MINISTRY OF ENVIRONMENT AND TOURISM

REDD+ MONGOLIA
Building resilience, livelihoods and economy

REDD+ AND THE WOOD-PROCESSING INDUSTRIES

Boreal forests make up 29 % of the world's total forest area, and 32% of global land-based carbon stocks. Compared with tropical forests, boreal forests store twice as much carbon per hectare – much of it in the soil. Hence, they play a significant role in climate change mitigation. Their destruction and degradation, on the other hand, can lead to considerable greenhouse gas (GHG) emissions. Without management interventions, deforestation and forest degradation in Mongolia will continue to contribute to climate change. And climate change, especially milder winters and warmer summers, as well as changes in precipitation, will ultimately jeopardize forest ecosystem health, resilience, productivity, biodiversity, carbon storage and the provision of other environmental services.

Climate change mitigation actions in the forest sector comprise reducing GHG emissions by sources (reducing emissions) and increasing GHG removals by sinks (increasing removals of GHGs from the atmosphere). Mitigation options for forest managers can be grouped into four general categories:[1]

- maintaining the area under forest by reducing deforestation and by promoting forest conservation and protection;
- increasing the area under forest (e.g. through afforestation and reforestation);
- maintaining or increasing carbon density at the stand and landscape scales by avoiding degradation and managing timber production forests so that, on average, carbon stocks remain constant or increase over time, and through the restoration of degraded forests;[2] and
- increasing off-site carbon stocks in harvested wood products (e.g. displacing fossil fuels with woodfuels).

Mongolia's proposed REDD+ National Program

Mongolia's boreal forest covers approximately 14.2 million hectares (or about 9.15% of total land area). It has great potential to contribute towards the country's sustainable and green development goals. Implementing the right mixture of policies and measures (PAM) is expected to enhance the provision of ecosystem services and goods, and thus contribute to "building resilience, livelihoods and the national economy", which is the vision of Mongolia's REDD+ National Program.

The country has significant potential to reduce its forest carbon emissions and sustainably manage its forest carbon stocks, while supporting its path of economic development. Mongolia's proposed REDD+ National Program foresees the implementation of twelve PAMs to address drivers of deforestation and

[1] FAO, 2013. Climate change guidelines for forest managers. FAO FORESTRY PAPER 172. Rome, Food and Agriculture Organization of the United Nations.

[2] Adaptation entails changes in forest management practices designed to reduce vulnerability of forests to climate change and enhance the resilience of people to climate change impacts. In fact, under sustainable forest management categorizing responses into "mitigation" and "adaptation" options is often neither possible nor useful.

forest degradation and barriers to the implementation of sustainable forest management (SFM), and to provide for climate-resilient livelihoods and non-carbon ecosystem services. Several PAMs are expected to contribute to improved SFM to reduce emissions from forest degradation. One PAM in particular addresses SFM and maintaining or increasing carbon density through "the improvement and development of the wood-processing industry".

The current situation in the forest and the industries

Based on a thorough assessment of Mongolia's current forest conditions, a considerable backlog of silvicultural activities should urgently be addressed to improve forest health, especially by reducing the number of dead and damaged trees that are more susceptible to fires and insect infestations.[3] Cautious assumptions regarding deadwood use (only 10% is suitable for commercial use), reduction of potential harvests in protected forests, implementation of silvicultural treatments (over 10 to 20 years) and forest growth, potential annual harvesting levels of 10.3 million cbm (measured at loading point by the road) over the next one to two decades could be achieved (see Figure 1 and Table 1). While most of the wood will be used as firewood (Figure 2) and some will not leave rural areas to enter the broader domestic market, around 5 million cbm would be available for Mongolia's wood-processing industries.

