting is requested more by its citizens, and the city is the wealthiest among the regions. For Central and Eastern regions, the percentage share of expenditure and forest coverage is more or less equivalent, but this is not the case for the Khangai and Western regions. Khangai region accounts for about 44% of the total forest area, and the local budget contribute 30% of the forest expenditure, the highest of any region. Unfortunately, the data does not include the State budget allocations to the soums, hence the figures are incomplete.

Bulgan, Selenge, Khuvsgul aimags are the most forested aimags in Mongolia (see Annex 2). Ulaanbaatar city allocates most of its budget to the planting trees or reforestation activities within and outside of the city. Umnugobi aimag is the one of the wealthiest aimags in Mongolia due to the Oyu Tolgoi and Tavan Tolgoi mining companies operating there. It has areas of saxual forest but in 2014-2015, Umnugobi aimag constructed a resort park where about 22,000 trees were planted, significantly increasing its forest expenditure for the period[21].

Donor funding

There are eight development projects, funded either solely by an international organization or jointly with the GoM, which support sustainable forest management encompassing forestry and forest conservation activities and policy development (Table 4).

[21] The total cost of the park was MNT 7,335 million (US$ 3.7 million). It is assumed that 10% of the total cost was spent on planting 22,000 trees; the assumption was based on personal communication with aimag forest officer.

Table 4. Financial expenditure of donor projects for sustainable forest management in Mongolia (Thous.MNT)

№	Name of Project	Funding org	2013	2014	2015	2016	2017
1	Biodiversity and Adaptation on Key Forest Ecosystems to Climate Change /second phase/ (BAKFECC-2)	German Ministry of Economic Cooperation Development	-	-	1,958,400	1,958,400	1,958,400
2*	Biodiversity and Adaptation to Climate Change Project	KfW	-	-	-	-	691,218
3	REDD+National Forest Inventory Mongolia	German Ministry of Economic Cooperation Development	-	1,602,400	1,602,400	1,602,400	-
4	The "Green belt" Mongolian – Korean (GBMK) joint Project	Government of Korea; Korea Forest Service (KFS)	2,371,552	2,371,552	2,371,552	2,371,552	2,670,667
5	Sustainable Forest Management to Improve Livelihoods of Local Communities	ADB; Government of Japan	-	-	-	1,335,333	1,335,333
6	"Mainstreaming biodiversity conservation, sustainable forest management and carbon sink enhancement into Mongolia's productive forest landscapes" /GCP/MON/008/GEF/	GEF; UN FAO	-	10,416	1,137,704	1,368,049	2,547,616
7	Development of Forests and the Gene Pool of Local Forest Tree Ecotypes in Mongolia	Czech Republic. Czech Development Agency	-	-	656,449	656,449	656,449
8	UN-REDD Mongolia National Programme (UN-REDD)	Government of Mongolia; UN-REDD Multi-Donor Trust Fund: Others: UN-REDD Target Support; GIZ; GEF/FAO	-	-	-	2,668,296	2,668,296
Total			**2,371,552**	**3,984,368**	**7,726,505**	**11,960,480**	**12,527,979**

Source: Ministry of Finance, 2016

Note: *BACCP procured firefighting trucks for local PAAs to be used both for steppe and forest fire

In 2017, donor projects contributed MNT 12.5 billion (US$ 6.2 million) to forest related activities, the highest in last five years and higher than MET budget allocation for the forest of MNT 9.6 billion (US$ 4.8 million) in 2017. The top three projects in terms of funding were - *GBMK* joint project which invested about MNT 12.2 billion or US$ 6.1 million (31.5%) for forest activities between 2013 and 2017; *BAKFECC-2* project at MNT 5.9 billion or US$ 2.9 million, and *UN-REDD* project at MNT 5.3 billion (US$ 2.6 million).

The continuity of funding for forest related projects funded by both the GoM and international developing partners is uncertain as the majority of existing projects will close between 2018 and 2020. Opportunities for donor financing are further discussed in Section 3.

Expenditures of the private sector

The National Statistics Office of Mongolia (NSO) accounts for the GDP of the forestry and wood processing and production sector in Mongolia. Although, the production and cost data for the forestry sector is not publicly available, NSO provided the production, value added, and total consumption data of the sector for this study, which is based on a national input-output table.

According to the input-output table, the total value added of the sector is the sum of *Compensation of employees, Other net taxes on production, Consumption of fixed capital,*

Operating surplus/mixed income, net (NSO 2017b). For the purpose of the analysis, the operating surplus/mixed income is treated as the *profit* to the private sector from forestry or wood processing and production, and is discussed further in the forest financial outflow analysis section below. However, the rest of the value added is treated as a cost for the private sector. *Compensation of employees* reflect salaries paid by the private sector to its employees and *consumption of the fixed capital* is a depreciation cost. *Other net taxes on production* is the tax paid by the private sector to the Government. This has been aggregated with *net taxes in consumption*, and recorded as *total net tax* as a cost for the private sector and a revenue for the Government.

Total consumption is referred to as expenditure by economic agents (mainly the private sector) to produce goods and services. It is taken to represent the expenditure (investment) of private companies in forestry and wood processing and production activities. It aggregates domestic intermediate consumption and imports. The domestic intermediate consumption is the sum of costs of intermediate inputs for the production of the sector, and the imports are costs to purchase inputs from abroad by the sector.

Furthermore, the proportions of the total consumption, compensation of employees, and consumption of fixed capital, and total net taxes are calculated in the input-output table for 2015 only. The same proportions have therefore been used to disaggregate the items from the total production data for the other years.

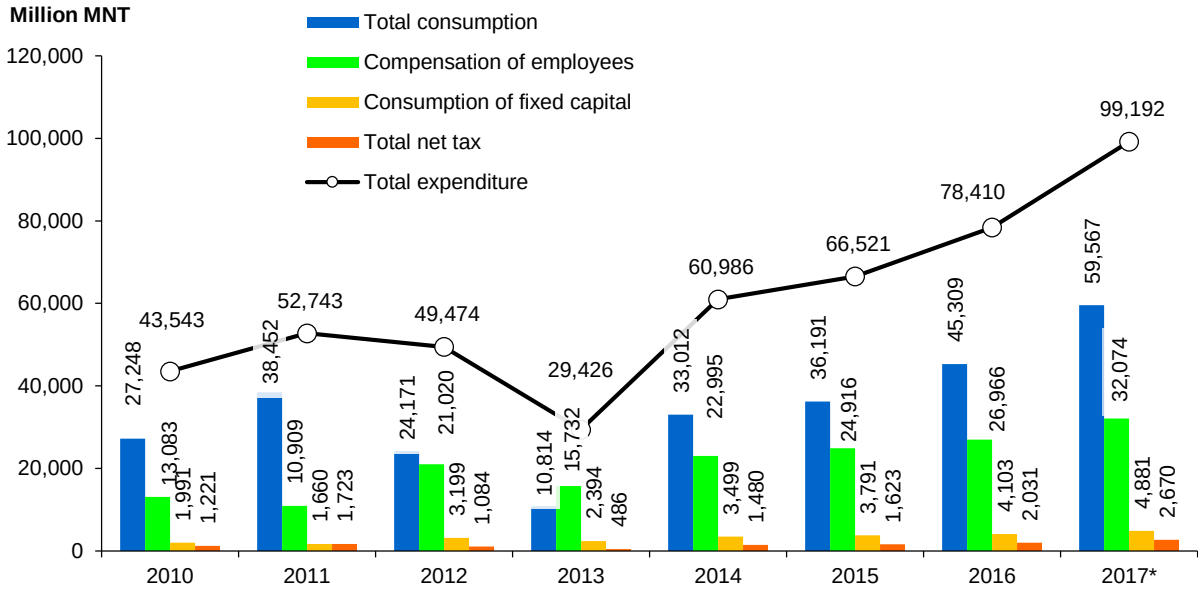
In 2017, the total expenditure by the private sector, based on NSO data, is estimated at MNT 414.5 billion (US$ 206.6 million). This relates to MNT 99.2 billion (US$ 49.5 million) for forestry and MNT 315.3 billion (US$ 157.4 million) for wood processing and production activities as detailed in the following sections

1.1.1.4 Forestry sector

Figure 14 presents private sector expenditure on forestry. The total expenditure on the forestry sector steadily increased over the past eight years, with the exception of 2013, when the forest harvest volume dropped from 771.6 in 2012 to 718.3 thousand cubic meter in 2013 (NSO 2017a).

Therefore, private sector expenditure on forestry increased from MNT 44 billion (US$ 22 million) in 2010 to MNT 99 billion (US$ 49 million) in 2017. The expenditure of private sector in 2017 is about 10 times higher than the MET budget.

Figure 14. Total expenditure of private forestry sector in Mongolia (Million MNT)



Source: NSO (2017b) Unpublished data

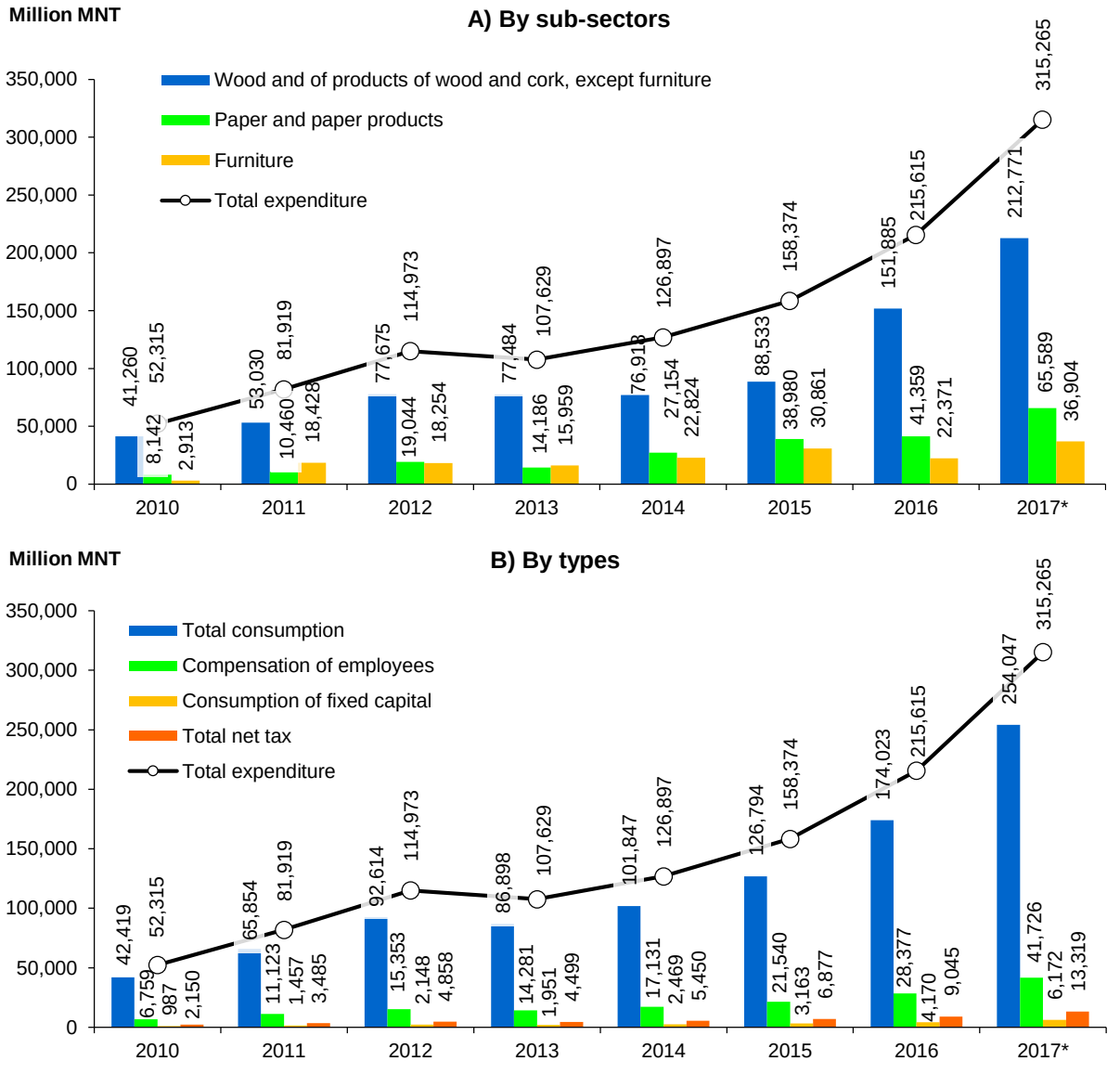
*Data for 2017 is calculated by the authors based on the average growth rate of consumption (31.5%) and value added (18.9%) in 2010-2016. Growth in 2017 could be explained by the fact that MOFALI has provided soft loans to processing companies, many of whom started operation in 2016 and 2017.

1.1.1.5 Wood processing and production sector

Expenditure by the private sector on wood processing and production is divided into three sub-sectors, as reported in the NSO statistics yearbooks (NSO 2008-2017): 1) Wood and wood and cork products, except furniture (hereafter referred to as 'wooden products and cork'), 2) Paper and paper products, and 3) Furniture. For these sub-sectors, total production data are reported only. Therefore, the proportions of 2015 data extracted from input-output table, provided by NSO (2017c), were used to calculate the value added and total consumption.

Total expenditure on wood processing and production of wooden materials and products is summarized in Figure 15.

Figure 15. Total expenditure of private sector of wood processing and production in Mongolia, by sub-sectors and types (Million MNT)



Source: Based on NSO data (2008-2017); data of 2007-2009 is not shown in this graph.

*Data for 2017 is based on the average growth rate of the three types of wood products in 2010-2016.

The calculated expenditure on wood processing and production shows a sharp increase over the past four years, possibly reaching MNT 315 billion (US$ 157 million) in 2017 based on extrapolated data. The category 'wooden products and cork' accounts for 67% of the total expenditure of wood processing and production sector on average of 2010-2017, paper and paper products 19% and furniture production 14% (Figure 15A).

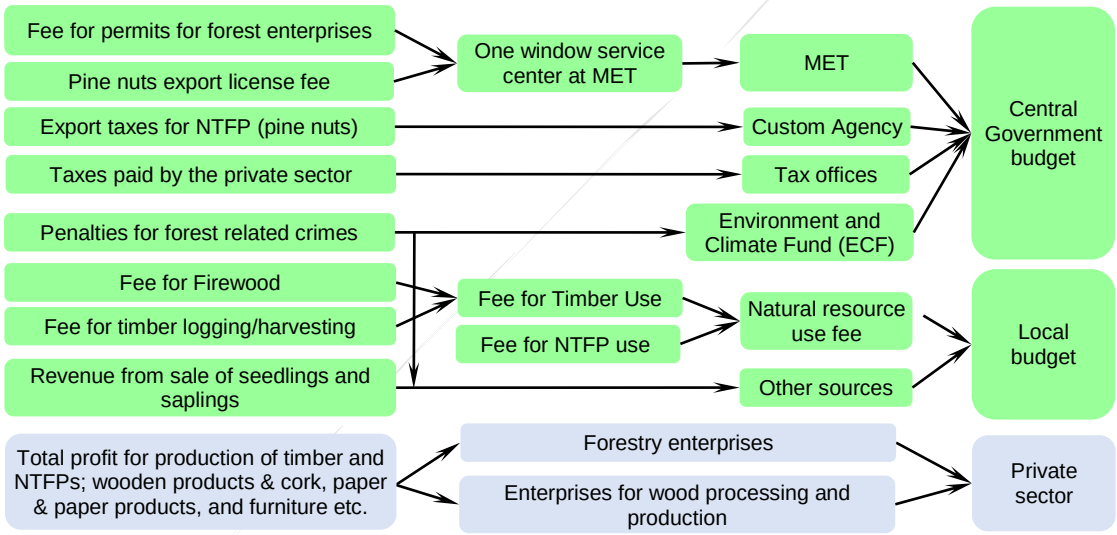
In Figure 15B shows expenditure disaggregated by type. The major expenditure is total consumption of intermediate inputs (and imports) representing 81% to total expenditure in 2010-2017, followed by salaries at 13% of the total expenditure on average from 2010 to 2017. The expenditure for each of the three sub-sectors is separately shown in the Appendix 2.

Financial outflows from the forest

Overview

Figure 16 presents a visual overview of the financial outflows from the forest – the type of revenue generated and where it is captured, while Table 5 presents the data on the financial outflows from the forest.

Figure 16. Financial outflows from the forest utilization



Source: Authors' Figure

Table 5. Financial outflows from the forest (Million. MNT)

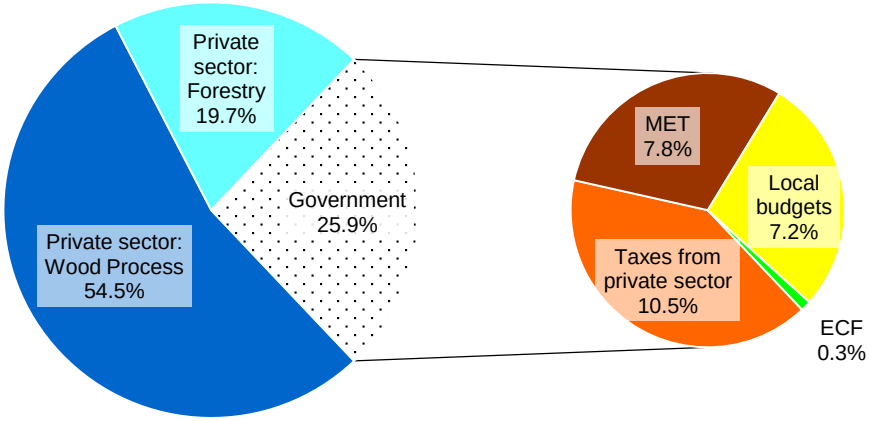
№	Type of revenue (organization) from forest				Column ID	2013	2014	2015	2016	2017
1	**Government (Million MNT)**	**Local budget**	Natural resource use fee	Forest	A	2,867.9	2,583.5	2,668.6	2,478.7	4,116.9
2				NTFP	B	250.4	1,057.4	2,554.3	5,731.9	6,759.5
3				**Total**	**C=A+B**	**3,118.3**	**3,640.8**	**5,222.9**	**8,210.6**	**10,876.5**
4			Charges of compensations for forest damages		D	353.4	327.6	149.7	91.1	207.2
5			Revenue of selling of seedlings and saplings		E	80.3	87.4	96.0	121.1	152.1
6			**Total**		**F=C+D+E**	**3,552.0**	**4,055.9**	**5,468.6**	**8,422.8**	**11,235.8**
7		**MET budget**	Revenue of fee permits for forest enterprises		G	82.6	38.2	43.1	50.0	41.4
8			Pine nuts export license fee		H	0	0	4,113.5	7,269.8	23,741.4
9			**Total**		**I=G+H**	**82.6**	**38.2**	**4,156.6**	**7,319.8**	**23,782.8**
10		**ECF budget**	Revenue of fines for illegal logging as an environmental crime		**J**	**210.1**	**199.4**	**506.3**	**210.1**	**281.5**
11		**Tax revenue from private sector**	Forestry		K	485.6	1,480.4	1,622.9	2,031.4	2,670.4
12			Wood processing and production		L	4,499.4	5,450.2	6,877.2	9,045.0	13,319.4
13			**Total**		**M=K+L**	**4,985.1**	**6,930.5**	**8,500.1**	**11,076.5**	**15,989.7**
14		**Total**			**N=F+I+J+M**	**8,829.9**	**11,224.0**	**18,631.7**	**27,029.2**	**51,289.8**
15	**Private sector (Million MNT)**	Forestry			O	11,427.6	16,703.1	18,098.7	19,588.0	23,298.7
16		Wood processing and production			P	29,024.8	35,093.1	44,326.1	55,661.9	82,360.2
17		**Total**			**Q=O+P**	**40,452.4**	**51,796.2**	**62,424.7**	**75,249.9**	**105,658.9**
GRAND TOTAL (Million MNT)					**R=N+Q**	**49,282.2**	**63,020.2**	**81,056.4**	**102,279.1**	**156,948.8**

Source: Authors' calculation based on sources described in next sections

The total revenue generated from forestry in 2017 was around MNT 157 billion (US$ 78 million). Revenue from the forest has increased year on year over the period 2013-2017, mainly driven by the increase in private sector revenue, especially associated with the processing sector.

Total revenue generated by the public sector (Government), through forestry fees, charges and taxes, was about MNT 51.3 billion (US$ 25.6 million) in 2017. Around MNT 11.2 billion (US$ 5.6 million) accrued to local Governments (mostly from natural resource use fee). The MET accrued MNT 23.8 billion (US$ 11.9 million) mostly from pine nuts export licenses, the ECF MNT 0.3 billion (US$ 0.14 million) from payments for forest related crimes, and state and local tax offices MNT 16.0 billion (US$ 8 million) from taxes paid by the private sector for forestry, wood processing and production.

Figure 17. Share of financial outflows from the forest by type of beneficiaries (%) (average for 2013-2017)



Source: Authors' calculation based on sources described in next sections

The Government captures about 26% of the total financial outflow from the forest, on average for 2013-2017, of which taxes from the private sector account for 10.5%. The main share of forest revenue (74%) accrues to the private sector, i.e., 54.5% for wood processing and production and 19.7% for forestry. Interestingly the share of Government revenue has increased from 18% in 2010 to 33% in 2017. This increase is identified in the MET budget as due to the increase of pine nuts export license fees. It suggests that Government revenue might not be that high in coming years when there is no pine nut harvest.

