

UN-REDD+ PROGRAMME | REDD+ ACADEMY



Food and Agriculture
Organization of the
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REDD+ ACADEMY

REDUCING EMISSIONS FROM DEFORESTATION AND
FOREST DEGRADATION

LEARNING JOURNAL

3

DRIVERS OF DEFORESTATION AND FOREST
DEGRADATION



Director of UNREDD Mongolia National Programme
Tungalag.M

readiness and in determining policies and measures to contribute towards the countries Forest and Climate Change National Strategy.

I encourage you to apply this knowledge and do your part to make REDD+ a success in Mongolia!

Dear Learner,

Welcome to the Mongolia REDD+ Academy journals, providing you with an overview of REDD+ planning and implementation, developed by some of the world's leading REDD+ experts. It has been designed to accompany you in your learning journey, covering all the main REDD+ topics, from the basics to the finer points of setting reference levels, monitoring, allocation of incentives and stakeholder engagement.

The modules presented in this journal will equip you with the necessary knowledge to better understand the various components of Mongolia's work on REDD+



BRIEF INTRODUCTION OF THE UN-REDD MONGOLIA NATIONAL PROGRAMME

Mongolia became a partner country of the UN-REDD Programme in June 2011 and National REDD+ Readiness Roadmap officially adopted by the Ministry of Environment and Green Development and Tourism. UN-REDD Mongolia National Programme based on National REDD+ Readiness Roadmap started to implement in September 2015 approved by the Programme Policy Board.

UN-REDD is a United Nations collaborative initiative on Reducing Emissions from Deforestation and Forest Degradation (REDD+). The Programme was launched in 2008 to assist developing countries prepare and implement national REDD+ strategies. It builds on the 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 program is currently working in over 74 countries, mainly in tropical developing countries. Mongolia is the only country with significant amounts of boreal forest and being the most northerly country and faces unique climate change and ecological issues that are not observed in other countries.



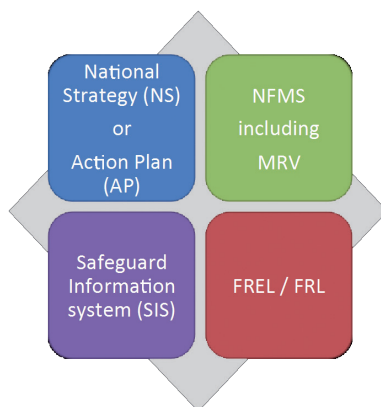
In addition, support to Cook Islands, Gambia, Kribati, Marshall Islands, Niger, Palau, Senegal, Sierra Leone, Tongo and Tuvalu.

MAIN GOAL

The overall goal of the UN-REDD Mongolia National Programme is to support the Government of Mongolia in designing and implementing its National REDD+ Strategy or Action Plan and in meeting the requirements under the UNFCCC Warsaw Framework to receive results-based payments. 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.

This comprises work on the four design elements for REDD+, 1 National Strategy &/or Action Plan, 2 National Forest Monitoring System, 3 Safeguards Information System, 4 Forest Reference Level.

The National Programme also counts on key national counterpart institutions and development partners to play active roles and take on specific responsibilities in maintaining the momentum in the REDD+ management processes and prioritizing and implementing those strategic options identified through the Programme.



REDD+ Mongolia

As a signatory to both the UN Framework Convention on Climate Change (UNFCCC, in 1992) and the Kyoto Protocol (1997), Mongolia is fully aware of the causes and potential impacts of climate change. Mongolia is therefore striving to reduce its greenhouse gas (GHG) emissions while maintaining its path of economic development. Mongolia's vast surface area includes approximately 17 million hectares of forest – an area roughly the size of Nepal. These forests can be categorised into two broad zones: northern boreal forests and southern Saxaul forests. The northern boreal forests cover approximately 13.2 million hectares and the southern saxaul forest, which is largely an arid zone shrub vegetation covers 4.6 million (Ministry of Environment and Tourism, Mongolia, 2015). Mongolia's forests have great potential to contribute towards the country's sustainable development goals and innovative policies on Sustainable Development. This may arise through the provision of ecosystem services and goods, such as timber, non-timber forest products, water services, and biodiversity, provide resources for communities, such as non-timber forests products and firewood. The implementation of sustainable forest management strategies can also reduce greenhouse gas emissions from reducing forests degradation and deforestation and enhance services and carbon stocks.