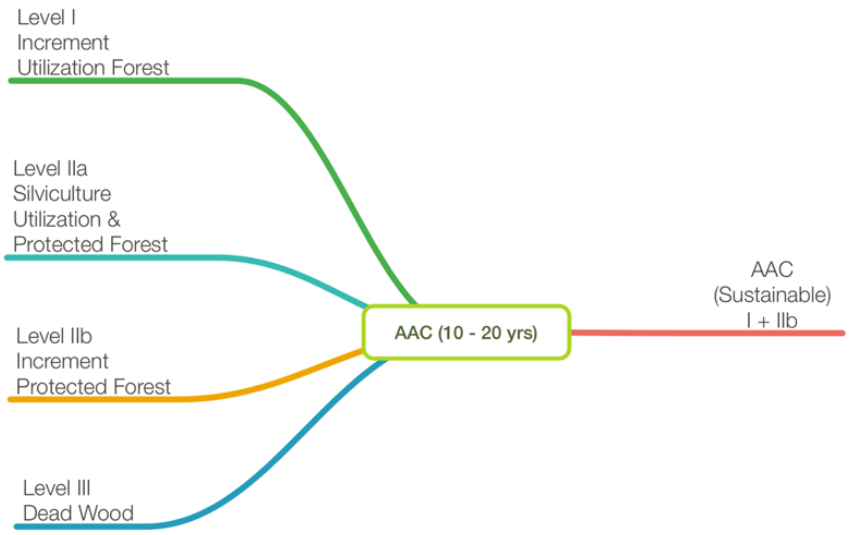


Figure 1: Contributions to an annual allowable cut

Table 1. Potential annual harvesting levels

Net removal type	Based on	Remarks	cbm/yr
Level I	Mean annual increment (MAI) in production forests	Long-term sustainable allowable cut	1,539,248
Level IIa	Backlog of silvicultural and cleaning activities in production and protection forests	Over next 10-20 years	1,185,899
Level IIb	MAI in protection forests (silviculture only, i.e. 80% of potential)	Long-term sustainable allowable cut	4,874,150
Level III	Deadwood (10% use) collection in production and protection forests	Over next 10-20 years	2,668,023
Total			**10,267,320**

[3] UN-REDD Mongolia National Programme, 2018. Assessment of wood product value chains and recommendations for the Mongolian wood-processing industry. Ulaanbaatar (click here).

Figure 2: Firewood in front of a school in Erdenebulgan soum, Khuvsgul

Figure 3: Deadwood unsuitable for commercial use

Many wood-processors operate quite antique equipment that does not meet modern resource-saving requirements. Many down-stream processors are also small and use on average only about 350 cbm of wood annually. Existing timber grading rules are ignored and processed wood is often not graded. Sawmill intake is generally of low quality comprising many damaged or dead trees (Figure 3). As a result, recovery rates are only about 40%. This makes domestic products more expensive than imported ones (e.g. total production costs of boards can be twice as high as current market prices of imported boards).

Modernizing the sector is also challenged by difficulties in recruiting skilled young people, especially in rural areas and for the forestry sector.

How to move ahead step by step

As there is considerable interest in innovations and modernization, the identified weaknesses can be overcome and should be viewed as opportunities. Based on the current situation, modernizing Mongolia's wood-processing industries should be undertaken in a step-wise approach. Initially, the Government of Mongolia (GoM) is called upon to signal to the

industries that raw material supply of good quality is secure in the long term. To this end, contracts between forest managers, wood users (i.e. forest user groups and forest enterprises) and the GoM should provide confidence to industry stakeholders to invest in long-term positive change in the forest and the industries.

Procedures and guidelines established decades ago need to be reintroduced, potentially also revised, and taken seriously. Wood and timber grading, pricing based on quality, and purchase preferences for locally produced goods are among them. Such measures are not costly and are expected to have a stabilizing effect. In parallel, a support framework for the modernization process needs to be developed. One of the most pressing aspects is providing soft loans to support the long-term nature of production forestry, especially in Mongolia where trees only grow very slowly, and related industries.