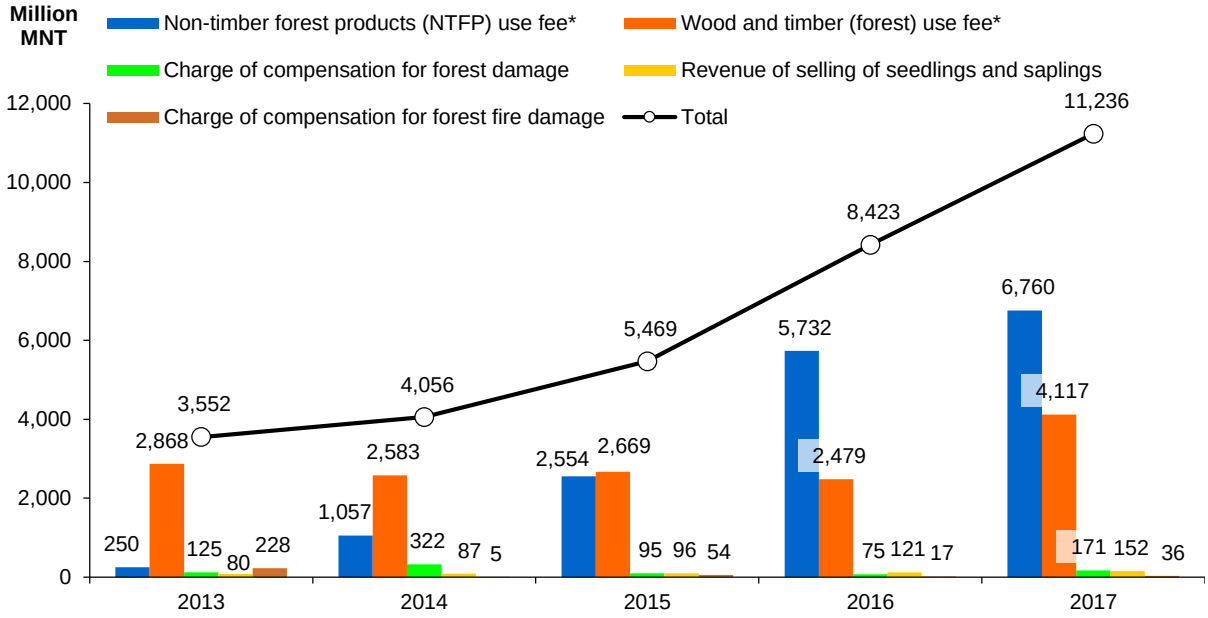
The Natural Resource Use Fee Law states that a minimum of 85% of use fees collected must be reinvested in environmental protection locally. The latest provision of the regulation states that the use fee must be spent on forest and forest conservation activities only (Government of Mongolia, 2014). However, the law is not being enforced as discussed further in Section 3.

Government revenue from the forest[22]

Data from the FI-7 form, integrates revenue from forestry with other sources related to the forest. Based on the data, the total revenue collected from aimag and capital city Governments has been calculated (Figure 18).

[22] Note that the tax revenue paid by the private sector of forestry, wood processing and production to the state and tax offices (Government) is not discussed here, because it is discussed already in the section of the expenditure of private sector.

Figure 18. Revenue from forest related sources at local Governments (Million MNT)



Source: Departments of Environment and Tourism of Aimags and Capital City (2017)

*According to the Law on natural resource use fee (Parliament of Mongolia 2012), the fee accrues in local budgets

1.1.1.6 Forest use fee

Wood and timber harvesting or logging activity (forest use) pays a fee under the Law on Natural Resource Use Fee. In the last two years, the total amount of revenue collected from the fee for forest use was lower than the fee for NTFPs (pine nuts). However, unlike pine nuts it is a stable (annual) revenue.

The revenue generated through forest use fees has increased annually since 2014, reaching 4.1 billion (US$ 2 million) in 2017.

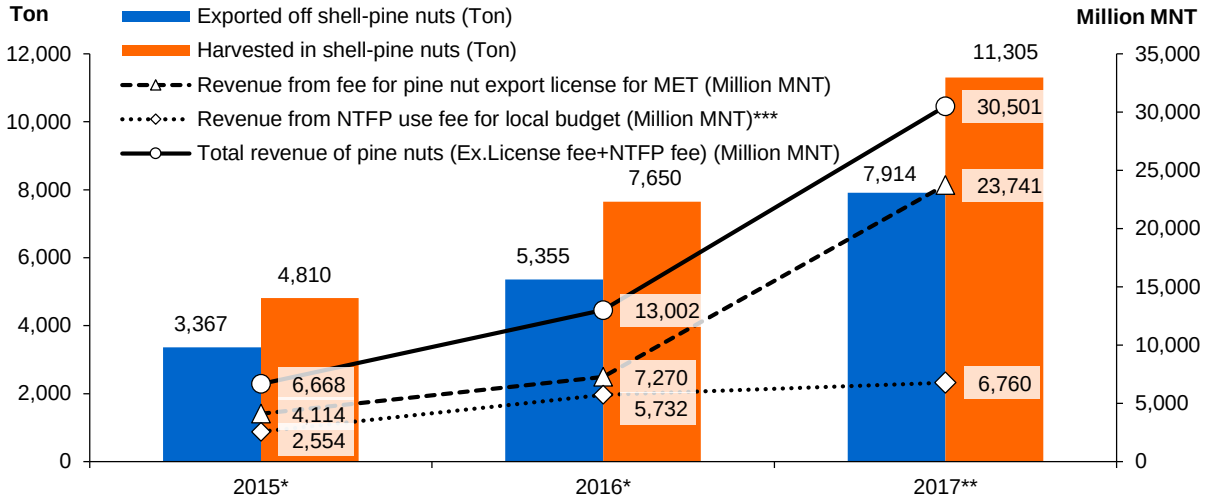
1.1.1.7 Non-timber forest products (NTFP) use fee and pine nuts export license fee

The revenue collected from NTFP use fee is the highest of the natural resource use fees and, solely relates to the pine (cedar) nuts from the *Pinus sibirica*[23]. According to the law on NRUF, and by order of the minister of MET (2012), MNT 800 per kg of harvested pine nuts is to be paid to the local budget by the harvesting entity. According the Natural Plant Law (sanction 17.1 and 17.4), and Forest Law (38.7), the MET will grant a pine nut export license under the condition that the pine nuts are de-shelled, i.e. have undergone primary processing.

In 2017, According to the Department of Environment and Natural Resources Management (DENRM) of MET (2017) 11,305 tons of in shell-pine nuts were harvested, equivalent to 7,914 tons of off shell-pine nuts, which were all exported to China (Figure 19).

[23] Aimag Government offices do not collect data for other types of NTFPs including fruits, berries, wild vegetables, nuts and medicinal plants, and mushrooms, although fees for the collection of such NTFPs should be paid according to the Natural Resource Use Fee Law. The collection of natural berries and other NTFP is a tradition in Mongolia and is practiced without permission.

Figure 19. Harvest, export and revenues of Pine nuts (Ton, Million MNT)



Source: DENRM of MET (2017), and calculations based on Ul-Oldokh, MET (2017)

Note: * 2015 and 2016 data is taken from the report of DENRM of MET (2017)

** The revenue from pine nuts export license fees in 2017 was MNT 23,741 million (US$ 11.8 million), provided by Mrs. Ul-Oldokh, MET (2017). The total exported off shell-pine nuts in 2017 is 7,914 ton (MNT 23,741 million (US$ 11.8 million), divided by MNT 3,000 or US$ 1.5 (license fee per kg)).

*** Revenue of NTFP fee for local budget is taken from **Error! Reference source not found.** 18.

Figure 19 shows that the total revenue from pine nuts is increasing especially from the export license fee. Total revenue increased from MNT 6.7 billion (US$ 3.3 million) in 2015 to MNT 30.5 billion (US$ 15.2 million) in 2017. However, it should be noted that pine nuts are not available every year, for example there was no pine nut harvest in 2013-2014, hence it is not seen as a stable income.

Although a significant amount of revenue is collected from the harvesting the pine nuts, there are concerns over harvesting and processing practices, which could affect the sustainability of the resource, which include: 1) the timing of the harvest is not always suitable as the nuts are not ready to be harvested; 2) the process of harvesting, transporting and storing is not yet legalized or regulated hence the trees are damaged and the quality of the nuts are poor; 3) the current mass harvesting of the pine nuts by people increases the risk of forest fire (DENRM of MET 2017); and, 4) legal conflicts exists over whether pine nut collection should be legalized under Forest Law or the Natural Plant Law. Pine nuts are already listed as endangered while revenue from pine nut collection and export is not reinvested back into the forest.

1.1.1.8 Charges of compensations for forest damages

The FI-7 data allows an analysis of the charges levied to compensate for forest damages due to fire and other reasons. In total MNT 207 million was collected from compensation charges in 2017 (Figure 18). The amount is significantly lower than the aforementioned two types of revenues. The revised Criminal law (approved in December, 2015) states that the penalty for making forest and steppe fire is 1-12 years in jail.

1.1.1.9 Revenue from the sale of seedlings and saplings

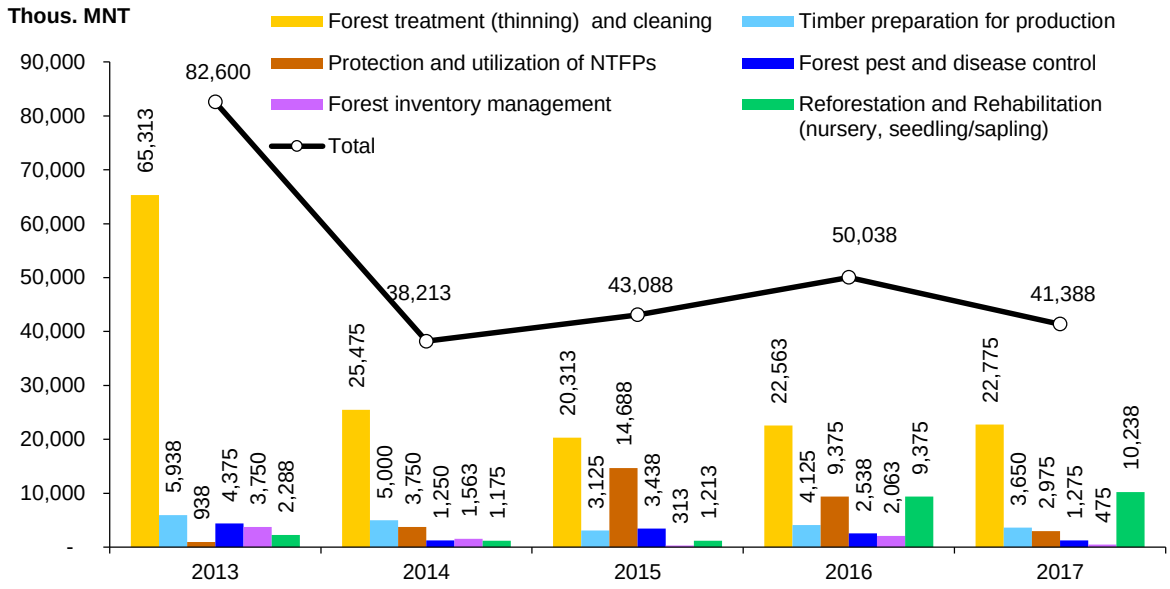
In order to support tree planting by local people, the MET sells seedlings and saplings through forest units in the soums. Revenue from the sale of seedlings and saplings goes into the local budget, however the amount is very small compared to the forest use fee, NTFP use fee and export license fee for pine nuts, although it has increased over in past five years. Figure 18 shows that the total revenue collected from sale of seedlings and saplings

was MNT 80 million (US$ 40,000) in 2013, and steadily increasing to MNT 152 million (US$ 76,000) in 2017.

1.1.1.10 Revenue from forest enterprises permit fees

According to the Law on Permit Payment (Parliament of Mongolia 2010) the MET collects payments from 6 types of forest enterprise permits (Figure 20).

Figure 20. Revenue of fee of permits for forest enterprises, by types (Thous. MNT)



Source: Based on data provided by Mrs Ul-Oldokh, MET (2017)

Note: Calculation is based on the number of permits multiplied by MNT 300 thousand (US$ 150) for new permits, and MNT 150 thousand (US$ 75) for extension, plus a MNT 12.5 thousand (US$ 6.2) printing fee per license.

In total,1,088 permits were issued to forest enterprises between 2013 and 2017. In 2013, 440 permits were issued and 2 extended by the MET. In 2017, 69 permits were issued and 170 were extended. Ulaanbaatar has the highest number of permits (381), followed by aimags: Selenge (161), Khuvsgul (126), Zavkhan (109), Bulgan (54), Arkhangai (51) Tuv (48), Khentii (44), and others (114).

In 2013 the total revenue from permit fees was about MNT 83 million (US$ 41,400) falling to MNT 41 million (US$ 20,500) in 2017. The highest number of permits are issued for forest treatment (thinning) and cleaning.

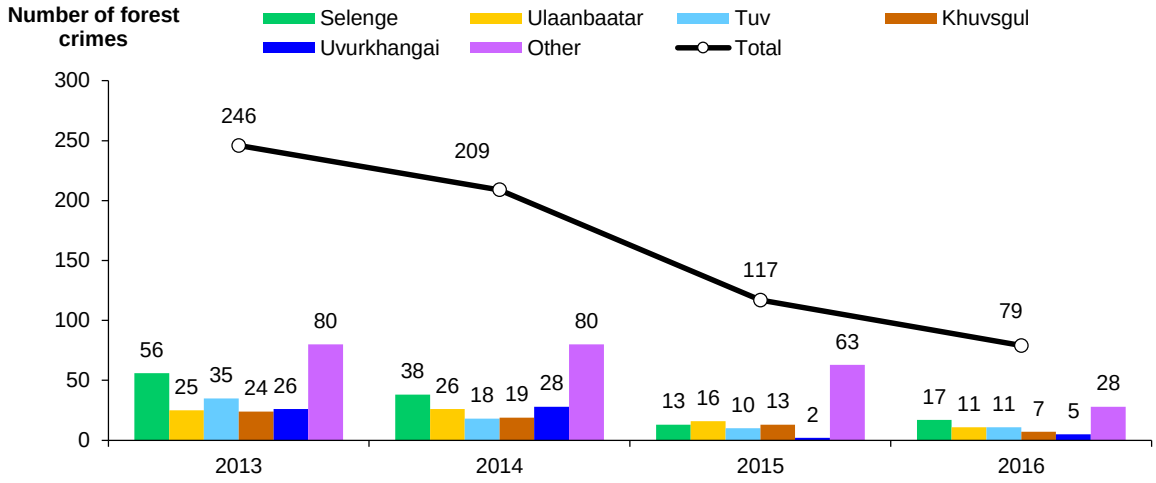
1.1.1.11 Revenue from fines for illegal logging as an environmental crime

The Criminal Law of Mongolia sanctions illegal logging as a crime under the Law of Forest. Collected fines are paid into the Environment and Climate Fund (ECF) according to the Law on Special Government Funds. In addition, the revenue from the sale of forfeited vehicles, instruments (guns), tools and equipment used to commit the offence and crimes, and from the sale of forfeited illegally logged timber, are also deposited in the ECF.

Data on environmental crimes are collected by the Environmental information Center at NAMEM (2017), and are publicly accessible through an online database. The number of illegal logging crimes has decreased constantly since 2013 and 2016, due to improvements

in investigations for example on logs being transported (**Error! Reference source not found.** 21)[24][25].

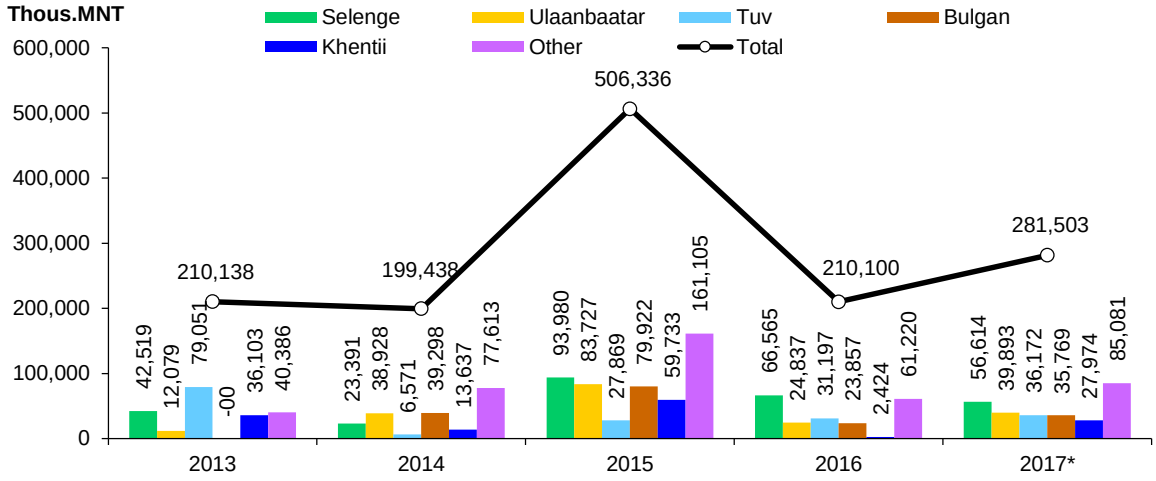
Figure 21. Number of forest crimes (illegal logging) in Mongolia, by location



Source: Environmental information Center at NAMEM (2017)

The financial revenue from fines for illegal logging has fluctuated over past five years (**Error! Reference source not found.** 22). Total revenue reached MNT 506 million in 2015. Revenue increased in 2015, despite a decrease in the number of cases due to the fact that the convictions covered larger areas and a higher volume of illegally logged timber than in other years (interview with B.Tsogtbaatar, National Police Agency of Mongolia).

Figure 22. Revenue of fines of forest crimes of illegal logging, by location (Thous. MNT)



Source: Based on data of Environmental information Center at NAMEM (2017)

Note: *2017 data, calculated by the authors, represents the average revenue in 2013-2016.

On average over the period 2013-2017 the number of forest crimes and fines collected was highest for Selenge aimag followed by Ulaanbaatar city and Tuv aimag.

Collected fines should accrue in the Environment and Climate Fund (ECF), but often go into local budgets. The amount re-investment to rehabilitate the environment is unknown. The

[24] *Pers comm* with B.Tsogtbaatar, lieutenant colonel, of Division of Investigation of Environmental Crimes, National Police Agency of Mongolia

[25] No data are available on revenues collected from fines related to other forest related crimes such as causing forest fires. Thus, only illegal logging fines are covered here.

ECF has reportedly not spent any of this budget for forestry and forest conservation activities in past five years. Furthermore, in some case, fines for known crimes are not collected while some crimes are not caught or registered. Reinvestment of fines into the environment is considered to be feasible and could be a source of funding for forest management.

Revenue generated by the private sector

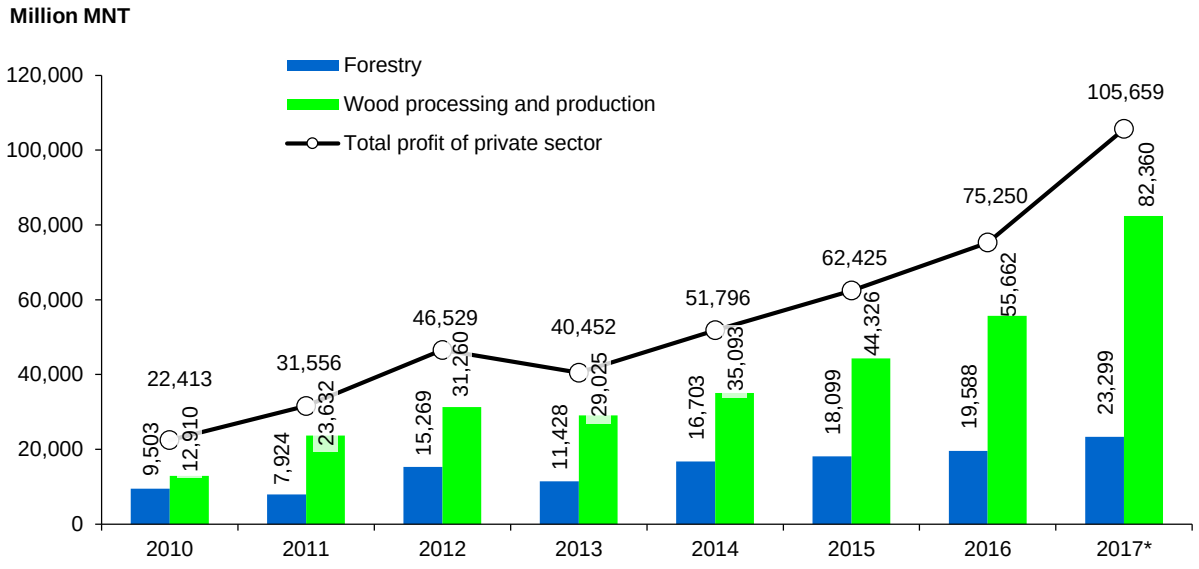
Private enterprises profit from a range of the forest related activities including timber harvesting, forest clearing or collection of deadwood, and the manufacturing of wooden products (e.g. pellets, *ger* materials, paper and paper products, and construction materials such as poles, doors, windows, and furniture).

As discussed in section 2.1.5, forest related revenue for the private sector is taken to equate to the total 'Operating surplus/mixed income' as reported by the NSO.

Based on NSO (2008-2017), NSO (2017b), and NSO (2017c) data the total profit for the private sector for both forestry and wood processing and production is estimated at MNT 106 billion (US$ 53 million) in 2017, which is 5 times higher than in 2010 (Figure 23).

The total profit for the private *forestry sector* was about MNT 9.5 billion (US$ 4.7 million) in 2010 and it reached to MNT 23.3 billion (US$ 11.6 million) in 2017.