REDD+ ACADEMY

The REDD+ Academy is a coordinated REDD+ capacity development initiative led by the UN-REDD Programme and the UNEP Environmental Education and Training Unit, which seeks to match the scale of the global climate change mitigation challenge and enable systematic, focused capacity development to deliver REDD+ on the ground. The REDD+ Academy is a comprehensive response to capacity building needs identified by the countries receiving

Chapter 3 I Drivers of Deforestation and Forest Degradation

support from the UN-REDD Programme. The main aim of the REDD+ Academy is to empower potential “REDD+ champions” with the requisite knowledge and skills to promote the implementation of national REDD+ activities. The REDD+ Academy is also available (in English) on the following website and can do online tests and collect a certificate for completed courses:

<http://unccelearn.org/login/index.php>

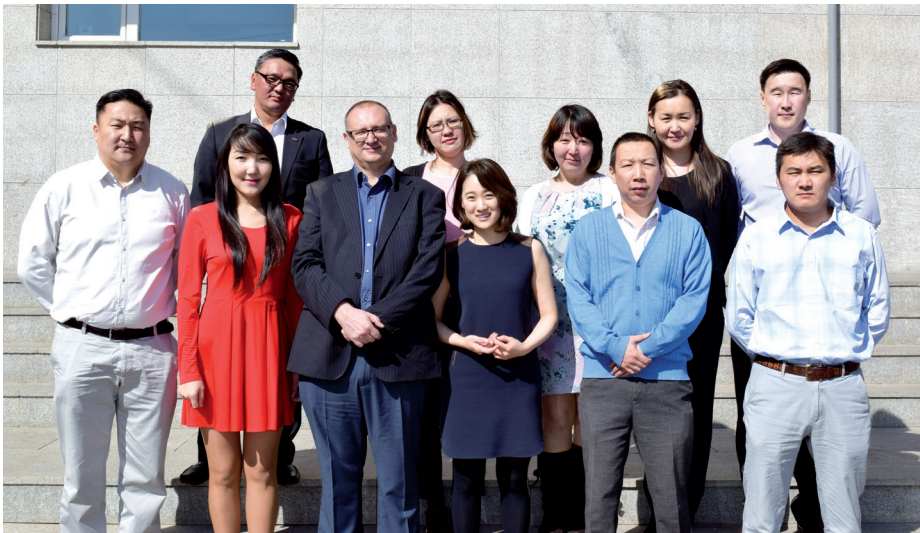
UNITAR

The United Nations Institute for Training and Research (UNITAR) is a principal training arm of the United Nations, working in every region of the world. We empower individuals, governments and organizations through knowledge and learning to effectively overcome contemporary global challenges. Our training targets two key groups of beneficiaries: the delegates to the United Nations and others who develop intergovernmental agreements establishing global norms, policies, and programmes, and the key national change agents who turn the global agreements into action at the national level.

REDD+ Academy Journals in Mongolia

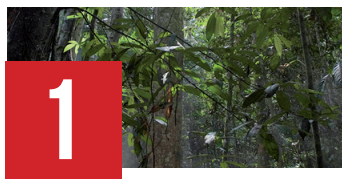
The REDD+ Mongolia journals have been developed from the REDD+ Academy journals, for more details on REDD+ National Program in Mongolia please see the following sites.

Website: www.reddplus.mn Facebook: REDD+ in Mongolia Twitter: REDD+ in Mongolia



Programme management unit, UN-REDD Mongolia national programme

LEARNING MODULES



1

**FOREST, CARBON
SEQUESTRATION AND
CLIMATE CHANGE**



2

**UNDERSTANDING REDD+
AND THE UNFCCC**



3

**DRIVERS OF DEFORESTATION
AND FOREST DEGRADATION
(DDFD)**



4

**NATIONAL STRATEGIES
AND ACTION PLANS**



5

**NATIONAL FOREST
MONITORING SYSTEMS
(NFMS) FOR REDD+**



6

**FOREST REFERENCE
EMISSION LEVELS**



7

**POLICIES AND MEASURES
FOR REDD+ IMPLEMENTATION**



8

**REDD+ SAFEGUARDS
UNDER THE UNFCCC**



9

REDD+ FINANCE

3

DRIVERS OF DEFORESTATION AND FOREST DEGRADATION (DDFD)

THIS SECTION PRESENTS THE MAIN DRIVERS OF DEFORESTATION AND FOREST DEGRADATION (FROM HERE ON REFERRED TO AS DDFD) AND PROPOSES A FRAMEWORK TO ANALYZE THEM.