Once the framework is prepared, the real modernization can start. The recent study points to an innovative, yet feasible, approach, which is based on the development of sawmills close to the forests and downstream-processing hubs in the vicinity of major infrastructure (e.g. good accessibility and sizeable markets). Processing hubs would serve a dual purpose: firstly, process "better" quality sawntimber to high-end products. Secondly, provide an interface for spare parts for sawmills, kilns, forest user groups (FUG), and forest enterprises, and further provide warehouse facilities for other processing industries, traders and (partly) consumers. The hubs should be equipped with the latest milling and value-adding technology, which may be computerized. As they are close to larger settlements with appropriate infrastructure, recruiting specialists and skilled labor should not be an obstacle.

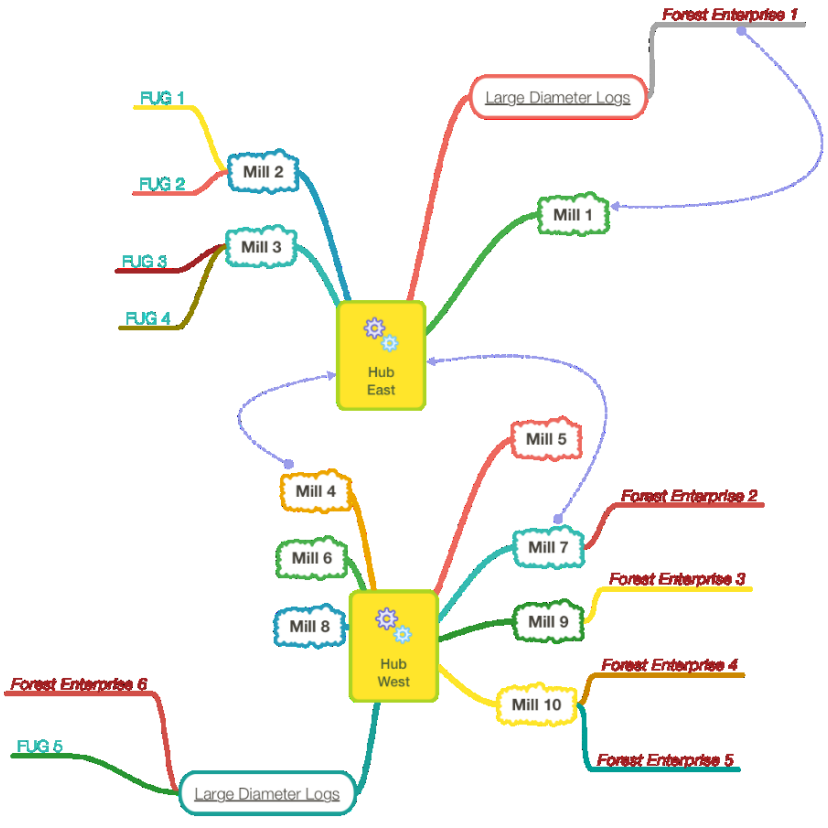


Figure 4: The sawmill-processing-hub concept

Sawmills in the rural areas would process smaller diameter and lower quality wood provided by FUGs and/or forest enterprises. Larger diameters or high-value logs would be delivered directly to hubs. In total, around 10 sawmills[4] (initial annual intake of 50,000 cbm each) and two hubs (initial annual intake of 300,000 cbm each) are considered to be sufficient in an initial phase of around 5-10 years (Figure 4). By introducing a second work shift, capacities can be easily doubled without any further investments to 2.2 million cbm annually.

[4] Total initial investment cost per mill, generating 30 to 50 jobs, is estimated to be between USD 5 and 8 million.