Figure 23. Total profit of forestry and wood processing and production sector, by types (Million MNT)

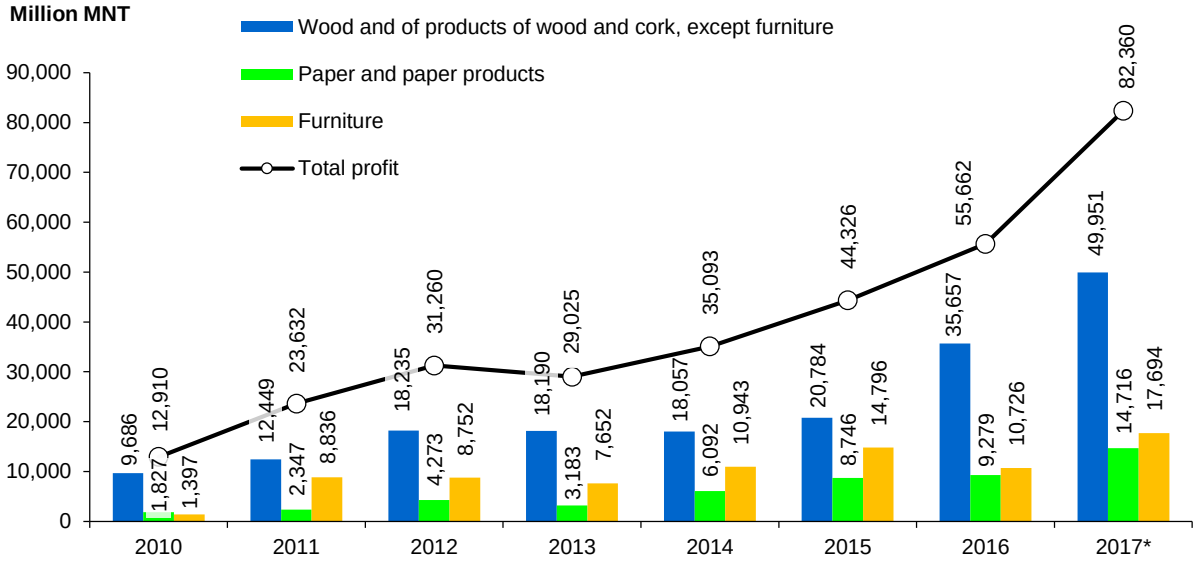


Source: NSO (2008-2017), data of 2007-2009 is not showed in this graph.

*Data for 2017 has been calculated based on the average growth rate of the three types of wood production, 2010-2016.

Wood processing and production enterprises earned about MNT 13 billion (US$ 6.5 million**)** in 2010. Revenue increased constantly, except year of 2013, to MNT 82 billion (US$ 41 million) in 2017.

Figure 24. Total profit of wood processing and production, by types (Million MNT)



Source: NSO (2008-2017), data of 2007-2009 is not showed in this graph.

* Data for 2017 has been calculated based on the average growth rate of the three types of wood production, 2010-2016.

On average between 2010 and 2017 ‘wooden products and cork’ accounts for 58% of the total profit of the wood processing and production sector, furniture 26% and paper and paper products 16% (Figure 24).

Review of Options for Increasing Financing for Sustainable Forest Management in Mongolia

Table 6 presents a list of the financing mechanisms that have been reviewed and assessed as part of this study. They include existing mechanisms, mechanisms proposed by previous studies and mechanisms raised in consultations for this study as options warranting consideration. Therefore, the financing mechanisms in Table 6 represent the set of mechanisms considered to be most viable to support the implementation of the REDD+ Action plan in the short and medium term.

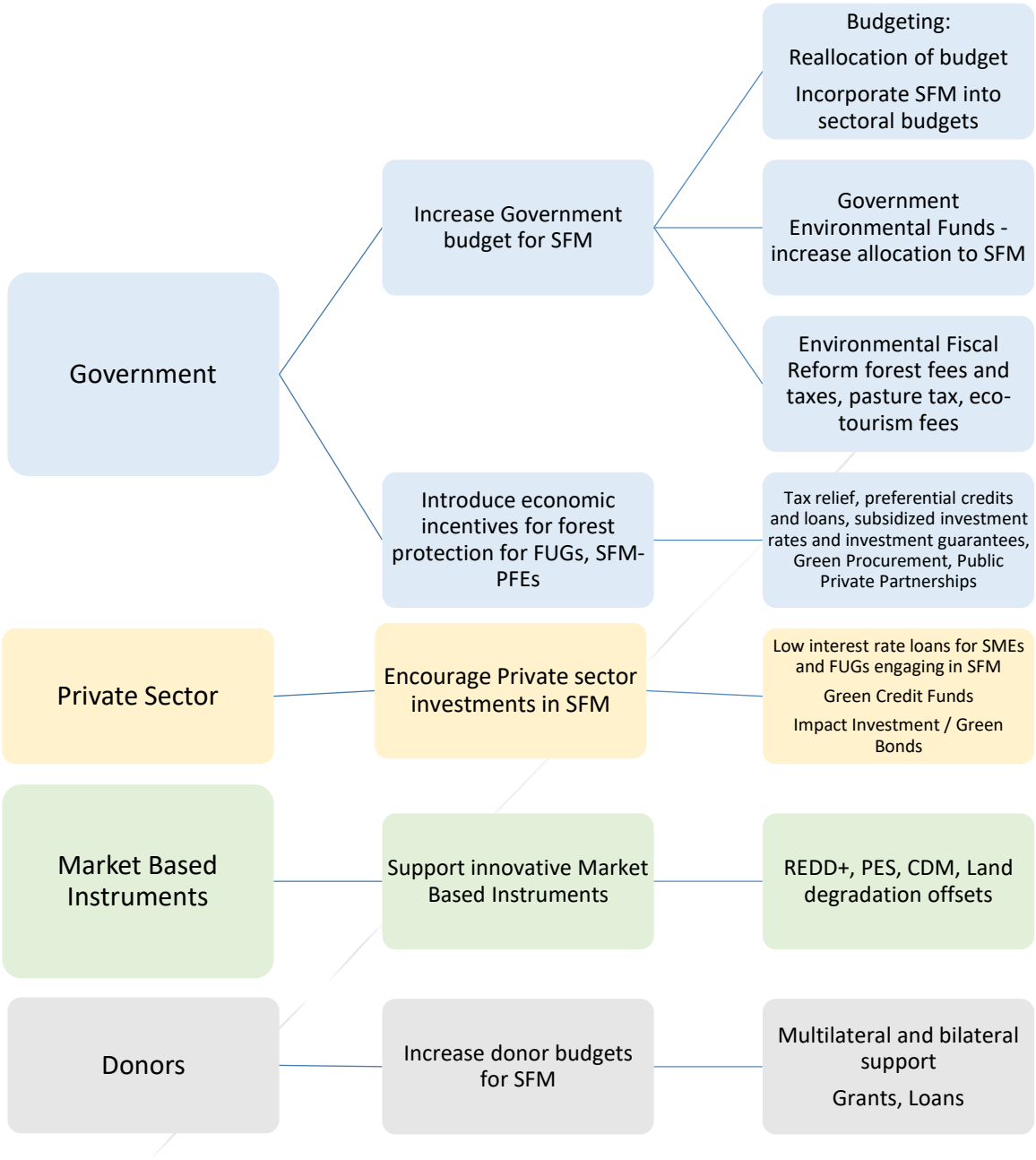
Table 6. Overview of Existing and Potential (proposed) Forest Financing Mechanisms

CATEGORY	MECHANISM	SPECIFIC MECHANISM
Public flows	Budget expenditure	Results based budgeting (*proposed*)
	Funds	Environment and Climate Fund
		Green Development Fund (*proposed)*
		Mongolia Environmental Trust Fund (*proposed*)
		Government Compensation Fund (to revoke mining licenses)
		Local Development Fund
Regulation Based	Environmental crimes	Penalties for forest crimes
Fiscal instruments	Reduce / eliminate harmful subsidies	Revoke tax exemptions on imported logs (proposed)[1]
	Incentives	SFM incentives (proposed)
		Incentives for Forest User groups (proposed)
	Taxes / fees on natural resources (renewables)	Natural Resource use fees
		Pasture Tax (proposed)
	Taxes /fees on tourism/entry	Entrance and other fees
		Tourism concessions
Market based mechanisms	Biodiversity offsets	Land degradation offsets
	Clean Development Mechanism (CDM)	-
	Payment for Ecosystem Services	(proposed)
	REDD+ Results based Payments	(proposed)
	Joint Crediting Mechanism	
Donor flows	Donor assistance	International Organizations and Bilateral donor support
		International Funds – e.g. Green Climate Fund, Adaptation Fund, Land Degradation Neutrality Fund, Global Environment Fund
Debt / Equity Financing Private sector based funding	Green Bank	Mongolian Green Credit Fund (proposed)
	Green bonds	(proposed)
	Corporate Social Responsibility	-
	Impact investment	(proposed)
	Sustainability standards and certification	(proposed)
Risk based	Disaster risk insurance	(proposed)
	Environmental risk insurance	(proposed)

Notes: 1/ This is only relevant if there is a policy change supporting an increase in Annual Allowable Cut (AAC) and development of the processing sector

Figure 25 presents the opportunities for increasing funding for SFM related to four main categories of financial mechanisms– Government, Private sector, Market Based Instruments and Donor funding. These are discussed in more detail below.

Figure 25. Overview of opportunities to increase funding for SFM and potential financial mechanisms



Government funding for SFM

The economic climate in Mongolia is challenging given the ongoing economic downturn and insufficient accumulation of state revenue. The 2016 state budget review projected that the 2017 state budget would be allocated to finance the most pressing needs, with a decrease in financing for the MET. Recent protests from doctors and school teachers over stagnant salaries puts into focus the tradeoffs facing the Government in terms of budget allocations.

Given the current tight fiscal constraints, it is unlikely that any significant increase in funding for SFM will materialize via the state budget in the near term. However, there are potential opportunities to use the existing budget more efficiently and in the longer term to develop

mechanisms for other sectors to contribute to forest management based on the benefits they receive from the forest.

Reallocation of budget: On average 43.2% of the forest budget was allocated to pest control between 2013-2017 (reaching 71% in 2017), however fire is the biggest driver of forest degradation (UN-REDD, 2016). The impact of forest pests is very visible near Ulaanbaatar and has therefore become a political issue. It may therefore be justified to reallocate more of the budget to fire control and potentially to the development of the forest industry (timber harvesting and processing).

Increase in cost norms: Cost norms determine how much funding is requested and allocated for different forest management activities. Norms should reflect the real costs of undertaking forest management activities, and span the full range of activities that are associated with SFM, for example including the sustainable management of forest ecosystem services (UN-REDD, 2013a). The current cost norms were approved in 2013, but inflation has increased by 5-10% per year since then, except in 2016, and so they do not cover the current cost of forest management activities. The MET and MOF are reportedly currently discussing updating the unit prices.

Increase *cost-effectiveness of forest measures*. It was suggested that the cost–effectiveness of forest management measures should be assessed to ensure that funds are utilized efficiently, thereby maximizing the coverage and impact of the available budgets. While this applies to all areas of forest management, the need for cost-effective interventions was particularly raised in the context of pest management. The Forest Research and Development Center (FRDC) aims to control pests at a sustainable level to ensure that forests are not degraded. The budget reportedly only covers 30-40% of the areas affected, so areas may only get treated every other year[26]. There is also a need to introduce more environmentally friendly pest control approaches, which are more expensive.

Pests are more successful if trees are weak. Early thinning helps prevent pests, as it keeps trees healthy. A more cost effective pest management approach may be for Forest User Groups (FUGs) to carry out thinning activities and remove eggs, rather than to import biological agents and issue contracts to commercial companies. FAO are training FUGs in pest identification (removing eggs), which may allow them to secure pest removal contracts and top up their income and potentially lead to a reduction in the number of animals. This would be a type of Payment for Ecosystem Service (PES), with the Government paying users to increase the health and robustness of the forest.

Sectoral mainstreaming - Integrate forests into the spending of other sectors. Other sectors that depend on forests for their output and productivity (e.g. agriculture, industry, manufacturing, tourism, energy, water supply and climate) currently make little or no contribution towards the costs of managing, conserving or developing forest land and resources, despite the benefits they gain (UN-REDD, 2013a). Other sectors that depend on forests, such as industry and mining for water provision, livestock for grazing, should also contribute to forest management activities. This requires mainstreaming forestry considerations into their strategies and budgets of forest dependent sectors (UN-REDD, 2013b).

Mainstreaming also implies efforts to better integrate the goals and policy objectives of other sectors into MET's forest management approaches and budgets. This serves as a way of supporting cross-cutting development goals such as rural livelihood diversification, poverty reduction, food and energy production, infrastructure development, desertification control,

[26] Personal communication Mr B.Ganzorig, pest officer of FRDC

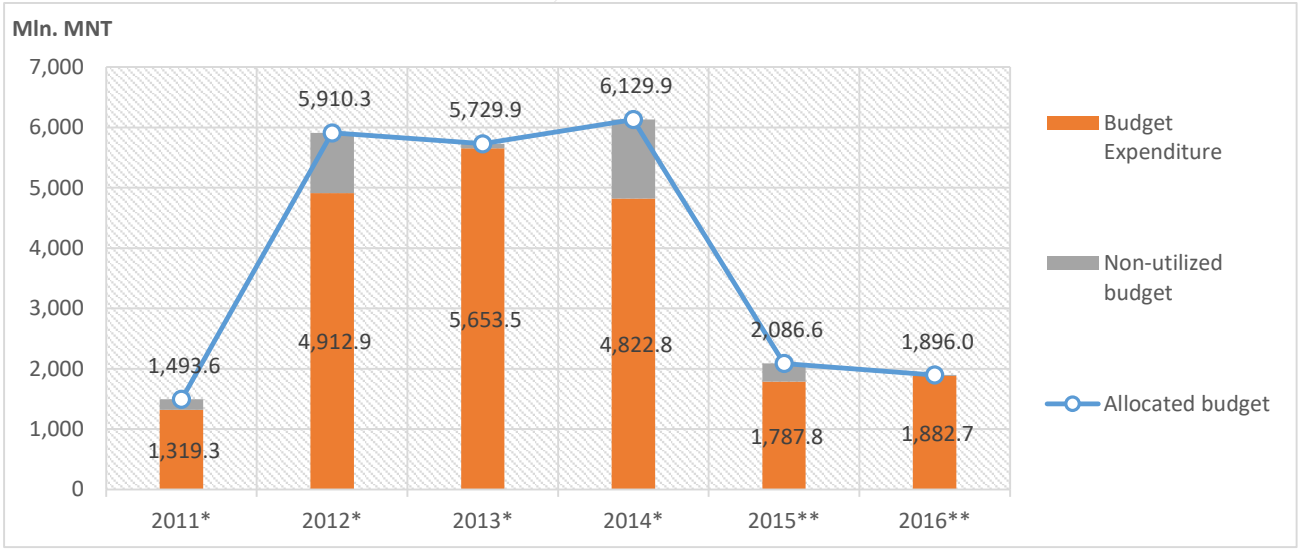
disaster risk reduction and climate adaptation (UN-REDD, 2013b). Current Government policy lends support to sectoral mainstreaming. It is implied by Mongolia's strategic focus on green development, which aims to ensure the integration of environmental protection and economic development goals. However, formal links between sectors are not strong enough and cross-sectoral discussions are required to better understand the linkages, the potential for other ministries to contribute to forest management and any legal revisions this may require. This is considered to be a more medium term option and would need to be based on better quantitative and monetary estimates of how forests support other sectors.

Government Environmental Funds

The Government has a number of special funds[27], some of which relate to the environment – the most notable for forests being the **Environment and Climate Fund (ECF)** established in 1998 (originally called the Nature Conservation Fund, the Fund was renamed in 2017). However, there is currently a move towards reducing the use of special funds due to efficiency issues and because in some case they have not been used for their intended purpose[28]. Some inefficient funds have been closed. According to the Ministry of Finance, the preference going forward is to make additional budget available for special needs through Ministries applying for such funds on a competitive basis.

The ECF now has a focus on generating ***finance from donors*** to address climate change. The Fund's resources have been significantly reduced since 2014 (Figure 26). The allocated budget in 2017 was MNT 1.8 billion (US$0.9 million) and is expected to remain at this level in 2018. Around MNT 200-300 million (US$ 100,000-150,000) of this budget is spent on operational costs. The rest of the budget is supervised by MET and is mostly spent on research and public advocacy for nature conservation activities. There is no specific allocation for forest conservation. Based on the annual report of the ECF (2015), around 11% of the total allocated budget between 2011 and 2016 was not utilized.

Figure 26. Budget utilization of Environment and Climate Fund (Mln. MNT)



[27] Government Special Funds are held in special accounts in the Treasury, and have the purpose of supporting the implementation of particular functions and objectives of the Government. Other environment sector Government special funds include the Renewable Energy Fund (which receives revenues from companies in which the Government has equity which are participating in emissions reduction trading under the UNFCCC/Kyoto Protocol arrangements), and the Clean Air Fund (which receives revenues from fees on air pollution caused by coal and organic solvents-abolished in 2016).

[28] Personal communication Mr Tseveenjav Zorigtbat, head of division at Ministry of Finance.

Source: Based on data from * Environment and Climate Fund (2015), and ** Ministry of Finance (2017)

According to BIOFIN, by improving the structure and organization of the Environment and Climate Fund it would be possible to fully accumulate revenues in the state and local budgets, and redistribute funds to suitable activities for conservation and restoration of the natural resources (Batjargal, 2016). This is discussed below under Environmental Fiscal Reform.

Over 50 developing countries around the world have established an Environmental Trust Funds[29] to enable sustainable financing for the environment. BIOFIN is currently undertaking a feasibility study on the re-establishment of a **Mongolian Environmental Trust fund (METF)[30].** The feasibility study is looking at potential financial flows and sustainability, where to invest (including forest) and governance issues. The original METF established in 1997 was revoked in 2004. Explanations for this include: the lack of a legal framework for establishing funds, an underdeveloped banking system in Mongolia, underdeveloped national development strategies, a widespread view that the fund was foreign as it was set up in compliance with the Netherlands law and the endowment was placed in the Netherlands' ABN AMRO bank, and frequent changes in Government during the crucial time of initial funding accumulation 1997-2000 (Batjargal 2016).

However, conditions may now be more conducive to the successful operation of such a trust fund. The Government of Mongolia approved the Sustainable Development Vision-2030, there have been a significant increase in GDP per capita (from US$329 in 1997 to over US$4,000 in 2015), a strong private sector with an interest in social responsibility initiative is now in place, and there is an established legal framework for development planning (Batjargal, 2016)[31].

ETFs require a successful resource mobilization strategy. According to BIOFIN (Batjargal 2016) possible donors for the proposed METF include - the Global Environmental Facility (GEF), Green Climate Fund (GCF), bilateral Government donors, such as the, German Reconstruction Bank and some private funds, such as Swiss MAVA fund. National and international NGOs, such as WWF, TNC and WCS who have operated in Mongolia for many years, could help to establish the METF, through fundraising and capacity building.

[29] http://www.undp.org/content/sdfinance/en/home/solutions/environmental-trust-funds.html

[30] Environmental Trust Funds are independent legal entities and investment vehicles to help mobilize, blend, and oversee the collection and allocation of financial resources for environmental purposes. It is a country-driven solution that facilitates strategic focus, rigorous project management, solid monitoring and evaluation, and high levels of transparency and accountability. The term encompasses conservation trust funds, wildlife trusts, climate and forest funds, and other funds established to deliver environmental, social and economic benefits. Trust Funds are usually established to provide a transparent vehicle for donors that would not otherwise be able to fund environment and climate projects. Source: UNDP

[31] The following factors are important for the successful establishment of the ETF: Participation from Government and private entities. This involves the Government supporting the establishing funds that it will not regulate; Government funding for the METF or to projects financed by the fund; Legal environment supporting the establishment of an independent fund; Allowances or incentives for private entities wishing to donate to the fund or Government interest in creating such incentive mechanisms; Willingness of Government, NGOs, private entities, donor organizations to collaborate; Legal and financial environment or conditions that will protect the Fund's capital, and its legal independent status; A contractual legal environment exist in-country to support the fund's operation, i.e., banks, and audits.
http://www.undp.org/content/sdfinance/en/home/solutions/environmental-trust-funds.html

However, interest in capitalizing the fund and the value added for fund contributors is not yet clear.

A dedicated forest fund was suggested by one informant, such as an **Investment and Development (Trust) Fund for Forestry,** to attract and administer financing for SFM. The fund could provide grants, and support marketing and consultancy work. While similar to the proposed METF, the fund would also cover forest production areas and aim to bridge the forest mandates covered by the MET and the MOFALI. The dominant view is however that a dedicated forest fund would duplicate existing funds such as the Environment and Climate Fund and the proposed METF and that it would be difficult to capitalized multiple funds. It is also MET's policy is to integrate (climate, biodiversity, environment and forestry) funds, to make them cost-effective to administer and easier to regulate.

If the METF were approved it would be good if the fund was structured in a way that ensured sufficient funding was allocated to SFM, potentially through a SFM window or sub-account within the Fund. Forest projects can delivery multiple benefits including carbon sequestration, conservation of biodiversity, land degradation mitigation, social and economic benefits if, for example, communities living in the proximity of the forest are paid to protect their environment and trained in how to establish sustainable business ventures (e.g. eco-tourism and/or harvesting of medicinal plants). Forestry projects that address economic, social and environmental issues should be attractive to fund managers.

Table 7 presents an overview of forest related funds and their status (Government and Private Sector Funds). Of note is the fact that a number of funds have failed to stay operational due to a lack of finance and governance issues. This stresses the need to ensure that additional funds can be capitalized and assured a sustainable funding source. Given the existence of the Environment and Climate Fund, and the proposed Mongolian Environmental Trust Fund and Government's Green Development Fund of Mongolia, it does not seem feasible to introduce a separate REDD+ / forest fund. However, this could be revisited if the METF does not go ahead.