THE SECTION INCLUDES EXPLANATIONS ABOUT:

- The main DDFD
- The importance of analyzing DDFD
- How to analyze DDFD

CONTENTS

Key messages	7
Introduction	7
What are drivers of deforestation and forest degradation (DDFD)?	7
Trends that will affect future deforestation and forest degradation	9
The importance of analysing drivers	11
How to analyze drivers	14
How to rank the drivers?	16
Drivers in Mongolia	17
Exercises	20

Key messages

- A good understanding of direct and indirect drivers, as well as barriers, is necessary to design and implement effective results-based REDD+ actions;
- Indirect drivers very often influence the behaviour of direct drivers and actors;
- Future drivers and barriers are in all likelihood different from yesterday's and today's drivers and barriers;
- Engaging key stakeholders fosters an inclusive dialogue, although countries should base what level of consultation or accommodation and agreement between stakeholders is suitable and required, on their own national circumstances, Key drivers of deforestation and degradation in Mongolia are unsustainable forest management, forest fires, pest damage and grazing.
- Climate change may make forests more vulnerable to pests and forest fire, permafrost melting and water patterns may affect forest establishment and growth.

Introduction

This section presents the main drivers of deforestation and forest degradation (from here on referred to as DDFD) and proposes a framework to analyze them.

The section includes explanations about:

- The main DDFD;
- The importance of analyzing DDFD;
- How to analyze DDFD
- Importance of climate change as a possible future threat

WHAT ARE DRIVERS OF DEFORESTATION AND FOREST DEGRADATION (DDFD)?

In the context of REDD+, 'drivers' are actions and processes that result in deforestation and forest degradation. Understanding the key DDFD is important for several reasons and particularly critical for the development of national REDD+ strategies and/or action plans and the formulation of policies and measures.

Drivers can be separated into:

- **‘Direct drivers’** (also called ‘proximate causes’), i.e. human activities or immediate actions that directly impact forest cover and loss of carbon;
- **‘Indirect drivers’** (also called ‘underlying causes’ or ‘driving forces’), i.e. complex interactions of fundamental social, economic, political, cultural and technological processes.

See some examples of DDFD in the table 3.1.

TABLE 3.1 EXAMPLES OF DDFD

Direct	Indirect
<ul style="list-style-type: none"> • Deforestation: subsistence and large- and small-scale commercial agriculture, mining, infrastructure development and urban expansion • Forest degradation: legal and illegal timber extraction, forest fires, livestock grazing in forests, fuelwood collection and charcoal production, long-fallow shifting cultivation 	<ul style="list-style-type: none"> • At the international level, e.g. markets, commodity prices, exchanges • At the national level, e.g. population growth, domestic markets, national policies, fiscal incentives and subsidies • At the local level, e.g. change in household behaviour • Many REDD+ readiness plans identify weak governance and institutions, poor cross-sectoral coordination, weak enforcement, and poverty as critical indirect drivers

REFLECTION POINT



Which drivers, direct or indirect, do you think would be the most difficult to address generally or in your own country? Make a list.

Think about the drivers, direct or indirect, in your country in the past. Which drivers do you think will still be important in the future? Do you expect there to be new ones? Make a list.

TRENDS THAT WILL AFFECT FUTURE DEFORESTATION AND FOREST DEGRADATION

Drivers will change over time, as well as over space and global trends can affect them such as:

GLOBAL POPULATION

An increase in global population is expected, predominantly in urban areas (fast-growing middle class), reaching 8.2 billion individuals in 2030. The largest increases in population will be in Africa (+235 million) and Asia & Pacific (+255 million). A stabilization of the population level is expected to take place after 2050, at around 8-10 billion individuals, due to rising living standards and declining birth rates (aging populations).

CLIMATE CHANGE

Mongolia is very sensitive to climate change due to its geographic location, socioeconomic conditions and fragile ecosystems. More than 80% of the country has been defined as highly vulnerable to climate extremes. The impacts of climate change are already apparent, with an increase in average annual temperature of more than 2°C experienced over the past 70 years, resulting in increased glacier melt, decreased snow cover and reduced precipitation in most regions of the country. Future climate scenarios predict escalating water shortages and reductions in both pasture and arable land, desertification and land degradation, coupled with an increase in the incidence and severity of both droughts and dzuds (extreme snow events).