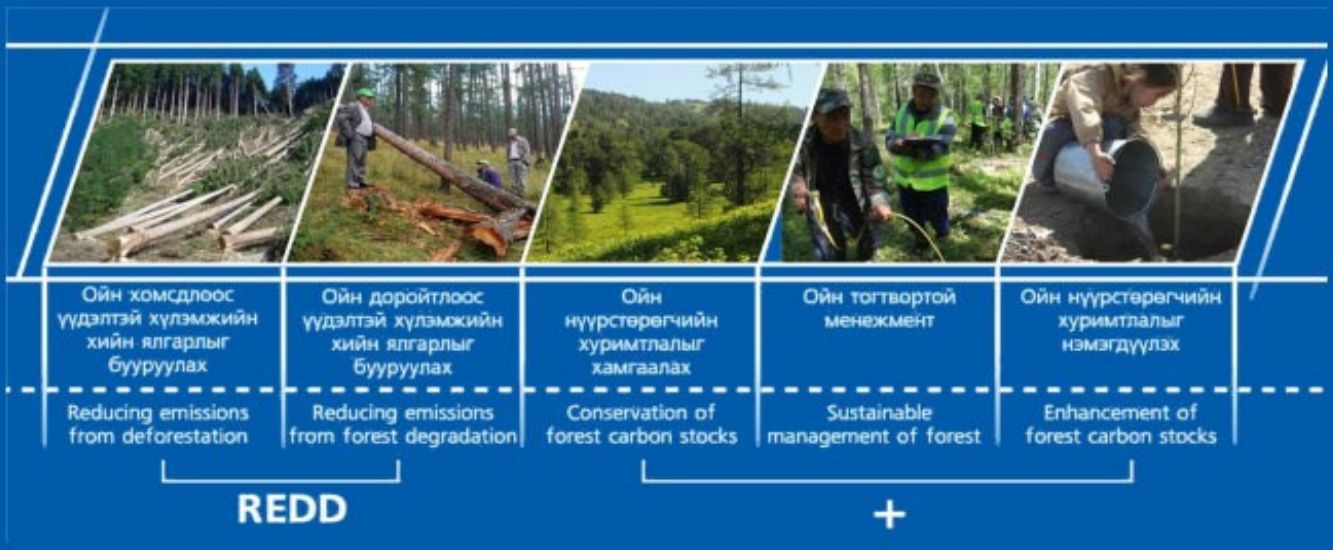
The above proposal is based on medium-tech processing equipment, specially designed for smaller log diameters (< 40 cm) in sawmills and larger diameter logs in hubs. Downstream products would encompass traditional goods (e.g. sawntimber, dried, planed and decking wood, window scantlings, boards). Wood residues would be turned into pellets, briquets, chips, or particle boards. The latter products might not be suitable for export, but local markets are big enough for absorbing them. Consumers would need to adapt to the new situation. Pellets or briquets would not be burned in traditional stoves, as pellet stoves require electricity. Initially, these changes would be introduced in public institutions like schools, hospitals, and kindergartens. Thus, they would demonstrate leadership in managing the change and spreading news about benefits more widely.

A proposal for an initial model development area in Erdenebulgan Soum (District) in Khuvsgul Aimag (Province) in Mongolia's north is provided by the authors of the main report. The area is rich in forest resources and has all necessary preconditions for a suitable model area.

A very necessary first step

Heated debates between those in favor of strict conservation or protection and those advocating sustainable forest management and wood use are raging in many countries. In fact, many countries have imposed logging bans over the last three decades to stop the use of natural forests. But the results have been rather mixed, if not to say negative.[5] Without doubt, there is room for forest use and protection. But protection also contains an element of management. And that requires financial resources. SFM and a thriving wood-processing industry could contribute to covering the cost of managing protected areas. SFM would also provide investments in infrastructural development to tackle the main drivers of forest degradation, i.e. forest fires and insect infestation, and reduce illegal logging. Hence, the first essential step is to view SFM and the sustainable use of forest resources as positive. As some people have said, "Use it or lose it". No doubt, losing Mongolia's boreal forests cannot be in local, national or global interests.

[5] See http://www.un-redd.org/single-post/2017/03/31/Contemplating-the-impacts-and-effectiveness-of-logging-bans



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