Table 7. Summary of existing and proposed Forest related Funds

Name	Comment
Environment and Climate Fund	Government Special Fund. Recently refocused on climate change issues and raising funds from donors.
Local Development Fund	Local Development Fund could be a source of finance for environmental protection. It accrues 5% of the royalty of mineral resources (around MNT 2 Billion annually) and 30% of royalty of oil according to budget law (Chimed-Ochir, B. et al. 2017; Parliament of Mongolia 2011). However, currently implementation of the LDF is weak because of reduction of the LDF budget due to economic downturn in 2016.
Government Compensation Fund to revoke mining licences **(not operational)**	To address the issue of exploration and mining in forested areas, the Parliament of Mongolia adopted the *Law to Prohibit Mineral Exploitation in Forest Areas and River Headwaters 2009.* This Law prohibits mining and exploration licences in water catchments and forested areas. As of June 2010, 37 mines had been forced to close, at a cost of US$4.7 billion in compensation to the Government of Mongolia. However, Implementation of the Law has been temporarily suspended due to a lack of funds to pay compensation.
Anti-Air Pollution Fund	Not yet operational, although the legal framework for the fund has been established. The fund will collect air pollution fees / taxes. Demonstrates willingness to introduce mechanisms to address priority policy issues.

Green Development Fund of Mongolia **(proposed)**	Government of Mongolia is considering the establishment of state-led **Mongolian Green Development Fund** that will oversee green projects and programmes to be funded through development financing as well as from the state budget and offer a source of support to the privately led Green Credit Fund. The Government will provide initial funding of around US$ 5-10 million to the Development Bank of Mongolia, and then raise money from donors and private sector. This is an initial effort to establish PPP.
Green Credit Fund	In the process of being established by the Mongolian Bankers Association (this private sector fund is discussed below)
Mongolian Environmental Trust Fund **(proposed)**	Proposed by BIOFIN and a feasibility assessment is underway. This could incorporate funding for SFM.

Environmental Fiscal Reform

Triple wins in terms of revenue generation, environmental improvement and poverty reduction are possible through fiscal reforms but require that the revenue generated is invested in environmental management and poverty reduction (UNDP, 2015). In the case of Mongolia and financing for SFM it makes sense to first ensure existing fiscal mechanisms are working as intended, and to remove fiscal mechanisms that are creating perverse incentives, before introducing new mechanisms. A priority is to fully enforce the Law on Natural Resource Use Fee (2012).

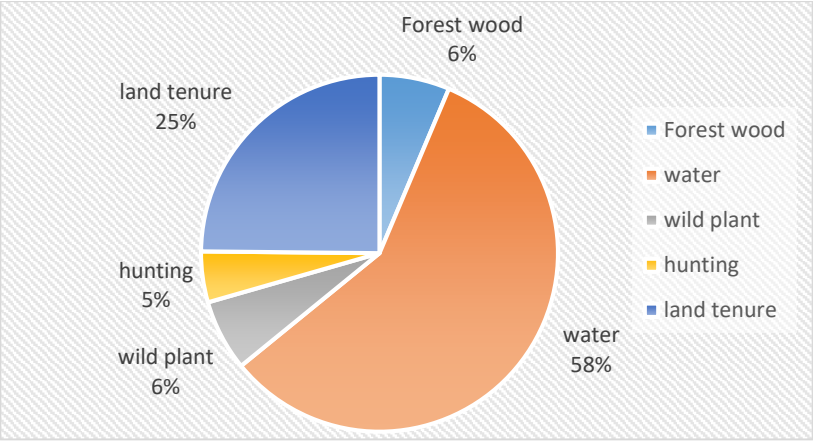
Implementation of the *Law on Natural Resource Use Fee* (2012). The Law on Natural Resource Use fee (2012) designates that the following *minimum* percentage of total use fees collected must be redistributed towards environmental conservation and restoration in the local environment where the fees were generated (paragraph 18):

- 15% of payments / revenue for using wild plant resources;
- 50% of payments for using wildlife resources;
- 30% of payments for using land resources;
- **85% of payments for using forest resources;**
- 55% of payments for using water and mineral water resources;

Every year the Government signs a contract with local Government, specifying the natural resource fees. Natural resource fees collected accrue in the local budget and are utilized in the following year according to a plan approved by the Citizens' Representatives Khural (local parliament).

In 2016 around MNT 70.3 billion (US$ 35.1 million) was collected from natural resource fees at the local level, of which 29% (MNT 20,390 million or US$ 10.2 million) was used for nature conservation and rehabilitation (or environmental protection). Water fees make the biggest contribution accounting for 58% of total fees collected, followed by land tenure (25%) (Figure 27). Between 2013-15 water fees accounted for 85% of fees collected from natural resources (Oyunchimeg, T. 2017).

Figure 27. Fee revenue from natural resources in Mongolia in 2016 (%)



Source: Based on data reported by Bulgan, T. (2017) Head of Department of Green Development Policy and Planning, Ministry of Environment and Tourism (MET)

The revenue from natural resource use fees, other than mineral resources use fees, have increased almost six times since 2010. Most of this increase (66%) relates to water production and services fees and is linked to amendments in the Law on Water (2012). For the period 2013-2015 it is estimated that according to the law MNT 15-16 billion (US$ 7.5-8.0 million) was available per year for spending on the activities on protection of the environment and resource restoration (Table 8).

Table 8. Collection of Natural Resource Fees 2013-2015 (Million MNT) and legally specified reinvestment into conservation

№	Types of NRUF	2013		2014		2015	
		Total collected (Million MNT)	Minimum reinvestment for conservation according to the NRUF law (Million MNT)	Total collected (Million MNT)	Minimum reinvestment for conservation according to NRUF law (Million MNT)	Total collected (Million MNT)	Minimum reinvestment in conservation according to NRUF law (Million MNT)
1	Wildlife resources use fee	555.6	277.8	1,016.4	508.2	2,414.7	1,207.4
2	Natural plant use fee	34.2	5.1	620.6	93.1	2,739.1	410.9
3	Land use fees	16,717.8	2,507.7	16,378.7	2,456.8	17,129.6	2,569.4
4	Forest use fees from preparing firewood and wood for consumption	2,928.3	2,489.1	2,977.0	2,530.4	3,635.7	3,090.4
5	Water, mineral water resources use fees	39,088.8	13,681.1	1,772.6	620.4	886.5	310.3
6	Water resources use fee (for production and service provision)	159.6	55.9	32,594.4	11,408.0	34,928.6	12,225.0
Total amount		**56,556.1**	**16,527.6**	**52,382.7**	**15,086.5**	**58,098.5**	**16,722.9**

Source: Batjargal (2016)

It is widely acknowledged that the Law of Natural Resource Use Fees is not being properly implemented. There are a number reasons for this including: revenue from natural resources use fees are often used to fill budget deficits, in line with the Budget Law, which states that if there is a funding gap it should be filled. The Budget law does not recognize / reflect the redistribution of natural resource fees and is seen to take precedence over the Law of Nature Resource Use Fee; a lack of knowledge on the Law of Natural Use Fee at soum and provincial level among those who make decisions on budget allocation; and, expenditure on the environment and restoration are not incorporated into budget planning. By improving the implementation of the Law on Natural Resources Use Fee it is estimated that it would be

possible to double the funding available to spend on nature protection[32].

Based on data collected from Departments of Environment and Tourism of Aimags and Capital City (2017), in 2017, MNT 4.1 billion (US$ 2 million) was collected from **forest resource use fees,** and 6.8 billion (US$ 3.4 million) from **NTFPs**, essentially the pine nuts, (see section 2.2)[33]. According to the *Natural Resource Use Fee Law* MNT 9.3 billion (US$ 4.6 million) should have been re-invested in forest protection activities from above mentioned revenues at soum level. However only MNT 3 billion (US$ 1.5 million) was re-invested. Therefore, if the Law were corrected implemented an additional MNT 6 billion or US$ 3 million a year would be spent on the forest. A lot of money collected from fees goes into the general account and is not re-allocated back to the environment.

A first step, in line with the recommendation of BIOFIN (Batjargal, 2016), for increasing finance for SFM is to improve implementation of the *Law of Natural Resource Use Fee*. Once the existing law is being fully implemented, the fee structure may be developed by increasing fees in line with cost recovery principles and broadening the application of fees and charges to the full range of forest goods and services (as recommended by UN-REDD, 2013a). The process is as follows:

- **Step 1:** *Ensure that forest fees are fully collected, and crucially that at least 85% of the fees collected are reinvested backed into SFM*. To improve implementation of the law soums' departments are now collaborating with Ministries who are providing information workshops and raising public awareness through the media (*pers com* Khanjav Batjargal). BIOFIN suggests that the best course of action to ensure that the existing laws are implemented based on the current structure and system (i.e. without creating additional structures and staffing requirements) is to improve the **Environment and Climate Fund's** management. Batjargal (2016) proposes to establish the Environment and Climate Fund at all three levels: state, aimags and capital city, soums and districts to facilitate cooperation between institutions, with one central administration. It is proposed that revenue will fully accrue in local budgets and the Environment and Climate Fund will provide central administration, information and methodologies for redistribution of funds for suitable uses. This will increase funds for environment management while allowing the MET to monitor results of local budget spending. This would require small changes in the *Law on Special Government Funds* and the *Law on Budget*. Extensive advocacy is needed to achieve a change in the Budget Law.
- **Step 2:** *Adjust (increase) fees to reflect market prices and demand*. Once collection rates and the reinvestment of existing fees has been improved, rationalizing forest sector fees provides a means of improving the extent to which the Government is able to capture a share of forest sector rents. Fee levels should be in line with current market demand and prices. An increase in fees will provide more money for SFM.
- **Step 3:** *Develop a spatially sensitive revenue collection from natural resources use and redistribution mechanism***.** Natural resources, and hence natural resource fees generated, vary across soums and aimags, resulting in spending on natural resources being very unequal geographically. For example, 71.6 % of the revenue from water resources use fees (2015) came from Umnogovi and Bulgan aimags and relate to payments by mining companies. This situation also makes it difficult to plan nature conservation at a landscape scale (involving a number of soums and aimags), such as a watershed which is necessary for water resource management. Under the current system water extraction at the source of the watershed may be low, hence

[32] In terms of biodiversity, it is estimated that the Financial Gap can be reduced by 21% if water and spring payments were reinvested as required by the law (Batjargal, Z. 2017).

[33] i.e., 10.9 billion (US$ 5.4 million) was collected from forest.

the area will not generate much revenue from water usage fees, despite being crucial for a secure water supply. Therefore, a more refined revenue collection and distribution mechanisms needs to be developed (Batjargal, 2016). The principle of spending money where there is a priority need, rather than where it is raised, can also be applied to SFM. However, more awareness on the interconnectedness of ecosystems and their services and advocacy is required to generate support for such an approach.

- **Step 4:** Enhanced tracking of forest financial flows. Financial flows could be linked to the National Forest Monitoring System (NFMS) and Web Portal to enhance transparency of spending and results.

Development of eco-tourism fees in Protected Areas

Mongolia's Protected Areas (PAs) network includes 101 areas under state protection, covering 17.9% of the total territory or 28 million ha, and 911 areas covering 16.3 million ha area under local protection (Local Protected Areas – LPA) in 2017. This means 28.3% of the total territory of Mongolia is under protection, close to Mongolia's target of 30%.

The Mongolian *Law on Protected Areas* classifies the State Protected Areas as Strictly Protected Areas, National Parks, National and Historical Monuments and Nature Reserves. According to article 6.2 of the *Mongolian Law on Protected Areas* (1994) sources of finance for Protected Areas include: (i) State and local budget, which provides most of the budget; (ii) income from tourism activities and services; (iii) donations from citizens, businesses and organizations (however, this is not functioning due to the lack of regulations on this); and, (iv) compensation payments for damages that violate Protected Area legislation.

The MET is responsible for managing and financing Strictly Protected Areas and National Parks and in recent years state budget investments have been increasing; the budget was MNT 6 billion (US$ 3 million) in 2016 and MNT 7 billion (US$ 3.5 million) in 2017 (about 75% of the budget for forestry and forest conservation). Most of the budget is dedicated to operational costs - 80% goes on salaries. In 2010, an UNDP/WWF study suggested PA management required US$ 7-10 million a year (cited in SPAN project document), far below the current available budget. Local Administrations are responsible for Monuments, Nature Reserves and LPAs; however, management and financing reportedly does not exist. Funding for PAs is important as many of the areas are forested.

Based on article 6.2.2. of the *Mongolian Law on Protected Areas* on "PA income from tourism and other activities", Directive # 117 from the Minister of the Environment was adopted in 2002 on regulations for conducting tourism in the PAs. However, there is no legal basis for accumulation of the PA revenue related to tourism entrance ticket fees and income from activities and service and its redistribution to PAs. Therefore, the incomes goes to the central budget and since 2012 no reimbursements have been made.

The PA entrance fee of about 300 MNT per person has not changed for many years and has been devalued by rising inflation. Furthermore, only a few PAs have entrance fees and collection is difficult due to the lack of rangers and specific entry points. PA entrance fees therefore need to be increased and collection facilities and processes improved.

PA fees (e.g. entrance and camping fees) and business activities (e.g. operating hotels, restaurants, shops, organizing trips and tourism activities) must be executed under the concession agreement. Through the **Environment and Climate Fund,** PA related revenue can be used to finance priority activities. A detailed study on this was conducted within the

Strengthening the Protected Area Network (SPAN) project [34].

According to the Law of PA, PAs are under Protected Area Administration (PAA) Offices, which are guided by the MET and financed by the state budget. Due to central Government control, there is limited freedom to manage PAs at local level and PAAs cannot increase or impose new fees or implement activities to earn more money. Also, income earned from PAs goes to local Government budget. Tour operators in PAs managing hotels / shops pay a land use fee, but this goes into the local budget not back into PAs.

Citizens' representative boards (local parliament) at soum level however can initiate orders to introduce different types of fees for PAs, which also specify the minimum rate of re-investment in the local PA from the newly introduced fees. For example, **Orkhon Valley National Park (OVNP)**, which is one of the pilot PAs under the Mongolia-SPAN project, introduced 4 types of fees - a car fee, fee for eco-*Gers*, fee for horse-riding services, and overnight fee. They were a success but because of the Law on the Budget, park administrations are not allowed to keep this income. Over two seasons 16 million MNT (US$ 8 thousand) was collected in fees from 2 parks – **Orkon valley NP** and **Ikh Nart NP** demonstrating that PAs have the potential to generate income.

Amendment of the *Law of PA* is in progress, a process that has been on-going for the past seven years, and has been hampered by frequent changes in the working group as a result of changes in the Government over this period. A PA law amendment is needed to improve PA financing.

It is suggested that PAs could be managed by NGOs, local citizens' organizations or private companies to increase their financial autonomy. This new approach is being tested, for example**:** (i) Khustai Nuruu National park is entrusted to the Khustai Trust fund NGO and is the most successful PA in Mongolia[35]; (ii) Khar Yamaat Nature Reserve is managed by the WWF Mongolia program office; and, (iii) Ikh Nart Natural Reserve, one of the pilot PAs of SPAN project, is now managed by an NGO, who are introducing new financial mechanisms including higher entrance fee, and establishing a Trust Fund into which international organizations donate (Batjargal, 2016). The objective is to encourage sustainable financing and avoid the risk of operations having to close due to a project ending or donations drying up[36].

While the Government is promoting ecotourism limited information is available[37]. Flores *et al* (2015) analyzed the potential net annual income to be generated by the ecotourism sector from the PAs at about US$ 11.7 million in 2013.

There may be opportunities for revenue generation through the utilization of the forest in

[34] Financial sustainability options for Mongolia's specially protected areas, "Strengthening the Protected Area Network" project, MON/10/302 by UNDP/GEF

[35] The Khustain Nuruu Nature conservation park was established for the reintroduction of Takhi. The project included the development of tourism activities. Success factors are considered to be – its location near Ulaanbaatar city which means that infrastructure is fairly well established, its status as a special tourist destination and donations from the Netherlands Government. Revenues from the business have been reinvested into nature conservation and management.

[36] personal communication Oyuntulkhuur B.

[37] In 2014, 10% of the 425 hotels with 10,500 beds, 70% of the 537 motels with 5,000 beds, and 20% of the 155 resort/recreation areas with 10,000 beds were operating in State Protected Areas. A total of 196,498 local tourists and 50,000 foreign tourists bought entry tickets (Batjargal and Shiirevdamba, 2015).

select places, where it is clear that such activities will be well managed. For example, while the Law does not allow the collection of pine nuts in PAs, in the Orkhon valley the park administration and local Government collaborate to share the proceeds from nut collection. It may also make sense to permit forest thinning and cleaning in the outer zones of PAs, if justified for the health of the forest.

There are currently around 1,300 **Local Protected Areas (**LPAs) - it is not clear how many of these are forested. They should be financed from local budgets, but the available finance is virtually zero. In the revised law it is proposed that LPAs will be part of the PA system. Typically, Aimag/soums designate LPAs to avoid losing the area to mining. But in some cases people are keeping areas under local protection for several years and then selling to mining companies. Efforts are underway to improve regulations on defining the purpose of areas under protection and the process for taking land under local protection. The UNDP-MET project 'Mongolia's Network of Managed Resource Protected Areas' is supporting LPAs.

Introduction of pasture tax. BIOFIN have recommended the re-introduction of a pasture tax, with the primary aim of reducing livestock numbers. This could benefit SFM given that livestock grazing results in forest degradation and is responsible for the failure of a number of reforestation initiatives. There are around 62 million head of livestock in Mongolia in 2017, and an estimated 2-3 million hectares of degraded woodland is used for winter grazing (BIOFIN, *pers comm*). Conflicts between forestry and animal husbandry are evident, although poorly understood. For example, there are incidents of forest fires started on purpose to clear land to provide grass for goats raised for cashmere production. An integrated approach to livestock management and SFM is therefore essential.

In 2008 when the livestock count was over 40 million, MNT 3.4 billion (US$ 1.7 million) was collected from a tax on livestock numbers or "foot tax" according to the Personal Income Tax law. This tax ended in 2009. Based on the current estimate of around 61 million livestock BIOFIN estimates that it would be possible to generate MNT 5.6 billion (US$ 2.8 million) from a pasture tax, at least MNT 1.7 billion (US$ 0.75 million) a year (i.e. 30 %) of which should, according to the *Law of Natural Resource Use Fee, be spent* on pastureland management (Batjargal, 2016).

While a livestock pasture tax / pasture land use fee is a sensitive issue, based on a questionnaire undertaken by BIOFIN many communities would support the tax if the money is re-invested in pasture management. The tax could be in introduced in stages to help poor families. BIOFIN has an on-going study looking at the how the tax should be calculated. Payments should be based on a number of factors such as ecosystems vulnerability and pasture use and be re-invested in pasture management at soum and aimag level. Allowing Land fees to accrue in soum, district budgets would have the following advantages: a) income from taxation is likely to increase through improved collection; b) it provides an available funding source for the rehabilitation of overgrazed pastures/ degraded lands; and, c) it should facilitate improvements in land use monitoring at aimag and capital city levels. Implementation of such a mechanism would require amendments to the Law on Land Use Fees and the Budget Law.

Remove perverse incentives. Imported wood is currently exempt from custom tax and VAT. This supports a supply of wood to Mongolia's small wood processing industry, which cannot be met through domestic wood supplies due to the low AAC and is consistent with the current forest policy centered on conservation (1,645 hectares of Mongolia's forest are estimated to be protected as a result). If the forest policy changes to allow increased sustainable utilization of the forest resource and development of the forestry sector, the tax exemption on imported wood should be removed to encourage the private sector. The

current exemptions on imported wood and raw materials do not take advantage of Mongolia's own resources and misses opportunities to develop income streams from sustainable forest management, which would have wider benefits on forest health, maintaining ecosystem services and creation of enterprise opportunities and employment.

Fiscal Incentives. Compared to industry and agriculture there are few incentives targeted at the forest sector. A variety of economic, financial and fiscal incentives could assist in making SFM (including REDD+ initiatives) more competitive (e.g. tax relief, preferential credit and loans, subsidized interest rates and investment guarantees). These approaches have been widely used globally with some successes with respect to natural forest management (UN-REDD, 2013a). Positive incentives for SFM has the potential to enhance forest sector productivity and to stimulate new investment and value-added (UN-REDD, 2013a). Non-fiscal incentives are discussed in more detail below.

Mongolia has a system of subsidies for tree planting that is not sufficiently incentivizing a high success rate. In many other countries, subsidies for tree planting are linked to the success rate with one payment at the time of planting (following an approved plan including species, plants per hectare and location), and another payment when a specified average plant height has been reached by a minimum number of plants per hectare. A higher tariff per hectare may be required to incentivize planting, which given the low success rate in Mongolia could prove to be cost-effective (UN-REDD, 2017).

Some taxes incentives have been introduced for imported tables and chairs by MOFALI to support domestic products.

Green Procurement initiatives. Green procurement is part of the Green Development Policy, which has set a target of a green procurement ratio of 10% by 2020 and 30% by 2030. Green procurement initiatives could be used to stimulate private sector investment in SFM by providing a guaranteed market. For example, local Governments could procure forest products to build (e.g. window frames, doors), furnish (e.g. tables) and heat (wood briquettes and pellets) schools and hospitals. Such forestry targeted procurement initiatives could build on on-going work by the Ministry of Finance to incorporate sustainability principles into the national public procurement framework.

Public Private Partnerships can play a role in the development of the forestry industry, critically through the leveraging of, and coordination with, private finance to support limited public funds and developing an equitable sharing of responsibilities in SFM. Further study is required in Mongolia to ensure the existing regulatory environment supports such initiatives.

Private Sector Investments

Overview of forest industry

Prior to 1990, the forest sector was Mongolia's fourth largest sector, after agriculture, construction and energy, contributing 15% of GDP. The AAC was 2-3 million m^3 a year, and by 1990 there was a sizable processing sector exporting products such as boards and matches to Russia, Romania, China and Korea. However, over utilization of the forests in Soviet times led to a strong conservation policy post 1990, with frequent policy changes creating an unstable environment for investors.

A key question is - can the forestry sector become sustainable and self financing and in doing so generate additional funding for the Government to reinvest back into forest conservation and sustainable utilization?

Despite the on-going degradation of the forest resources in some areas, the recently completed national forest inventory (NFI) suggests that harvesting could increase. There is therefore an opportunity to reassess the scale and approach for allocation (UN-REDD, 2017), and potentially increase Mongolia's sustainable timber and wood product harvest as part of a long-term strategy.