Mongolia's forests are threatened by deforestation and forest degradation, and this may increase with increased human pressure and climate influence on the resource. The long-term impacts on forests due to climate change are not yet fully comprehended, but include permafrost melting (which reduces soil moisture) and increased incidence of forest fire. *Climate change is also a factor which may be an underlying cause of increased forest vulnerability from pathogens and pests*, increasing frequency and severity of droughts creating an environment more conducive to pests. Risk from forests fire and pests may increase in the future as result of climate change, as has occurred in other boreal forests areas in the world.



Source: UNREDD Programme

AGRICULTURAL COMMODITIES

Overall, a 70% increase in demand for food products is expected by 2050. Meat production is expected to increase by 85% (FAO, 2009). For oil seeds, there is an expected 23% production increase between 2011-2020, 2/3 of which to occur in developing countries (OECD/FAO, 2011¹). Furthermore a 45% rise in palm oil output is expected, mainly by Indonesia and Malaysia (OECD/FAO 2011). By 2020, biofuels will account for 21% of the increase in global coarse grains production above current levels, 29% of the global vegetable oil production's increase, and 68% of global sugar cane production's increase will go to biofuels (OECD/FAO, 2011).

WOOD PRODUCTS

It is expected that the annual plantation production capacity will rise to 1.8 billion m³ per year by 2020. The increase should mostly come from tropical countries and the southern hemisphere, given that 80% of the production potential is located in the area. By 2020, Brazil, China and Russia should dominate the market of the international trade of wood products (FAO Advisory Committee on Paper and Wood Products, 2007²). Finally, even though the EU and US import controls are beginning to reduce imports of illegally logged wood products, global and domestic trade willing to source illegal wood will increase in general, unless countries can increase legality in the forestry sector, which in many countries is very difficult due to weakness in enforcement capability. This means that sourcing illegal timber is expected to increase outside of the US and EU.

¹ OECD-FAO Agricultural Outlook 2011-2020: <http://www.agri-outlook.org/48202074.pdf>

² <http://www.fao.org/forestry/en/>

Chapter 3 | Drivers of Deforestation and Forest Degradation

FUELWOOD AND CHARCOAL

The number of people relying on traditional biomass use globally should decrease by 175 million between 2008 and 2030. While global trends are expected to decline, a 34% increase in fuelwood consumption is expected between 2000 and 2020 in Sub-Saharan Africa (FAO, 2009). Demand for charcoal (another traditional fuel) is likely to increase due to increased urbanization.



Source: UNREDD Programme

THE IMPORTANCE OF ANALYSING DRIVERS

Several UNFCCC COP decisions refer to drivers, where developing countries are required to identify DDFD (Decision 4/CP.15), address these drivers in their national strategies or action plans (Decision 1/CP.16), and ensure that the response to drivers are adapted to national circumstances (Decision 15/CP.19). The text of the three decisions mentioned can be found below:

Paragraph 1 of decision 4/CP.15:

Requests developing country Parties, on the basis of work conducted on the methodological issues set out in decision 2/CP.13, paragraphs 7 and 11, to take the following guidance into account for activities relating to decision 2/CP.13, and without prejudging any further relevant decisions of the Conference of the Parties, in particular those relating to measurement and reporting:

- (a) To identify drivers of deforestation and forest degradation resulting in emissions and also the means to address these;

Paragraph 72 of decision 1/CP.16:

Also requests developing country Parties, when developing and implementing their national strategies or action plans, to address, inter alia, drivers of deforestation and forest degradation, land tenure issues, forest governance issues, gender considerations and the safeguards identified in paragraph 2 of annex I to this decision, ensuring the full and effective participation of relevant stakeholders, inter alia, indigenous peoples and local communities;

Warsaw Framework decision on drivers (15/CP.19):

Also noting that livelihoods may be dependent on activities related to drivers of deforestation and forest degradation and that addressing these drivers may have an economic cost and implications for domestic resources,

- 1. *Reaffirms* the importance of addressing drivers of deforestation and forest degradation in the context of the development and implementation of national strategies and action plans by developing country Parties, as referred to in decision 1/CP.16, paragraphs 72 and 76;
- 2. *Recognizes* that drivers of deforestation and forest degradation have many causes, and that actions to address these drivers are unique to countries' national circumstances, capacities and capabilities;

WHY ANALYZE DRIVERS?