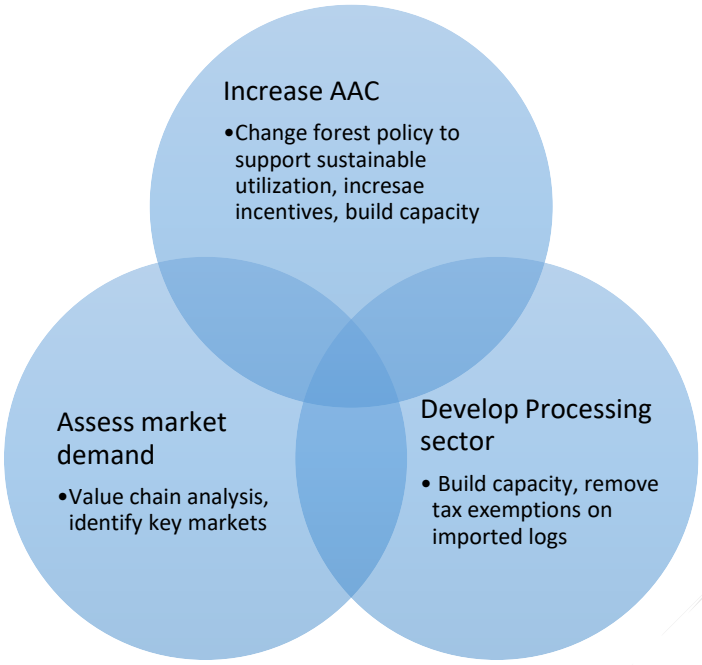
Greater forest utilization is being explored by a number of donor projects and there is growing support for developing the forestry sector as a means of supporting SFM, contributing to the economy, providing jobs and improving livelihoods in rural areas and reducing air pollution. The National REDD+ Strategy is expected to include the development of private sector opportunities in the wood processing sector in order to provide greater income, employment opportunities, increased revenue and contribute to Mongolia's low carbon pathway for sustainable development. Development of the forestry industry is however contingent on a change in the Government's forestry policy in favor of greater forest utilization.

Considering Mongolia's current harvest, which is approximately 600,000 - 800,000 m^3 per year, and the available resources it is feasible that a sustainable supply of timber and wood products could be maintained to support a wood industry linked to certified and sustainable forest management. However, forestry is a long-term activity which must be guided by far-sighted strategy and planning to ensure the balanced development of resources. An increase in the sustainable harvest of wood must also be accompanied by increased demand within the country, and be competitive against cheap imports of timber and wood products from neighboring countries.

A review in 2005 highlighted that considerable investments were needed in both the forest management and industry sectors. Forest management needs to ensure proper sustainable management is conducted, road infrastructure is suitable and that environmental safeguards are applied. Forest industries required considerable input for capacity in technology, markets, entrepreneurship and policy environment. It highlighted that both a need for the restoration or renewal of existing industries could be achieved, in parallel, with development of new higher technological or for new products.

An increase in forest utilization would need to be carefully planned and rolled out in a co-ordinated and gradual manner to ensure that the resource is sustainably harvested, activities are properly monitored, wood production is in sync with Mongolia's processing capacity and that there is a market for the harvested wood and processed products (Figure 28). However, removing the barriers to private investments in SFM is a potentially important means of reducing Government cost burdens, and of leveraging capital expenditures which are currently lacking (UN-REDD, 2013a).

Figure 28. Interrelated actions to support forest industry



Increase AAC

According to the DFPC there are 90 Private Forest Entities (PFE), who are licensed to harvest timber in production forests, managing an area of 600,000 ha (MET, 2016)[38]. This falls short of national targets for timber production and of officially planned requirements to support Mongolia's wood industry and its emerging needs (UN-REDD, 2017).

The optimal AAC needs to be determined, based on science and the forest inventory. According to the NFI the total resource is 1.2 billion m^3, with an annual growth rate of 10 million m^3, dry standing forest – 172 million m^3, deadwood – 248 million m^3. The NFI suggests that 5-6 million m^3 could be harvested annually assuming a parallel process were in place to ensure sustainability, build the capacity of forest managers and ensure demand. However, many consultees to this study considered this estimate to be (a) hypothetical given the current lack of roads and markets and (b) too high (e.g. it includes conservation forest areas). The doubling the AAC to 1.2 million m^3, could be feasible if carried out in a step wise fashion.

The investment climate is currently unattractive for the private sector - forest policies are unstable, there is very little land under production and the AAC is uncertain from one year to the next. Private forest companies have cited the uncertainty over the long term access to timber as the most important constraint for development of the forest sector and the process of allocating the AAC as the main cause for this constraint. The lack of investment negatively affects the development of a strong wood-based sector and as a consequence production levels are lower than they should be and illegal logging is higher. A stagnant forestry sector will also find it difficult to attract qualified staff, which will impact the capacity for implementing SFM principles (UN-REDD, 2017).

[38] PFEs are certified to undertake work in forests, including the production of timber, harvesting of NTFPs, undertaking state contracted pest control, providing forest inventories and developing forest management plans for tenure rights holders. These companies require a certificate from the MET. As many as 800 companies may have been issues certificates for forest work in the past few years (UNREDD 2017b)

The allocation of annual allowable cut follows a cumbersome process - The Minister of Environment allocates an AAC to the aimags, the aimags's Citizens Management Board then decides the AAC for the soums, finally the soums grants quotas to PFEs. There are a number of issues associated with this process:

- The allowable harvests are set one year at a time (despite 5 year management plans). This does not provide companies with the assurance that there will be sufficient timber available in the following years to justify investments, borrowing money and developing their businesses (UN-REDD, 2017).
- AAC is not always granted according to the MP, i.e. the Forest Enterprises do not get the area approved in the MP.
- The permit / quota to cut may relate to an area under a FUG, who may not allow the area to be cut. Such conflicts have resulted in court cases.
- There are often delays and permits may come late in the season, resulting in limited time to do the actual harvesting, sometimes only couple of months, requiring companies to hire expensive excess capacity in order to harvest in the time.
- There is a need to apply for a lot of permits and certificates which cost money. The national level legal framework therefore needs to be streamlined and made more efficient.
- Often quotas are given to relatives, creating uncertainty over the continuity of a quota due to frequent political change.

The Government foregoes revenue when wood is extracted without a license. A study by UN-REDD estimated that the value of illegal timber harvesting, was double that of authorized timber, resulting in a loss of at least MNT 6.5 billion (UN-REDD 2013a). The National Forest Inventory found that logging rates for the past decade were approximately 2.1 million m^3 / year, substantially more that the authorized logging rates (although the accuracy of this finding, which is based on the number and age estimate of decaying tree stumps has been questioned as in boreal climates stumps do not degrade fast, and it not clear if areas were logged for deadwood or live trees). While better enforcement of harvesting regulations and penalty procedures would help address unauthorized logging, it is widely felt that the setting a sustainable AAC is key to reducing illegal activities and increasing revenue (UN-REDD, 2013a). Of note, is that the most recent study by UN-REDD indicates that illegal logging is not high in Mongolia (UN-REDD 2018)

Development of the processing sector

The wood processing industry is one Mongolia's oldest industries dating back to 1924. Developing higher value forest products in-country is seen by many (e.g. the MOFALI and international donor projects supporting the forestry sector) as key to the sustainable use of the forest. However, the wood product / processing sector is currently out of date, uncompetitive and undeveloped in Mongolia and needs restructuring. There has been little investment from the state budget in the processing sector, in line with the current policy focus on forest conservation, and investment and incentives are needed.

The precise number of enterprises engaged in processing forest products is unclear. According to a recent UN-REDD report there are at least 90 businesses registered in boreal forest Aimags, which deal with the processing, marketing, transport and sale of timber and non-timber forest products. Most of which are small and medium-sized enterprises that provide important local job opportunities (UN-REDD, 2017). Another estimate is that around

350 wood processing and production enterprises are engaged in small scale processing, which are often family run business that are weak in terms of capacity and technology[39].

From a current AAC of 1.2 million m^3, only 240,000 m^3 is used in industrial processing (20%), the rest is used for fuel / firewood. According to the MOFALI the estimated demand of the processing industry is 3 million m^3, which is largely met through imported wood. There is therefore scope to meet domestic demand through domestic supply and stimulate the processing industry (assuming markets can be secured).

There is growing interest in the use of biomass energy (e.g. from waste, deadwood and thinnings) to replace coal for heating in support of the Government's short term strategy to reduce air pollution. The Asian Development Bank (ADB) are exploring replacing coal with split logs in remote forested aimags, such as Zavhan**,** for heating[40]. This is seen as an opportunity to develop FUG forestry. The wood would be extracted using horse-power and tractors and would require a six-fold increase in manual labour, along with technology, to enable extraction deeper within the forest so as to avoid over-utilizing of accessible areas. Whether people are interested in the work still needs to be determined and the financial feasibility of the proposed initiative is currently being assessed. However, a preliminary analysis suggests that the scheme could break even at the low end of coal prices of MNT 45,000 (US$ 22.5) per ton seen in Thunkel, therefore well within the prices reached for coal in other forested aimags of over MNT 120,000 (US$ 60) per ton. Other benefits would include – the creation of rural employment and an incentive for people to remain in rural areas rather than migrate to Ulaanbaatar, which is facing a number of development pressures. A state owned company in Bulgan province is producing 5,000 – 6,000 tons of sawdust briquettes which are being provided to Ulaanbaatar administrative office and distributed for free to people in poor *ger* districts for cooking. Around 26 factories are also producing briquettes for their own use. The briquettes have a high price of MNT 350,000 – 450,000 (US$ 175-200) per ton, but there could be an export market. They are cleaner than coal – there is no sulphur and the ash content is 5.6 times lower than coal, while the heating power 1.4 times higher[41]. GIZ is investigating the use of birch wood for fuelwood and charcoal for sale in local markets. A Mongolian charcoal company will reportedly pay MNT 1 million (US$ 500 thousand) per ton for high-quality birch charcoal delivered to Ulaanbaatar. The price for 'biochar (made from sawdust) in Ulaanbaatar is MNT 200,000 (US$ 100) per ton or MNT 120,000 (US$ 60) per ton if collected from a FUG location.

With the right support it may be viable to produce construction products - wooden frames and door and poles, and furniture. A couple of high value niche products with the potential on international markets, which could be developed under Public Private Partnership (PPP), are being explored: (i) laminated wood for window frames; and, (ii) shingles for roofing in Europe[42]. ADB is exploring developing a PPP (Mongolian and German companies and German Government) for Larch shingles. A Mongolian company – Megawood, has invested in new technology that will allow panels to be made from any kind of wood (including sawdust and deadwood) and plan to process raw wood boards from 2018, working with 4-5 PFEs companies around Ulaanbaatar. They are financed through a MNT 7.6 billion (US$ 3.8 million) loan provided by the 'Chinggis Bond', under a scheme supported by MOFALI, at a 9% interest rate in 2015, which is no longer available. The aim of the Megawood is to supply about 70-80% of the boards market that is about 70-80,000 m^3 annually. Poles can be made

[39] Personal communication Dendev Baasanbyamba

[40] ADB project - TA 8874-MON – Sustainable Forest Management to Improve Livelihood of Local Communities.

[41] Personal communication Enhbayar Dondog, forestry and wooden production officer at MOFALI

[42] Shingles are thin tapered pieces of wood primarily used to cover roofs and walls of buildings.

cheaply from birch and are used by FUGs for building. There may also be used for removable fencing and have been sold at MNT 1,000 (US$ 0.5) per pole for this purpose[43].

Understanding market demand

Harvesting levels (wood supply) need to be compatible with the level of demand for wood and processed products. The current and potential market demand needs to be assessed. Where there is potential for market growth, any increase timber harvesting needs to be in sync with processing capacity and market demand. Export is one option but also national consumption could be enhanced through the construction of houses or other wood sector enterprises. This is not only climate friendly but can also be economically competitive and Mongolia could learn from countries such as Sweden and Finland that have a strong tradition for building wooden houses (UN-REDD, 2017).

Box 1 summarizes the challenges facing the forest industry.

Box 1: Forest Industry Development Challenges

Harvesting:

- Forest growth rate is slow (60-100 years) due to climate and management issues and replanting has not been very successful.
- The deep forest is not accessible
- There is an over use of forests in the vicinity of railways and processing areas. A forest map with overlays of existing wood processing centres, aimags with heating centres, roads is needed to identify areas that are under/over utilized to inform planning.
- It is not clear that enough people are interested in working in the forest to support an increase in production. The work may be considered too hard and the young are generally less interested in a traditional life style.

Processing

- There is a spatial mis-match between the source of wood and processing mills/factories. 'Mobile saw mills' managed by FUGs could be an option – this would bring saw mills to the forest and save on transportation costs.
- Processing facilities are outdated and require investment, along with capacity building in new approaches.

Market

- Clarifications on market prospects are needed. For example - Is there a market for increased production – domestic or export? Can products be competitive against Russia and China? What are the products with the most commercial potential?

Policy & legal

- The National Forest Policy approved in 2015, states that utilization of the forest must comply with social, economic and environmental aspects, but conversely, the policy of 2010 says that the forest should not be utilized. Policy coherence a key the starting point for developing the sector.
- The Government of Mongolia first needs to decide if greater utilization of the forest is to be supported and incentives provided to PFEs and FUGs, and to reflect this decisions in policies.
- There is a need to invest in an enabling legal environment to support SFM. Legal obstacles relate to transportation, for example a certificate is needed to cross aimag borders, which restricts markets.
- Both the MET / MOFALI have responsibilities regarding the forest. It is suggested that it would be better to have one agency that combines both functions

[43] Personal communication Andrew Inglis.

Financing of the forest industry

Loans and investment capital for SFM are difficult to access but are key to enabling the development of SFM-based activities, markets and enterprises and increasing the participation of the private sector (UN-REDD, 2013a). Two possibilities to improve the availability of credit and investment capital for SFM activities are: (i) working with banks and other financial institutions to improve lending to the forest sector and SFM; and, (ii) mobilization of capital and equity for SFM through bonds, and forest and land investment trusts and funds (UN-REDD, 2013a). An update on these options is presented below.

Bank Loans are needed to stimulate the forestry sector, potentially supported by the Government. While the banking sector in Mongolia is taking concrete steps to support green development investments as discussed below, forestry is not seen as a priority sector due to the risks associated with it. The classic difficulties associated with forest sector loans include the lack of collateral, relatively long maturity period and uncertain future income streams. These could be partially overcome by public guarantee and support (UN-REDD, 2013a). Better enforcement and monitoring of forestry activities are among the prerequisites for securing bank loans. One suggestion is that the **Annual Allowable Cut** (**AAC) could be used as collateral** to access loans. There are some international examples of this including in Lao PDR, where teak plantations certificates in Bokeo are being used to secure bank loans (RECOFTC, 2015). Tree banks are used in Thailand and forest-based mortgages in China (UN-REDD, 2013a). Such schemes might also prove viable in Mongolia in cases where PFE or FUG have been assigned secure contractual rights. However, the use of AAC as collateral is currently seen as highly risky by banks in Mongolia and there would need to be a mechanism specifying how banks might recover their investment if a project failed.

Xac Bank, one of Mongolia's major lenders, has an eco-banking department which currently represents 5% of their total portfolio and is seen to have growth potential. It operates on a triple bottom line – people, planet, profit and adopts the same eight performance standards as the International Finance Corporation (IFC). Xac Bank is a Green Climate Fund (GCF) Accredited Entity and was the first entity globally to receive money from GCF. In July 2017, GCF completed a US$ 20 million transfer of climate finance to the bank as part of a US$ 60 million project to support micro, small and medium-sized enterprises (MSMEs) finance low-carbon initiatives (energy efficiency and renewable energy) in Mongolia[44]. The bulk of GCF's support is in the form of loans. In accordance with the GCF's gender focus, at least half of the financial support is directed at women-led enterprises[45]. The five-year project is anticipated to avoid 1.2 million tons of CO2. Xac Bank, held a green finance forum in September 2017 supported by GCF, designed to tap into the country's private sector interest in low-emission innovation.

Xac Bank was the first to finance solar energy power plants in Mongolia, and it supports upgrades of buildings and factories that result in 15% energy improvement for the end user or a 20% improvement for retailers / producers. While they have received several project

[44] MSMEs account for ninety percent of Mongolian business. The majority of these enterprises use outdated and inefficient equipment, processes and buildings resulting in relatively high emissions of greenhouse gases. One of the main barriers to low-carbon innovation is the lack accessible commercial finance by local banks. To address this the GCF's contribution will be blended with the other financial sources to help counteract the current prevalence of high financing costs and relatively short-term loan periods.

[45] "The increased involvement of women should mean a higher probability of effective climate finance. Statistics show women have a lower probability of default of loans, while our anecdotal observations indicate women-led businesses tend to be more accurate, risk averse and better planners." Amartuvshin Hanibal, President Xac Bank.

proposals to support forest harvesting ventures (typically PPPs between Mongolian companies and local Government) it has not been possible to support these projects due to the uncertainty around how these projects are managed and monitored. In order to monitor projects, it is first necessary to establish a baseline for sustainable forestry. The UN-REDD national programme should support this through the establishment of a national forest monitoring system, which should be used to link forest performance with finance, and national forest reference level, which can provide context for more site specific studies to secure loans. Loans to the wood processing sector may be possible if factories are using energy efficient equipment and / or moving to energy efficient buildings.

Mongolian Bankers Association (MBA) and the Mongolian Green Credit Fund (MGCF). The Mongolian Bankers Association, Mongolia's first green financing institution, was established with the support of the United Nations Partnership for Action on Green Economy[46], UN Environment Financial Initiative, International Finance Corporation (IFC) and Global Green Growth Institute (GGGI). It is 4 years old and includes all of Mongolian's 14 commercial banks, accounting for 96% of the Mongolian financial system[47]. Its objective is to ensure that social, environmental and economic dimensions are given equal consideration in investment decisions. Investments have been strongly influenced by economic concerns to date and the MBA seek to address this by providing credit for economically viable projects designed to achieve social and environmental gains. They are initially focusing on the 'low hanging fruit', for example electrical vehicles and green buildings. Forestry is not currently seen as a possible area for investment, due to the lack of monitoring in place making it hard to judge whether a project is sustainable or not.

A Mongolia Green Credit Fund (MGCF) - described as a private initiative with a public purpose, is being developed. This is a national financing vehicle that will provide long-term finance to projects and programs that stimulate green growth. The GCF is providing US$ 350,000 in readiness funds to support the development of the Mongolian Green Credit Fund, and it is hoped that the fund will be capitalized in 2018. The MGCF is led by the Mongolian Bankers Association. The Ministry of Environment and Tourism will play an oversight role. The MGCF's core funding will be used to support four key green development areas – energy, housing, waste management and sanitation. It could potentially support agriculture and forestry in a second phase (5-10 years perspective). The fund is the start of a process to mobilize private sector funding for sustainable development and unlock green financing at scale.

At the 5th Mongolian Sustainable Finance Forum held on September, 2017 in Ulaanbaatar[48], a Memorandum of Understanding was signed among the Ministry of Environment and Tourism, Ministry of Finance, Mongolian Bankers Association and Global Green Growth Institute on establishing the Green Credit Fund. The MoU aims to maximize financing with preferential conditions to the financial market, reduce interest rates, develop green investment methods, efficiently use natural resources, reduce air, environmental pollutions and greenhouse gas emission, and boost environmentally friendly economic development.

[46] PAGE supported establishment and operations of a joint working group on the green credit fund. The working group has executed a number of activities including an assessment to determine the market demand for green lending (the results of which lends confidence about the future impact of the MGCF), legal assessments and the development of a green loan performance index and green loan fund concept and business plan.

[47] Other members are the Stock Exchange, Savings and Loans and Insurance Sectors

[48] Hosted by the Mongolian Bankers Association, in cooperation with Ministry of Environment and Tourism, Arig Bank, IFC, GGGI, BMZ, UN Environment, PAGE, UNDP-Biofin, the Ministry of Finance, the Bank of Mongolia, the Financial Regulatory Commission, Ulaanbaatar City Mayor's Office, and the Mongolian National Chamber of Commerce and Industry (MNCCI).

In November 2017 the Government committed to covering the currency risk associated with the Fund.

Impact Investment Funds / Green Bonds. The MET plan to explore the potential for green bonds in 2018 with the Minister of Finance. A concept note and proposal are to be developed as a first step[49]. This financing mechanism may therefore be applicable in the medium to long term. The use of green bonds to support SFM would need to be supported by a detailed market analysis of the forest sector, along with the development of a pipeline of potential projects / investments. The use of Forest Bonds is incipient internationally. In 2016, the IFC issued a first of its kind US$152 million Forest Bond in partnership with BHP Billiton McKensie (a mining company) and with technical collaboration from Conservation International (CI) and Baker. The Forest Bond unlocks private financing for reducing deforestation and is supporting the Kasigau Corridor REDD+ Project in Kenya[50]. The Forest Bond was oversubscribed by more than double its capacity indicating private sector interest (e.g. institutional investors, such as pension funds) in such social and environmental investments and as a potential source of forest finance. Cranford *et al* (2001) cite the following key messages for the formation of (tropical) forest bonds: scale is important, a range of income streams should be harnessed to support forest bonds, and risk mitigation is needed and assurance of environmental standards (potentially through a Climate Bond Statement).

Corporate Social Responsibility. Since 2015 all banks in Mongolia have undertaken Environment, Social and Governance (ESG) screening on investments over US$ 20,000 under the **Mongolian Sustainable Finance Principle (SFP)**. This serves to direct investment to sustainable projects and should facilitate the uptake of impact investments in Mongolia. **Certification** of forest sites and products would also offer assurance to impact investors and offers the potential of attracting a price premium and hence increasing the economic viability SFM initiatives.

Forest Risk Insurance. REDD+ investors face a range of risks that could cause forest investments fail to create adequate value, including commercial risk (e.g. fire, pest and disease, theft and credit risk), market risks relating to surrounding business or financial markets (e.g. currency exchange volatility, interest rate volatility, banking /fiscal crisis, regulatory regime change) and political risk (e.g. cancellation of concessions, import/export embargos, inconvertibility of local currency into hard currency). Investors may require mitigation facilities to help share or manage the risk such as credit guarantees to cover defaults, fund enhancement to cover against partial business failure and various insurances against losses due to specific risks. These can be provided by a range of actors including donors, development banks, IFC, insurance companies and investment funds. Demand based options to reduce risk are also possible such as guaranteeing the demand or price of sustainable timber or carbon. Forum for the Future (2009) reviews a range of potential risk mitigation mechanisms to facilitate private sector investment in REDD + including leverage existing World Bank's Multilateral Investment Guarantee Agency (MIGA) and forestry insurance capacity.

The insurance sector is very small in Mongolia. Environmental insurance systems, to cover the financial risks associated with environmental pollution and contamination, are yet to be established. However, according to the *Law on Environmental Impact Assessment,* project implementers must place collateral funds in the state special fund as the assurance of

[49] *Pers comm* Mr Khanjav Batjargal
[50] The Kasigau Corridor project aims to protect 200,000 hectares of dryland forest in south eastern Kenya, which is under threat from slash and burn agriculture.

implementing the activities reflected in the Environmental Management Plan[51]. It has not been possible to undertake a detailed assessment of suitable forest risk management mechanisms for Mongolia, but this is an area warranting further study to help unlock private sector finance.

Disaster Risk Insurance. Loss of livestock due to extreme weather condition (drought and *Dzud*) is high in Mongolia. In 2005 an **Index-based livestock insurance** project was introduced and supported by the World Bank. It is based on an index of livestock mortality rates by species and soum complied and maintained by the Mongolian National Statistics Office. The objectives of the programme are to: reduce the impact of livestock mortality on herders' livelihoods, provide herder households with immediate liquidity after a disaster and provide the GoM with a tool to transfer part of its fiscal exposure to climatic risks to the international reinsurance market. Herders purchase policies from private insurance companies from whom they received payouts when mortality rates hit a specified 'trigger' percentage.

Risk insurance is important for the forestry sector in terms of attracting investment from private entities. A similar index mechanism might be used for forest loss through accidental fire.

Box 2: Forest User Groups (FUGs) in Mongolia – challenges and potential

Forest User Groups **(**FUGs) were set up in 1990s by the Government to help manage the forest. There are 1,281 FUGs that protect approximately 3.345 million ha of forest, which equates to nearly 19% of the country's forest (UN-REDD, 2018). Registered FUGs lease forest land from the State, with contracts extending up to 60 years. To date the main focus of these contracts has been on forest protection, although efforts are ongoing to develop FUG harvesting, processing and marketing activities as a means of income generation. Not all FUGs are actually operational or engaged on-the-ground. The most active are typically in locations which have received external support and funding, mainly through international projects (UN-REDD, 2013a).

A range of factors inhibit activity by FUGs in Mongolia. Under Mongolian law FUGs are not a legal entity, so it is not possible for them to get funding from the Government or other sources. They are required to protect the forest (e.g. they patrol forests in the dry season to monitor forest fires), but receive limited user rights in compensation. While a forest management plan sets the parameters for the FUG's production activities, an annual contract is required from the local Government to harvest deadwood or non-timber forest products.

Forest cleaning has to be done by a PFEs, however some PFEs hire FUGs for commercial logging and in such cases the FUGs should be paid under tripartite contracts between the local soum Government, FUG and professional timber company.

In consultations for this study, different views were expressed on the appropriate roles for the PFE and FUGs, which need to be reconciled so that the synergies between these two groups are

[51] According to the law every year the project implementer submits the previous years' implementation report together with the work plan and budget for coming year based on EMP to the authority which conducted the general EIA. The project implementer (except mineral exploitation, enrichment and processing, and chemical industry) should pay a deposit equal to 50 percent of the annual activity budget of EMP into a special bank account opened by the concerned soum and district Governors. Mining operators should pay a deposit equal to annual activity budget of the EMP prior to starting its annual operations in a bank account for nature protection and restoration opened by MNET. The deposit is reimbursed based on the implementation status of EMP and the mine closure plan and approved by MET (UN-REDD, 2013a).

understood and ways of working clearly specified and agreed.

One view is that FUGs are essentially herders with limited knowledge of or interest in the forest and that their activities should be limited to protecting the forest from illegal logging and fire, and the collection of NTFPs and deadwood (for fuelwood). Wood cutting, even of dry standing wood, should be done by PFEs as the FUGs do not have the capacity to supply the wood to standard. There is also the view that FUGs restrict PFEs' access to logging areas, as they control most of the forest.

The counter view is that FUGs have no power, they cannot block access to the forest and are fearful of their safety on account of the extent of illegal activity. There have been incidents of PFEs not providing FUGs proper employment contracts or compensation payments, which have resulted in court cases. FUGs could become more interested in forestry with better incentives. There is a need to upgrade their status, improve payments for protecting the forest from fire, pests and illegal activities, and where appropriate issue FUGs permits / licences for driving, using chainsaws and collecting deadwood.

There is a wide variation in capabilities and interest among FUGs. The FAO are working with the Government to formally categorize the FUGs as: (i) dormant; (ii) successful at protecting forest – based on evidence that the incidence of forest fires and illegal logging has fallen; (iii) have received forestry training; and (iv) at the same level as PFE – based on a 'para' forester approach. Around 50% of FUGs are considered to be capable and around 5% would be interested in working as 'para' foresters. FAO trained 50 FUG members in 2016 in pre-commercial thinning, forest health, forest marking and legal aspects. No chainsaws are used and this encourages women to get involve.

Forthcoming legal changes propose reducing the types of licenses for PFEs from six to three covering: (i) Forest inventory management and forest pest and disease control; (ii) Forestry, re-forestation and agro-forestry activities; and, (iii) Timber preparation for production. In addition, proposed amendments to the Law of Environmental Protection for the User Groups are expected to abolish 'User Groups' and allow FUGs to become NGOs, that is legal entities. It is estimated that around 400 FUGs may become legal entities if this amendment is approved by Parliament.

A GEF funded project implemented by FAO is aimed at developing the capacity and the livelihoods of FUGs[52]. According to the project document forests in FUG areas are under-harvested meaning revenue is lost, forests are not managed, and the potential for fire, insect, disease and illegal harvesting is high (FAO project document, 2014). The project is working with 101 FUGs in five forest aimags - Bulgan (26), Khuvsgul (24), Selenge (14), Darkhan-uul (9) and Khentii (26) and will end in 2018. The FUGs are trained in *pre*-commercial thinning (commercial thinning by law must be done by PFEs) and to date some 60 FUGs have been contracted by Forest Units to undertaken pre-commercial thinning activities earning MNT 120,000 per hectare for first and second thinning. Forest harvesting and thinning improves ecosystem health, by reducing competition amongst trees for water and making them more resilient to fire and pests. FAO have introduced equipment and technology to produce pellets and chips and are exploring opportunities to develop FUGs as small scale forest professionals, for example a number of FUGs could form an association or cooperative and hire a forest engineer to be shared by the group.

Development of natural resource based businesses. An addendum to the *Law on Environmental Protection 2012,* gave local residents rights to protect, sustainably use and restore natural resources. By 2015 1,629 co-operatives have been responsible for the conservation of 3 million ha[53]. The main challenge facing co-operatives is how to generate a

[52] GEF project – FAO-MET, 'Mainstreaming biodiversity conservation, sustainable forest management and carbon sink enhancement into Mongolia's productive forest landscapes' Project GCP/MON/008/GEF

[53] From the speech given by former Mrs. Oyunkhorol Dulamsuren , the Minister of Environment and Tourism during the National Conference for Nature Conservation Cooperatives, 18 May 2015

profit through the sustainable use of natural resources. To resolve this issue UNDP has been implementing Mongolia's Network of Managed Resource Protected Areas MON 13/303 project (2013 -2018). The project's objective is a strategic expansion of the Protected Areas (PA) network by creating local PAs and developing the required institutional capacity and financial base to ensure the sustainability of PA management. The project has been working with three LPA pilot sites managed by cooperatives, which help prevent forest / steppe fires, reduce illegal use of forest resources and illegal hunting. They have developed management and business plans, which incorporate sustainable financing ideas such as:

- **Khavtgar LPA[54]:** Generating revenue from wildlife game forest resources, pastures, hay fields usage fees and tourism activities.
- **Tumenkhan-Shalz LPA[55]**: Taxing herders MNT 500 – 1,000 per livestock to establish a **livestock sector development fund**, establishment of an **environmental trust fund** with revenue from mining **biodiversity offsetting** activities, natural resource usage fees and donations.
- **Gulzat LPA[56]:** Generating income from special hunting permits, donations from game hunting private entities, income from hunting camp operations and income from tourism activities.

Another example is Spirit Mongolia, a NGO established to assist the forest conservation group and the local herder community in the prevention of illegal wood logging, poaching and illegal nut picking in Arkhangai Province. In 2016, an area of 137,000 hectares was declared a Legal Protected Area (LPA). The NGO provides new skills and training (e.g. in the production of biochar and eco-tourism). By stimulating the local economy and providing sustainable alternatives to logging, it is hoped to preserve the habitat and the traditional nomadic way of life.

Sustainable management of LPAs requires sustainable finance, and a move beyond time-limited grant funding. Investment proposals need to be based on a market analysis and include a detailed business plans. Donor aid and technical support is considered to be needed to start operations. A revolving fund should be established with the profit from the donors' investment to ensure on-going returns. It may also be possible to source start up money from local businesses.

The development of value chains by cooperatives could play a key role in income generation[57]. The idea is to develop regional businesses based on the natural resources of the area involving local communities. The most profitable area of development appears to be meat value chains, based on Mongolia's high quality beef. Forest products could follow a similar approach.

[54] Khentii Aimag, Batshireet soum

[55] Aimag Soum joint LPA (parts of Dornod aimag's Tsagaan-Ovoo, Bayan-Uul soum territory taken under protection in compliance with Dornod aimag's resolution of Citizens' Representatives Khural, part of Khentii's Norovlin soum in compliance with the soum resolution of Citizens' Representatives Khural)

[56] Uvs Aimag, Sagil, Bokhmoron soums

[57] Final report on the study of value chains for live animals/meat and hides/skins in Mongolia, July 31st, 2015

Market Based Instruments

Market Based Instruments are not likely to offer a significant source of forest finance in the short term.

REDD+ results based payments have limited scope in Mongolia. Mongolia stands out from other UN-REDD programme countries as the only country with boreal forest. It is also not a classic candidate for REDD+ finance through results based payment as Mongolia's forest provide a net benefit in terms of CO2 emissions and the scope for emission reductions is relatively limited; around 140,000 hectares of forest are degraded annually by fire and pests, and around 8,000 hectares of forest are lost annually due to land use change (UN-REDD, in prep). Forests in Mongolia have a slow growth rate (around 1 cm^3/year), so investment in carbon storage is not so attractive. However, REDD+ performance payments may be feasible for SFM such as better forest enforcement, given that around 90% of fires are caused by humans and possibly payments for pest management linked to an improved forest monitoring system. Mongolia may be able to access REDD+ implementation funds or traditional bilateral investment funds for the forest sector if it meets high standards required by UNFCCC.

REDD+ results based payment are essentially a payment for an environmental service. **Payments for Ecosystem Services (PES)** are contractual and voluntary transactions where a 'buyer' agrees to pay a 'seller' conditional on delivery of an ecosystem service, or implementation of a land use or management practice likely to secure that service. For example, a PES might create a financial incentive to protect, restore, or sustain ecosystem services provided by forested watersheds. Hydrological services include regulation of water supply, water purification and flood and erosion control. Establishing PES often takes years, requiring detailed studies to define the service being provided, estimate its value and undertake extensive stakeholder engagement to build trust and commitment.

By creating a price and market for an economically valuable forest services, payments for forest ecosystem services (PFES) mechanisms allow forest managers to capture additional revenue and income, which can be used to finance SFM. PFES may involve payments being made directly by forest ecosystem service beneficiaries (e.g. bulk water users, hydropower facilities, greenhouse gas emitting industries, tourism companies) as well as through *budgetary transfers* targeting a portion of the revenues earned by other sectors for forest-dependent production and consumption (e.g. water, tourism, industry, energy, agriculture). (UNREDD, 2013a).

The Forest State Policy and the Green Development Policy supports PES schemes but there is no law facilitating the implementation of PES.

Following a study on watershed services provided by the Upper Tuul Ecosystem (Emerton *et al*, 2009) a feasibility study on piloting a watershed PES in the Upper Tuul basin was carried out at the request of a Working Group established within the MET. The study, supported by the World Bank, contains a preliminary analysis of the legal and institutional framework required to establish an effective PES, including the need for a transparent and effective payment system. It also sets out an action plan to develop a pilot PES scheme in the Upper Tuul Ecosystem of Mongolia in conjunction with the Ulaanbaatar Water Supply and Sewerage Department. The project area includes two protected areas: the Gorhki-Terelj National Park and the Khan Khentii Strictly Protected Area (both located in Tuv aimag) and covers a watershed immediately to the north of Ulaanbaatar from which Ulaanbaatar's water supplies are drawn. There are increasing pressures on the area from tourism, livestock and illegal cutting. The idea is that villages in the area, with a total population around 3,000, could be paid by water users in Ulaanbaatar to adopt eco-friendly business – fruit tree

growing, supporting the forest (instead of herding). A payment of MNT100 per household in Ulaanbaatar could provide the necessary financing[58]. Further studies are needed to determine the willingness to pay (WTP) by both households and industries[59]. Despite the initial interest in this PES initiative it was not progressed by the Government and it is hard to see how PES schemes could be developed in Mongolia without strong political backing. Furthermore, the opportunities for applying PES schemes nationally are not obvious due to the low population levels and weak economies in rural areas, although such schemes could work in cities dependent on a river for its water supply. A potential area of investigation is the role PES could play in offsetting proposed hydro power developments that would affect watersheds, both within Mongolia and with neighboring countries (e.g. the role of land management and development in Mongolia on Lake Baika in Russia and Russia's water supply[60]).

Biodiversity markets are a potentially powerful tool for internalizing traditionally externalized costs and compensating good practices. Payment systems for biodiversity compensation include: biodiversity offsets, mitigation banking, conservation banking, habitat credit trading, BioBanking, complementary remediation, conservation certificates. Some are based on compliance with regulation while others are done voluntarily for ethical, competitive, or pre-compliance reasons. They all aim to reduce biodiversity loss and build the cost of biodiversity impacts into economic decisions through markets or market-like instruments and payments.

While an offset that attempts to achieve **no net loss** is preferable from an ecological and social standpoint, less comprehensive forms of impact compensation, in which funds are set aside for biodiversity management or valuable biodiversity is protected elsewhere, can be a first step towards better biodiversity footprint management or even eventually a regulated offset system (Bann, 2011).

Biodiversity offsets are a means of generating finance for forest restoration, rehabilitation and sustainable management. Funding is provided by developers to balance or compensate the residual effects of damages that cannot be mitigated on-site, by investing in the sustainable management of equivalent forest resources or habitats elsewhere.

They have particular relevance in Mongolia in relation to ongoing developments in the mining, construction and infrastructure industries (UN-REDD 2013a). In most countries biodiversity offsetting activities are implemented on a voluntary basis, however in Mongolia, the *Law of Mongolia on Environmental Impact Assessment in 2012***,** requires offsetting projects to be included in Environmental Management Plans (for petroleum, mining, radioactive mineral projects, UN-REDD, 2013a). Various industries are therefore legally responsible for conserving, restoring and rehabilitating forest lands that are affected by their operations[61]. Land degradation offsets have been under development for the past 4-5 years. The GEF-MET-UNDP project "Land Degradation Offset and Mitigation in Western Mongolia"

[58] Personal communication Erdenesaikhan N.

[59] Industries including cashmere factories, power plants, beverage and office buildings use water from the Upper Tuul Watershed and were not covered in the original feasibility study.

[60] Mongolia is planning to build three mid-sized dams on the Selanga River and its tributaries – the Orkhon and the Egiin river. The Selanga River, flows into Lake Baikal. The Selenga watershed is shared between Russia and Mongolia (Forbes, April 2017 'In Russia, The World's Largest Lake Takes On The World Bank and Mongolian Power Build-Up' accessed on line www.forbes.com 11 January 2018)

[61] Around 40 hectares of forest land was recorded as having been degraded as a result of mining in 2010, and there are around 759 exploration or mining licenses which cover almost 1.5 million ha of boreal forest (MEGD 2013). It is not clear how much of this land will be re-vegetated or rehabilitated, or at what future date (UN REDD, 2013a).

is developing guidelines and procedures for land degradation offsets, with a focus on mining offsets. While all 272 mining companies have developed EMP, only 55% of companies (typically the larger companies) have implemented offsets.[62] Forest can be impacted by mining and offsetting is a potential mechanism to address damages, if correctly implemented.

The **Clean Development Mechanism (CDM)** is an international carbon offset program established under the Kyoto Protocol. It provides the framework for projects in developing countries to earn tradable carbon credits - called Certified Emission Reductions (CERs) - through the reduction, avoidance and/or sequestration of greenhouse-gas emissions. These CERs can be sold or traded, and used by industrial countries to help meet their emission-reduction targets under the Kyoto Protocol.

The CDM in Mongolia is focused on the energy sector, and is not considered viable as a forest finance mechanism due to the low level of forest related emissions. Currently, Mongolia is implementing three CDM projects: a retrofit programme for decentralized heating stations, and Taishir and Dorgon hydropower projects. Mongolia's potential CDM projects in the *energy* sector might have limitations as total GHG emissions are minimal and the size of economy is small.

Box 3: GHG emission and carbon trading opportunities

Mongolia's total greenhouse gas (GHG) emissions are minimal. However, per capita GHG emissions are among the highest in Asia due to the need for heating for up to 9 months of the year, energy inefficiency, and methane emissions from livestock. Burning coal results in approximately 60% of the total CO_2 emissions in Mongolia. The mining sector has been a major indirect contributor to GHG emissions in Mongolia through high energy use. Livestock has accounted for over one third of total GHG emissions in Mongolia (at CO_2equivalent). As Mongolia's territory is predominantly permafrost, the potential for large-scale emissions through release of methane is high.

The **livestock** sector may present opportunities to reduce GHG emissions. More than 80 percent of Mongolia's territory has been used as grazing land and grasslands and other grazing lands store up to 30% of the world's carbon (ADB, 2014). A couple of recent projects have explored the feasibility of carbon trading as a financial instrument for sustainable pasture management to address land degradation due to overgrazing: (i) "Linking Herders to Carbon Markets" project supported by the Swiss Agency for Development and Cooperation; and, (ii) "Making Grasslands Sustainable in Mongolia, International Experiences with Payments for Environmental Services in Grazing Lands and Other Rangelands" ADB regional technical assistance project "Strengthening Carbon Financing for Regional Grassland Management in Northeast Asia".

The **Joint Crediting Mechanism (JCM)** facilitates diffusion of leading low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions, and contributes to sustainable development of developing countries. It evaluates contributions to GHG emission reductions, by applying measurement, reporting and verification (MRV) methodologies, and uses them to achieve Japan's emission reduction target. The JCM contributes to the ultimate objective of the UNFCCC by facilitating global actions for GHG emission reductions or removals, complementing the CDM (JCM-Mongolia 2017). In Mongolia the JCM potentially covers 15 sectors including forestry, but is focused on funding renewables, and energy projects. Forestry projects have not been considered due to the lack of capacity in forest monitoring, verification and reporting. There is the potential to apply for JCM funds for wood based coal replacement initiatives.

[62] *Personal communication* Onon Yondon.

Donor funding for SFM

With its graduation to upper-middle income status in 2015, Mongolia is increasingly seen by international donors as a development partner, best suited to loan financing. It will therefore become harder for Mongolia to access donor grants, which are also likely to be performance based in the future. Loan financing for the forestry sector may be possible through, for example, the Asian Development Bank (ADB). Nonetheless, Mongolia still faces many challenges, poverty levels are high at 30% and increasing, the economy has experienced a downturn since 2012 and wealth is unequally distributed.

Climate finance is considered to be an option given that climate change adaptation is a key issue facing Mongolia and will require significant investment over the coming years. Much emphasis is being placed on the **Green Climate Fund (GCF)** as a source of funding[63]. The GCF board appear to have a preference for projects that trigger catalytic effects and incorporate innovative financial solutions, including non-grant instruments. As discussed above the GCF is already supporting Xac Bank and the development of the Mongolian Green Credit Fund. In the context of forest, there is potential scope for securing funding based on forest related adaptation projects. UNDP-FAO, MET, MOFALI and the National Emergency Agency are developing a GCF proposal based on a GCF approved concept note – 'Improving Adaptive Capacity and Risk Management of Rural Communities in Mongolia', which has an adaptation focus and aims to build rural livelihoods through better rangeland management. This could integrate forest management through the links between pasture and forest management in Mongolia. The tentative funding is US$ 43 million, with US$ 25 million from the GCF and US$ 18 million from other sources. It is not clear how much of this total will be grant/loan based. UN Environment / GIZ are at the start of developing a GCF proposal to restore 150,000 ha of degraded birch forest in Selenge / Bulgan aimages for forest user groups and forest concessionaires. The main benefits of the proposed project are: forest landscape restoration through forest cleaning, thinning and reforestation, income generation through use and processing of wood materials (fuelwood and charcoal) and carbon stock enhancement. GCF funding is competitive and significant resources and time are required to meet the rigorous proposal requirements.

Climate Change adaptation is a priority in Mongolia and forestry, along with water and agriculture have been identified as the most vulnerable sectors**.** The **Adaptation Fund** may therefore be a potential source of funding for SFM projects that help communities adapt to climate change through creatiZg resilience and alternative livelihoods[64].

[63] The Green Climate Fund (GCF) is a global fund mobilized in 2014 to help developing countries limit or reduce their greenhouse gas (GHG) emissions *and* adapt to climate change. It is a financial mechanism under the United Nations Framework Convention on Climate Change (UNFCCC). The Fund engages directly with both the public and private sectors and has the capacity to bear significant climate-related risk, allowing it to leverage additional financing. It offers a wide range of financial products including grants, concessional loans, subordinated debt, equity, and guarantees.

[64] The Adaptation Fund was established under the Kyoto Protocol of the UN Framework Convention on Climate Change, and has committed US$ 462 million in 73 countries since 2010 to climate adaptation and resilience activities. The Adaptation Fund finances projects and programs that help vulnerable communities in developing countries adapt to climate change.

There may be scope for accessing finance for SFM through the **Land Degradation Neutrality (LDN) Fund,** which was launched in September 2017 at the 13th Conference of the Parties (COP13) to the United Nations Convention to Combat Desertification (UNCCD). With an initial target size of US$ 300 million**,** the LDN Fund will leverage public money to raise private capital for sustainable land management and landscape restoration activities worldwide that contribute to the achievement of land degradation neutrality, one of the global targets under Sustainable Development Goal 15 'Life on Land'. A separate Technical Assistance Facility (TAF) is being set up to support project operators in the development of quality projects for consideration by the Fund. Land degradation is the most serious environmental problem in Mongolia (UNDP, 2015), accelerating desertification and affecting the integrity of ecosystems (including forests) and biodiversity. A recent study indicates that over 70% of the country's land cover is degraded to a certain extent, and 75% of Mongolia's pasturelands now suffer from degradation. Decreasing carrying capacity and productivity of land resources directly impacts the nation's productivity and efforts for equitable and sustainable development. Causes of land degradation are both natural (e.g. extreme weather and thin top soils) and human-induced (overgrazing, and increasingly mining), and are being exacerbated by climate change. A number of initiatives have the potential to address land degradation while supporting SFM, for example addressing land degradation in the buffer zones of Saxual forest in the south Mongolia, will decrease land and forest degradation, while protecting this key ecosystem.

Further funding for SFM may also be available through the Global Environment Facility (GEF).

Recommendations for financing REDD+ implementation & SFM in Mongolia

This section concludes and presents a strategic approach to developing sustainable forest financing in Mongolia drawing on the analysis of forest financial flows in Section 2 and the review of potential forest financing mechanisms presented in Section 3.

The Fund is financed in part by Government and private donors, and also from a two percent share of proceeds of Certified Emission Reductions.

Conclusions

SFM aligns with a number of Mongolia's policy priorities. There are opportunities for including forestry as part of the short term strategy to address air pollution; this could be encouraged through financing and incentives for using wood to replace coal. Forest finance can also be targeted at enabling adaptation to climate change, especially in rural areas through alternative job creation and building climate resilience.

However, three key inter-related barriers to SFM are evident – there is insufficient funding for SFM, low incentives are in place for FUGs and there are a range of barriers hindering business development by private enterprises. Potential finance and non-financial solutions to address these barriers are identified in Figure 29.

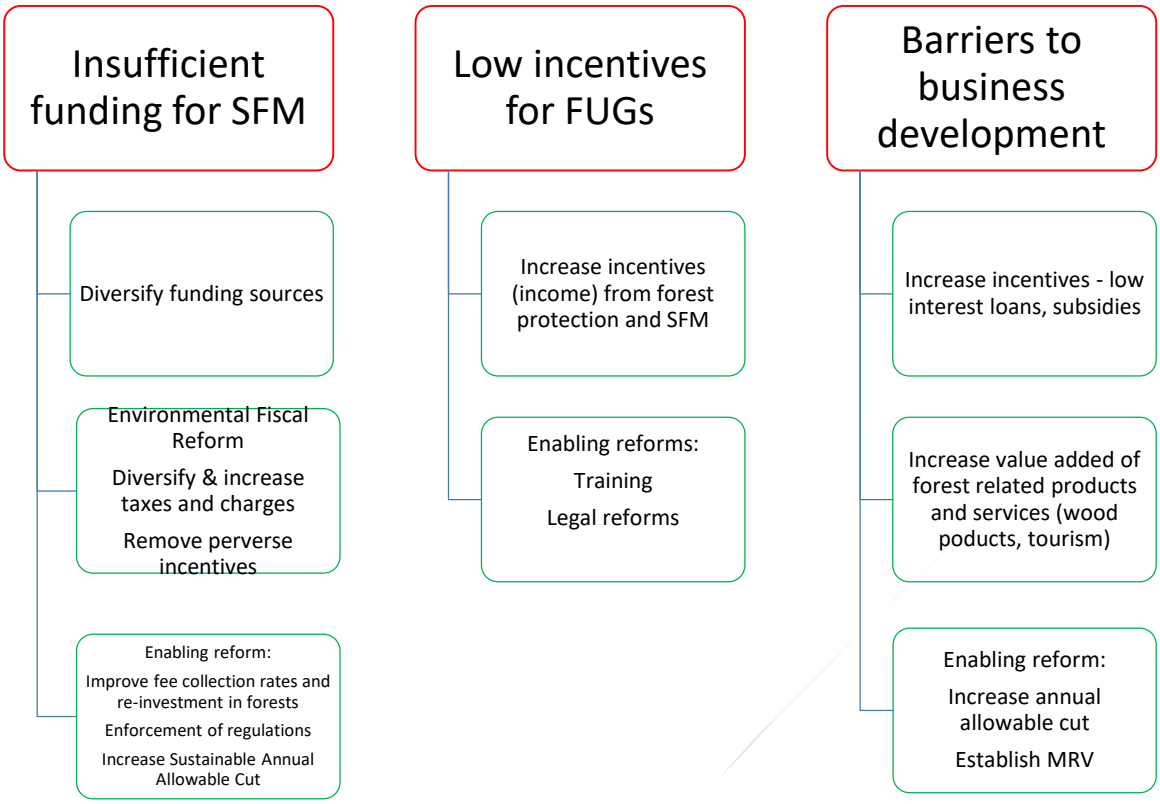
To increase and build the sustainability of forest financing a more diversified funding base is required that relies less on Government funding and draws more on private sector finance. While green credit is a rapidly developing area in Mongolia, the forest sector is currently viewed as too risky by commercial banks. Better management, monitoring and reporting are pre-requisites for securing private sector finance. The UN-REDD national programme should support this through the establishment of a national forest monitoring system, which should be used to link forest performance with finance, and national forest reference level, which can provide context for more site specific studies to secure loans.

In terms of Government finance, given the current fiscal constraints facing the Government, initial actions to enhance forest finance should be placed on improving the implementation of existing mechanisms such forest use fees. In 2017 total Government funding for SFM was around MNT 12,808 million, compared to forest related revenues of MNT 51,289 million suggesting increased Government funding for SFM is possible through better earmarking of forest generated revenues. There is also scope for EFR, namely diversifying and increasing forest related charges (including protected area fees) and removing perverse incentives (such tax exemptions on imported logs) that constrain the domestic timber industry.

FUGs need financial and professional support to better plan and implement their activities. Enhanced economic incentives (payments) for forest protection (forest fire detection and fighting, monitoring illegal logging and potentially pest management) are required along with the creation of new jobs in forest sanitation cuttings through low interest rate loan system for SMEs and FUGs who are trained, and for the local processing of wood and NTFPs.

There is a need to remove the barriers for business development for PFE, wood processing companies and FUGs who wish to become more actively involved in forestry. A more efficient forestry sector will increase revenue for the Government. A range of financial and non-financial mechanisms can help support the forestry sector become self financing, including: increasing the AAC; removing tax exemptions on imported wood; incentives (e.g. subsidies, low interest loans, tax exemptions); certification of wood products; green procurement initiatives; investments in infrastructure; support for skills development, encouraging FDI that promotes quality investment; and, promoting PPP.

Figure 29. Key barriers to SFM and potential finance solutions and enabling reforms



A strategic and coordinated approach to SFM financing is needed that incorporates the following features:

- Diversified financing base, which blends financial sources and takes into account coherence between funding mechanisms.
- Strong private sector engagement to enhance financial flows into SFM.
- Increased budget allocations at aimag/soum level to increase (re)investment in SFM.
- Strong forest planning and management at central, aimag and soum level potentially supported through increased budget tracking / coding.
- Emphasis on co-benefits and value added of SFM.

SFM financing action plan

A step-wise strategic financing approach is outlined below.

Phase one

In the short term efforts should be placed on mechanisms that have the highest chance of success. It makes sense to start with improving the implementation of mechanisms that are already in place and supported by laws (notable Natural Resource Fees) rather than introducing new more complex mechanisms such as PES schemes.

It is also important in the short term to build the foundation for the successful development of a self financing forestry sector through policy and fiscal reforms, and to undertake the necessary research and stakeholder awareness raising to better understand the suitability of mechanisms that may have application in the medium to long term.

In the detailed design phase for selected financing mechanisms, detailed studies on implementation costs and returns associated with key mechanism should be determined.

Table 9 summarizes the Phase 1 of the SFM financing action plan.

Key areas of focus:

Optimize budget allocation. While public sector funding for forestry is unlikely to increase in the near term, it may be possible to increase the effectiveness of budget spending through the reallocation of the budget (e.g. less spending on pest management and more on fire prevention, which has been identified as the key driver of deforestation) and by improving the cost effectiveness of activities funded (e.g. looking at more cost-effective approaches for pest control, potentially through the employment of FUGs in selected areas). While an increase in cost norms to reflect the actual costs of forest management activities can put more pressure on limited budgets, it is required for better planning, which underpins the budget process. One option to support budget allocations would be to improve budgetary coding and tracking to enable tracking and management of forest related finance at the national and sub-national levels[65]. Budget tagging is closely related to performance based budgeting, which aims to improve: (i) budget allocation (budget priorities) and efficiency in the use of funds by clarifying the linkages between budget allocations and results; (ii) public sector performance and management processes; and, (iii) accountability of the public sector. Results / performance based budgeting could be supported through the National Forest Monitoring System.

Strengthen existing fiscal and penalty mechanisms. Existing mechanisms should be fully implemented before new mechanism are introduced given the associated administrative burden and uncertainty associated with new approaches. A number of avenues for increasing revenue for SFM by strengthening existing mechanisms are evident and include: enhanced collection of natural resource fees and ensuring the legally required amount is reinvested back into the forest; full utilization of the ECF budget; reinvestment of proportion of pine nut export license fees into SFM; and, the development of tourism fees. Increasing the penalties for causing forest fires may also be considered.

Support the development a self financing forestry sector. The development of the forestry sector is contingent on a shift in Government policy in favor of greater sustainable utilization. Increased forest utilization needs to be undertaken in a coordinated fashion and targeted at forest areas where it can help people through job creation, especially in rural areas. This needs to be supported by an in-depth study of the economic viability of the forestry sector value chain development (wood and non-wood forest products (e.g. pine nuts and blueberries)). There are a range of incentives that could be introduced to support the forestry sector including preferential Government loans, subsidies and removal of the Custom and Exercise and VAT exemptions on imported logs.

Support proposed BIOFIN mechanisms – Pasture tax and Mongolian ETF. Pasture and forest management need to adopt an integrated approach. Livestock grazing can result in forest degradation and is a barrier to forest regeneration and reforestation. A pasture tax could help finance pasture management and reduce the number of animals – hence reducing pressure on the forest resource. Fencing off forest areas at risk and reaching

[65] Budget tagging tools can generate more comprehensive data on investments, enabling better alignment of budgets with national policy priorities and national targets, identification of financing gaps and better monitoring and reporting on domestic expenditure. Such budget processes are being adopted in Asia (e.g. Indonesia), especially to track climate related expenditures, often building on Climate Expenditure.

agreements with herders on management of grazing and plantations, would also support the forest.

If a Mongolian Environmental Trust Fund is approved this could be a mechanism for supporting SFM, perhaps through a dedicated sub-window or agreement that a percentage of the funds would be allocated to forest, which is the main repository of Mongolia's biodiversity assets. REDD+ forest activities backed by the NFMS, safeguards and UNFCCC could encourage uptake of forest investments within a METF. Given the number of existing funds and the proposed METF under review, a separate Forest Fund is not currently seen as feasible, but this could be reviewed if the METF is not progressed and there was political support for such a fund.

Explore donor funding. The GCF is already supporting green development in Mongolia, and a proposal with links to SFM is under development. While there is a lot of interest in seeking GCF funding in Mongolia, given the competitive nature of the GCF process, it is necessary to also explore the potential for funding through other international funds such as the Adaptation Fund and the recently capitalized LDN Fund. There may also be scope to attract loan financing from the Multilateral Development Banks, such as the ADB who have on-going technical assistance projects in Mongolia related to forestry.

Develop mechanism that could become feasible in the medium term. There are a number of mechanisms that while not feasible to implement immediately may be applicable in the future, following further study and awareness raising. These include:

- Exploring mechanisms to promote the integration of forests into the spending of other sectors (e.g. budgetary transfers from sectors benefitting from forest ecosystems services to the forest management, a type of PES payment). This requires better understanding among ministries about how forests contribute to a range of sector outputs and how these forest services can be best financed by beneficiaries. This could be supported by ecosystem services studies (bio-physical and economic) which link the forest ecosystem services to key sectors.
- Scope out REDD+ payments. While the potential for performance based payments are considered to be limited in Mongolia, some opportunities may be considered such as payments for fire protection.
- If the Government were to commit to developing a PES scheme in The Upper Tuul watershed further studies and stakeholder consultations would be required such as scientific studies of ecosystem services provision, studies on the appropriate payment mechanism and rate, identification of and agreements between buyers and sellers and assurance around tenure and governance. The study should also consider the compatibility of any proposed PES with existing natural resource fees.
- Green Bonds, impact Investment and private sector loans. Such mechanisms are already proposed and /or being supported by the Government.
- Risk insurance mechanisms for forest investments. Given the risky nature of forestry in Mongolia, more study is needed on the range of risk insurance mechanisms that may be suitable and serve to unlock private sector finance.

Capacity building, studies and pilot testing to develop forest sector financing. Awareness raising and capacity building across Government Ministries on the links between forest Ecosystem Services and the national economy, key sectors and livelihoods is needed to build the political will for forest management. This is especially important given the frequent change in Government and hence staff turn over.

A range of **economic studies** are needed to build the case for SFM and inform the REDD+ policies and measures. These include:

i. Economic analysis of the current and potential value of sustainable timber industry (harvesting and processing) and its contribution to local livelihoods and employment.
ii. Economic studies of forest ecosystem services, building on UN-REDD 2013a, which undertook a partial valuation of forest ecosystem services. The main area where further research is needed is in the valuation of regulating services – water services, permafrost protection, soil erosion prevention and carbon sequestration. This needs to be preceded by bio-physical studies specifying and quantifying the relationship between forest quality and quantity and the regulating service provision. The analysis should also specify how the benefits provided by forest ecosystem services are distributed – what sectors are supported by the forest and how do forests support livelihoods. Valuation studies of forest ecosystem services can also inform a range of financing mechanisms such as taxes and PES schemes, which can support and incentivized SFM.
iii. A systematic review of the value of the forest to local communities – demonstrating the dependence of the poor / rural areas of forest ecosystem services (including NTFPs and ecotourism)

iv. Cost Benefit Analysis (CBA) of REDD+ PAMs to identify economically efficient options and to articulate the funding gap for SFM. This can be combined with detailed assessments of the additional revenues that could be generated by financing mechanisms (covering both new and revised mechanisms) agreed with the Government as key potential sources of additional funding.

v. CBA of forestry management plans to identify economically viable plans.

A **Forest product value chain study** to identify key opportunities and gain support from policy makers. UN-REDD Mongolia started a rapid assessment of wood product value chains in early 2018. It is also worth exploring the potential for Non Timber Forest Products (NTFP).

Phase 2

The precise activities to be undertaken in Phase 2 will depend on the outcomes of Phase 1, but are likely to include:

- Further EFR – for example increasing natural resource fees (once collection rates have been improved), broadening the range of services for which fees are charged and developing spatially sensitive revenue collection system (assuming there is political support for this).
- Further supporting and developing a self financing forestry sector. It is hoped that the forest sector can work towards securing loans from the Green Credit Fund and associated Government Initiatives, for harvesting / processing activities.
- Implementing new financing mechanism based on feasibility studies in Phase 1

Table 9. Phase 1 Action Plan for Financing REDD+ Implementation / SFM in Mongolia

Objective	Financial mechanisms	Supporting policies and measures
Optimize budget allocation	- Redistribution of budget	- More effective Mid Term planning to support budget allocations - Cost effectiveness analysis of forest (protection) measures - Budget coding and tracking
	- Increase in cost norms	-
Strengthen existing fiscal and penalty mechanisms	- Enhance collection and re-investment of Natural Resource Use Fees	- Capacity building at Aimag / Soum level - Possible revision of budget Law (as proposed by BIOFIN) - Possible restructuring of the ECF
	- Full utilization of ECF	- Enhanced budget planning Revision of Law on Special - Government Funds and Law on Budget
	- Develop tourism fees in PAs & ensure their re-investment back into PAs - Expand management by NGOs and private companies	- Monitoring and Enforcement - Amendment of PA Law
	- Increase penalties for causing forest fire	- Monitoring and Enforcement
Encourage Development of Self Financing Forestry Sector	- Subsidies and preferential loans for PFEs, FUG and processing sector	- Policy change in support of forest utilization - Policy coherence and enabling legal environment - In-depth market analysis to identify viable opportunities - Strengthened forest units to enable them to control activities - Enhance financial management of FUGs - Develop MRV
	- Removal of tax exemption on imported logs	
Support proposed BIOFIN mechanisms	- Pasture Tax	
	- Mongolian ETF	
Explore Donor Funding	- Scope out and develop proposals to GCF, Adaptation Fund, and Land Degradation Neutrality Fund to attract finance for SFM focused on adaptation benefits - Explore MDB Loan Finance options	
Feasibility studies for mechanisms with potential in the medium term	- Explore mechanisms to promote cross sectoral mainstreaming - integration of forests into the spending of other sectors - Scope REDD+ payments - Explore PES – Upper Tuul Watershed - Explore Green Bonds & impact investment - Explore Risk insurance	- Economic studies to set appropriate fees and charges and determine benefits - Enhanced scientific understanding of ES - Increase awareness of ES - Introduce law on PES if schemes prove viable
Research, capacity building and pilot testing to develop forestry sector	- Capacity building on Ecosystem Services - Economic studies – forest industry, ecosystem services valuation, cost benefit analysis of PAMs, value chain analysis	

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Annexes

Annex 1: List of stakeholders consulted

Name	Position
Beate Trankmann	United Nations Resident Coordinator
Daniela Gasparikova	Deputy Resident Representative, United Nations Development Programme
Bernhard Mohns	Team Leader. Sustainable Forest Management to Improve Livelihood of Local Communities. TA 8874-MON Asian Development Bank
Tsogtbaatar. J.	Deputy Team Leader. Sustainable Forest Management to Improve Livelihood of Local Communities. TA 8874-MON Asian in Development Bank
Khurelbaatar Ganbaatar	Director, Environment & Climate Fund, Ministry of Environment and Tourism
Dr Batjargal Zamba	National Focal Point UNFCCC, IPCC, GCF, Ministry of Environment and Tourism
Zorigtbat Tseveenjav	Director, Financial Asset Management Division, Department of Financial Policy, Ministry of Finance
Anand Batsukh	Senior Project Development Officer, Eco Banking Department, XacBank
Banzragch. Ts.	UNREDD consultant and GIZ project consultant for forestry
Batjargal Khandjav	Director General, Department of Public Administration and Management, MET
Gerelt-Od Tsogtbaatar	Officer of, Division of International Cooperation, Department of Public Administration and Management, MET
Tumurkhuu Davaakhuu	Vice President of Mongolian Bankers Association Chief Support Officer, Agri Bank Chirman, SPIRIT Mongolia
Ganzorig. B	Officer in charge of pest control at Forest Research and Development Center
Bunchingiv, B	UNDP, CC Program Analyst
Dr. N. Erdenesaikhan	Chairman, Environment and Security Centre of Mongolia NGO
Enkhbayer Dongdog	Officer, Department for Coordination of Light Industry Policy Implementation. Ministry of Food, Agriculture and Light Industry
Dan Altrell	Senior Advisor, Forest Monitoring and Assessment. Biodiversity and Adaptation of Key Forest Ecosystem to Climate Change II. GIZ
Romain Brillie	Country Representative, Global Green Growth Institute
Onon Yondon	Technical Advisor. Land Degradation Offset and Mitigation in Western Mongolia. MON/16/301 project
Andrew S. Inglis	Chief Technical Advisor. Mainstreaming biodiversity conservation, sustainable forest management and carbon sink enhancement into Mongolia's productive forest landscape. GCP/MON/008/GEF
Solongo Tsevegmid	National Project Coordinator. Mainstreaming biodiversity conservation, sustainable forest management and carbon sink enhancement into Mongolia's productive forest landscape. GCP/MON/008/GEF
Jon Lyons	Vice President, Regulatory Affairs & Strategy Erdene Resource Development Corp., former country representative of the GGGI in Mongolia

Dendev Baasanbyamba	Head. Association of Mongolian Foresters and Wood Production Entrepreneurs
Ariunbat. Ts	General Director. Megawood LLC for wood processing
Chimed-Ochir Bazarsad	Lead Public Finance Initiative Expert. The Biodiversity Finance Initiative Project (BIOFIN)
Javkhlan Ariunbaatar	National Project Coordinator. BIOFIN
Oyuntulkhuur B.	National Project Coordinator. Mongolia's Network of managed resource Protected Areas. MON/13/303
Chuluunbaatar. Ts, Enkhtaiwan. N, Ganbat. R, Dorj. I, and Byambasuren. Ts.	Officers at Department of Forest Policy and Coordination, MET
Oyunbileg. Ts	Officer in charge of pine nuts, Department of Environment and Natural Resources Management, MET
Tsogtbaatar. B (phone interview)	lieutenant colonel, of Division of Investigation of Environmental Crimes, National Police Agency of Mongolia

Annex 2: Overview of Financing Mechanisms – Summary Table

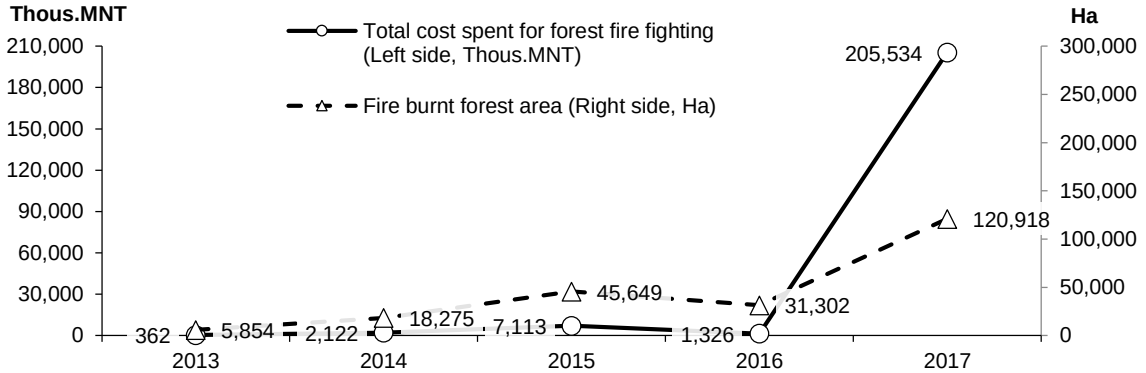
Annex 2, Table 1. MET budget expenditure for forestry and forest conservation (Thous.MNT)

№	Category of budgets	Activities	2013	2014	2015	2016	2017
1	**Reforestation and Rehabilitation**	1.1. Reforestation	1,449,710	1,199,624	902,959	805,040	662,598
		1.2. Establish forest strips	132,643	258,110	337,050	244,044	265,044
		1.3 Supporting forest natural regrowth	44,850	85,615	84,320	86,620	259,848
		1.4 Purchase of planted forest, and its maintenance	0	15,000	40,000	15,000	37,214
		Total	**1,627,203**	**1,558,349**	**1,364,329**	**1,150,704**	**1,224,704**
2	**Forest seed breeding**	2.1 Forest seed breeding and Preparation	74,200	55,800	87,200	54,400	82,500
		2.2 Permanently separated seed area	81,000	38,125	34,750	0	11,900
		Total	**155,200**	**93,925**	**121,950**	**54,400**	**94,400**
3	**Regrowth/nursery and seedling/sapling**	3.1 Seedling/sapling	821,591	346,500	166,350	120,000	160,000
		3.2 Tree nursery	0	100,000	70,000	80,000	0
		Total	**821,591**	**446,500**	**236,350**	**200,000**	**160,000**
4	**Forest treatment (thinning) and cleaning**	4.1. Treatment (thinning)	18,675	7,821	32,448	59,400	11,400
		4.2 Cleaning (clearing)	271,070	115,779	401,355	402,400	522,400
		Total	**289,745**	**123,600**	**433,803**	**461,800**	**533,800**
5	**Forest pest and disease control**	5.1 Research and monitoring	29,000	147,500	134,250	205,250	416,250
		5.2 Pest and disease control	1,953,725	2,239,594	3,143,625	319,600	6,144,000
		Total	**1,982,725**	**2,387,094**	**3,277,875**	**524,850**	**6,560,250**
6	**Forest fire monitoring, precaution, and fighting**		458,600	295,384	221,884	167,384	122,884
7	**Forest inventory management**		509,475	0	302,500	220,000	120,000
8	**Supports to the forest user groups, forest units, forest enterprises, and development of forest management plans**		92,000	110,000	80,000	73,000	344,500
9	**Trainings, advocacy (demonstration), research and monitoring**		200	152,150	9,100	155,180	317,180
10	**Combating with illegal logging**		56,605	38,914	83,411	814	814
11	**Equipment**		124,424	18,595	62,707	95,050	105,050
12	**Other**		8,700	10,600	7,500	1,000	1,000
Total			**6,126,467**	**5,235,111**	**6,201,409**	**3,104,182**	**9,584,582**

Source: MET (2013-2017) and PAAD and DLMIWRPR (2017)

Note: Three cost items, including 4.1, 4.1 and 10, were costed together as MNT 343,136.87 thousand in 2013, and MNT 508,000 thousand in 2015 for budget of DFPC of MET budget. To disaggregate the three items, average proportions of each item of 2016-2017 were used, assumed. The same approach was used to disaggregate 4.1 and 4.2 cost items for 2014.

Annex 2, Figure 1. NEMA budget expenditure for forest fire fighting and burnt forest area



Source: Authors calculation based on NEMA (2017) Unpublished raw data

Annex 2, Table 2. Chinggis Bond Loans for wood procssing sector in Mongolia from MOFALI (Million MNT, %)*

№	Project owner	Type of activities	Location (Aimags and capital city)													Total
			Bayan-Ulgii	Bayan-khongor	Bulgan	Zavkhan	Uvur-khangai	Umnu-gobi	Selenge	Tuv	Uvs	Ulaanbaatar	Khovd	Khuvsgul	Khentii	
1	**Enterprises**	Construction materials										4,500 (15.57)				4,500 (15.57)
2		Wooden ***Ger*** materials	30 (0.1)									425 (1.47)				455 (1.57)
3		Laminate floor					2					1,500 (5.19)				1,500 (5.19)
4		Wood processing										110 (0.38)				110 (0.38)
5		Woodworking										190 (0.66)				190 (0.66)
6		Making Horsehead Fiddle										350 (1.21)				350 (1.21)
7		Furniture	70 (0.24)					60 (0.2)				3,280 (11.35)				3,410 (11.79)
8		Doors and windows												40 (0.14)		40 (0.14)
9		Boards and plates										16,781.4 (58.08)				16,781.4 (58.08)
10		Paper										880 (3.05)				880 (3.05)
11		Wood pellets			50 (0.17)					30 (0.1)					20 (0.07)	100 (0.34)
12		**Total (A)**	**100 (0.34)**		**50 (0.17)**			**60 (0.2)**		**30 (0.1)**		**2,8016.4 (96.96)**		**40 (0.14)**	**20 (0.07)**	**28,316.4 (97.98)**
13	**Individuals**	Wood processing			20 (0.07)	15 (0.05)						69.3 (0.24)				104.3 (0.36)
14		Woodworking		40 (0.14)		15 (0.05)						58 (0.19)				113 (0.38)
15		Wood carving				10 (0.03)										10 (0.03)
16		Furniture					27 (0.09)		80 (0.28)		40 (0.14)	185 (0.64)	20 (0.07)			352 (1.22)
17		**Total (B)**		**40 (0.14)**	**20 (0.07)**	**40 (0.13)**	**27 (0.09)**		**80 (0.28)**		**40 (0.14)**	**312.3 (1.07)**	**20 (0.07)**			**579.3 (1.99)**
TOTAL (A+B)			**100 (0.34)**	**40 (0.14)**	**70 (0.24)**	**40 (0.13)**	**27 (0.09)**	**60 (0.2)**	**80 (0.28)**	**30 (0.1)**	**40 (0.14)**	**28,328.7 (98.03)**	**20 (0.07)**	**40 (0.14)**	**20 (0.07)**	**28,895.7 (100.0)**

Source: Authors' calculations based on data provided by D.Enkhbayar (2017)

*Numbers in brackets are the percentage share of the total loan amount of MNT 28,895.7 million.

Annex 2, Table 3. Local budget expenditure for forestry and forest conservation, by region (Thous.MNT)

№	Aimag/ Capital city	Types of forest activities	2013	2014	2015	2016	2017
1	**Arkhangai**	Reforestation and Rehabilitation	41,700	11,500	69,500	43,492	96,500
		Forest treatment (thinning) and cleaning	7,200	3,120	0	9,600	19,600
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	65,981	87,000
		Forest seed breeding	4,000	40,000	2,000	3,000	4,000
		Trainings and advocacy (demonstration)	4,500	5,000	5,000	4,500	6,500
		Equipment	0	0	0	10,000	16,000
		Other	0	0	0	0	0
		Total	**57,400**	**59,620**	**76,500**	**136,573**	**229,600**
2	**Bayan-Ulgii**	Reforestation and Rehabilitation	122,000	185,900	67,000	28,000	52,900
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	0	0
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	0	0	0	0	0
		Equipment	5,779	1,670	796	4,793	0
		Other	0	0	0	0	0
		Total	**127,779**	**187,570**	**67,796**	**32,793**	**52,900**
3	**Bayan-khongor**	Reforestation and Rehabilitation	30,000	10,000	2,000	30,000	62,500
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	0	0
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	916	870	720	500	1,200
		Equipment	0	0	0	0	0
		Other	0	0	0	0	0
		Total	**30,916**	**10,870**	**2,720**	**30,500**	**63,700**
4	**Bulgan**	Reforestation and Rehabilitation	127,293	142,500	134,250	227,400	194,869
		Forest treatment (thinning) and cleaning	38,719	9,156	7,200	16,000	0
		Forest pest & disease control research	0	7,000	10,000	10,000	10,000
		Forest pest & disease control	219,045	128,663	321,200	454,000	149,800
		Forest seed breeding	10,400	9,000	3,000	0	0
		Trainings and advocacy (demonstration)	3,000	20,500	3,000	0	3,000
		Equipment	0	3,999	0	0	0
		Other	0	0	0	0	0
		Total	**398,456**	**320,818**	**478,650**	**707,400**	**357,669**
5	**Gobi-Altai**	Reforestation and Rehabilitation	0	6,000	10,000	6,000	6,000
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	6,000	0	0	0
		Forest seed breeding	150	0	0	500	150
		Trainings and advocacy (demonstration)	0	0	0	0	0
		Equipment	0	0	0	0	0
		Other	0	0	0	0	0
		Total	**150**	**12,000**	**10,000**	**6,500**	**6,150**
6	**Gobisumber**	Reforestation and Rehabilitation	0	22,000	5,600	6,000	8,000
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	0	0
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	0	0	0	0	0
		Equipment	48,000	0	15,000	15,000	95,000
		Other	0	45,000	68,000	72,794	0
		Total	**48,000**	**67,000**	**88,600**	**93,794**	**103,000**
7	**Darkhan -**	Reforestation and Rehabilitation	105,011	68,400	54,750	13,900	54,900

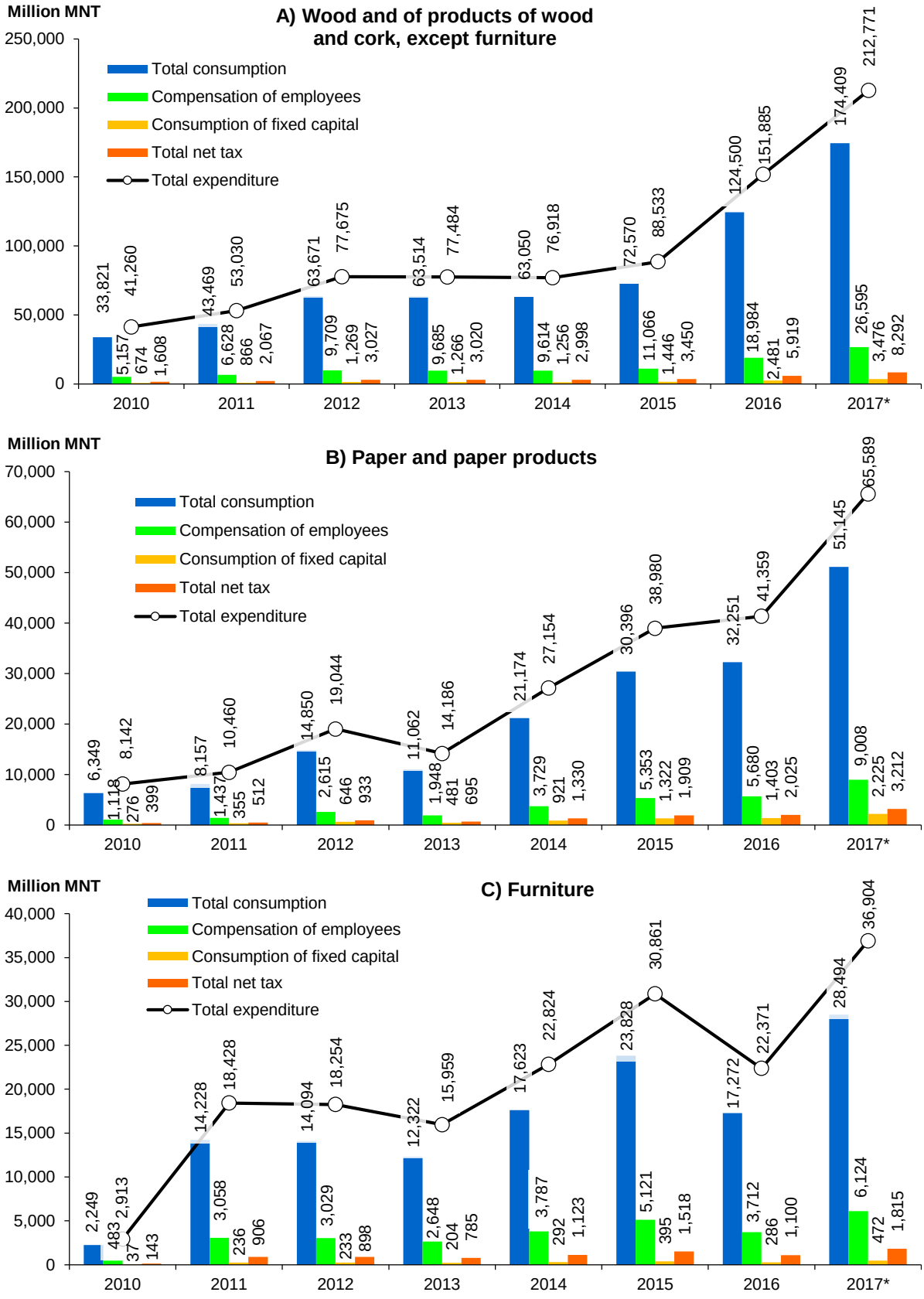
	Uul	Forest treatment (thinning) and cleaning	787	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	0	16,000
		Forest seed breeding	0	0	0	0	1,495
		Trainings and advocacy (demonstration)	1,301	350	0	490	4,300
		Equipment	0	0	0	19,054	700
		Other	5,304	5,304	5,000	6,722	5,000
		Total	**112,404**	**74,054**	**59,750**	**40,166**	**82,395**
8	**Dornogobi**	Reforestation and Rehabilitation	135	30	116	31	13
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	0	0
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	0	0	0	0	4
		Equipment	0	0	0	0	5
		Other	0	0	0	0	0
		Total	**135**	**30**	**116**	**31**	**22**
9	**Dornod**	Reforestation and Rehabilitation	40,000	173,700	139,000	129,000	61,600
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	500	450	500	1,000	0
		Forest pest & disease control	0	19,950	0	0	0
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	3,000	3,000	2,500	0	0
		Equipment	2,500	50,000	2,000	5,000	5,000
		Other	1,000	1,500	1,500	1,500	1,500
		Total	**47,000**	**248,600**	**145,500**	**136,500**	**68,100**
10	**Dundgobi**	Reforestation and Rehabilitation	40,000	40,000	20,000	20,000	20,000
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	0	0
		Forest seed breeding	220	240	260	265	280
		Trainings and advocacy (demonstration)	0	2,700	5,600	6,800	0
		Equipment	0	0	0	0	0
		Other	0	0	0	0	0
		Total	**40,220**	**42,940**	**25,860**	**27,065**	**20,280**
11	**Zavkhan**	Reforestation and Rehabilitation	278,000	90,350	59,770	20,850	82,550
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	0	10,300
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	0	0	4,000	0	4,000
		Equipment	0	7,344	0	0	0
		Other	6,000	6,000	5,000	4,000	8,000
		Total	**284,000**	**103,694**	**68,770**	**24,850**	**104,850**
12	**Orkhon**	Reforestation and Rehabilitation	7,200	7,600	13,900	6,950	9,730
		Forest treatment (thinning) and cleaning	0	0	1,440	3,785	0
		Forest pest & disease control research	0	100	0	2,600	1,500
		Forest pest & disease control	0	3,000	3,560	1,850	7,500
		Forest seed breeding	0	3,000	0	150	0
		Trainings and advocacy (demonstration)	0	100	1,000	0	1,000
		Equipment	25,000	1,050	0	0	0
		Other	0	34,332	0	0	0
		Total	**32,200**	**49,182**	**19,900**	**15,335**	**19,730**
13	**Uvurkhangai**	Reforestation and Rehabilitation	19,650	43,325	16,950	36,950	39,650
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	18,000	34,100	0
		Forest seed breeding	0	0	0	0	0

		Trainings and advocacy (demonstration)	0	1,250	8,900	0	1,200
		Equipment	0	2,700	2,600	1,800	0
		Other	3,500	2,100	0	0	800
		Total	**23,150**	**49,375**	**46,450**	**72,850**	**41,650**
14	**Umnugobi**	Reforestation and Rehabilitation	8,536	219,500	514,000	13,856	123,208
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	0	0
		Forest seed breeding	0	0	0	0	1,950
		Trainings and advocacy (demonstration)	0	0	0	0	2,700
		Equipment	0	0	35,500	47,700	0
		Other	0	0	0	0	0
		Total	**8,536**	**219,500**	**549,500**	**61,556**	**127,858**
15	**Sukhbaatar**	Reforestation and Rehabilitation	92,000	160,500	101,000	50,000	72,900
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	0	0
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	0	0	0	0	0
		Equipment	0	45,000	35,000	35,000	0
		Other	0	0	0	0	0
		Total	**92,000**	**205,500**	**136,000**	**85,000**	**72,900**
16	**Selenge**	Reforestation and Rehabilitation	159,900	347,500	122,900	32,800	139,000
		Forest treatment (thinning) and cleaning	2,600	5,300	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	88,000	44,000	11,000	60,000
		Forest seed breeding	2,500	5,000	0	6,000	0
		Trainings and advocacy (demonstration)	0	14,000	0	6,000	8,000
		Equipment	160,000	10,000	0	6,200	10,000
		Other	0	0	0	0	0
		Total	**325,000**	**469,800**	**166,900**	**62,000**	**217,000**
17	**Tuv**	Reforestation and Rehabilitation	40,000	40,000	68,805	19,460	20,850
		Forest treatment (thinning) and cleaning	0	4,000	0	0	0
		Forest pest & disease control research	8,900	6,300	0	0	0
		Forest pest & disease control	91,500	0	79	0	1,686
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	4,970	5,329	4,845	4,845	4,845
		Equipment	0	0	0	0	0
		Other	0	0	0	0	89,000
		Total	**145,370**	**55,629**	**73,729**	**24,305**	**116,381**
18	**Uvs**	Reforestation and Rehabilitation	203,000	41,177	14,000	81,118	19,261
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	2,492	0	0	0	0
		Forest seed breeding	0	0	36,000	0	0
		Trainings and advocacy (demonstration)	0	0	800	568	0
		Equipment	0	0	0	0	0
		Other	0	0	693	1,951	0
		Total	**205,492**	**41,177**	**51,493**	**83,637**	**19,261**
19	**Khovd**	Reforestation and Rehabilitation	66,000	4,950	15,530	2,200	0
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	0	0
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	0	0	0	0	0
		Equipment	0	0	0	0	0
		Other	0	0	0	0	0
		Total	**66,000**	**4,950**	**15,530**	**2,200**	**0**

20	**Khuvsgul**	Reforestation and Rehabilitation	76,000	9,963	14,595	69,500	69,500
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	3,978	0	0	0
		Forest pest & disease control	65,000	4,000	154,462	128,231	153,014
		Forest seed breeding	0	0	0	8,000	14,000
		Trainings and advocacy (demonstration)	0	0	11,000	6,000	8,000
		Equipment	0	12,200	45,246	128,975	106,816
		Other	0	0	0	0	0
		Total	**141,000**	**30,141**	**225,303**	**340,706**	**351,330**
21	**Khentii**	Reforestation and Rehabilitation	67,600	41,600	6,950	13,900	6,950
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	0	0	0	0	0
		Forest pest & disease control	0	0	0	8,900	3,500
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	0	0	6,600	3,000	3,000
		Equipment	0	0	0	0	35,000
		Other	92,500	123,000	76,128	111,385	169,000
		Total	**160,100**	**164,600**	**89,678**	**137,185**	**217,450**
22	**Ulaanbaatar**	Reforestation and Rehabilitation	349,302	517,160	579,850	589,500	681,815
		Forest treatment (thinning) and cleaning	0	0	0	0	0
		Forest pest & disease control research	6,000	4,800	4,800	4,900	5,000
		Forest pest & disease control	82,000	69,200	99,600	48,000	24,000
		Forest seed breeding	0	0	0	0	0
		Trainings and advocacy (demonstration)	0	0	0	0	0
		Equipment	0	0	0	0	34,916
		Other	0	0	0	0	0
		Total	**437,302**	**591,160**	**684,250**	**642,400**	**745,731**
TOTAL			**2,782,611**	**3,008,211**	**3,082,994**	**2,763,346**	**3,017,958**

Source: Based on unpublished raw data collected from Departments of Environment and Tourism of Aimags and Capital City using FI-7 template (2017)

Annex 2, Figure 2. Total expenditure of private sector of wood processing and production in Mongolia (Million MNT)



Source: Based on NSO data (2008-2017); data of 2007-2009 is not shown in this graph.

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*Data for 2017 is based on the average growth rate of the three types of wood products in 2010-2016.

UN-REDD PROGRAMME

Food and Agriculture Organization of the United Nations

UNDP

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The UN-REDD Programme / Mongolia
Address: Government Building II, United Nations Street 5/2, Chingeltei District, Ulaanbaatar 15160, Mongolia
Tel: +976-7711-7750
Email: info@unredd.mn
Web site: www.reddplus.mn