In order to reduce emissions and enhance removals from forests, it is important to identify, understand and address the most important drivers.

A robust and comprehensive analysis of drivers and a consensus across all national stakeholders can potentially contribute to a country's efforts to:

- Agree at the national level on a vision for REDD+;
- Formulate a national REDD+ strategy and/or action plan with clear priorities;
- Justify the selection of particular REDD+ activities;
- Inform the design of policies and measures to address priority drivers;
- Link forest area changes as well as forest degradation to specific activities (see figure 3.6 for an example of this) ;
- Link information on drivers to Safeguard Information System and Environmental and Social Management Framework processes;
- Effectively engage key stakeholders, especially of the non-forest sectors, that are in many countries the main drivers of DDFD;
- Define priorities for forest monitoring and MRV;

Chapter 3 I Drivers of Deforestation and Forest Degradation

- Inform national circumstances for adjusting reference emission levels;
- Tailor results-based actions that will generate result in GHG emission reductions, therefore allowing for generation of results-based payments.

BARRIERS FOR IMPLEMENTING “+” ACTIVITIES³

Without a solid analysis of the drivers and a consensus on which are the most important, the capacity to achieve tangible REDD+ results and to access results-based payments is compromised. Countries aiming to focus their policies and measures (PAMs) and national REDD+ strategy or action plan on the “+” activities have to also analyze barriers to the enhancement and conservation of carbon stocks and sustainable management of forests. Constraints to implementing “+” activities are similar to barriers to investments in sustainable forest management and the drivers of deforestation, e.g. fiscal incentives.

Potential barriers (and there are some similarities with the DDFD) include, but are not limited to:

- Poorly defined and contested rights;
- Weak capacity and commitment to improve forest law compliance and reduce illegal logging and trade;
- Inappropriate and inconsistent public policies and arbitrary changes in policies;
- Lack of transparency and accountability;
- Lack of or poor cross-sectoral coordination, information sharing and willingness to work together across ministry mandates;
- Real or perceived shortages of land available for investment;
- Social complexities and traditions (e.g. unwillingness to change land use or out-migration leading to labour shortages).

REFLECTION POINT



There are considerable benefits to analysing drivers, what do you think might be some problems associated with not analysing drivers of deforestation and degradation effectively?

³ This refers to “Conservation of forest carbon stocks; Sustainable management of forest; Enhancement of forest carbon stocks” (paragraph 70 in the Cancun Agreements”).

HOW TO ANALYZE DRIVERS

A DDFD analysis might present the first opportunity to engage with different sectoral actors (e.g. various ministries, civil society, and private sector) and to foster an inclusive dialogue with the goal of reaching a national consensus.

The analysis should not be treated as a “one-off” study, but should be an iterative process that builds on existing and new knowledge and information. Further analytical work, especially after new issues have arisen, should provide additional insights on particular issues.

The primary direct drivers are often known, yet there may not be consensus about their importance among stakeholders, and further understanding may have to be built. The indirect drivers are usually less obvious and understood, yet have a strong influence on decision making and actions of direct drivers (e.g. rising or falling commodity prices). The analysis of the interactions between the indirect and direct drivers may require a range of analytical approaches, e.g. statistical analysis and modelling using economic and demographic indicators, as well as socio-economic analyses, understanding market dynamics and commodity production/consumption patterns, etc.

The analysis of drivers might include:

- Analysis of policy and governance issues (global, national);
- Collecting national and local data, which is often not easily available and scattered among different sources, sectors and ministries;
- Linking forest area changes to specific activities and land-use changes (remote sensing analysis) ;
- Evaluation of spatial context and location, and other features (e.g. roads, settlements) to help with interpretation;
- Local and regional knowledge (experts and communities) and ground observations;
- Analysis of the various economic activities responsible for deforestation in order to identify a set of current economic incentives and disincentives and barriers to change;
- Analysis of the social dimension of deforestation: traditions, cultural factors, individual and collective behaviours underpinning deforestation and degradation.

Chapter 3 I Drivers of Deforestation and Forest Degradation

UNDERSTANDING THE MECHANISMS BEHIND THE DRIVERS

Analyzing the drivers shall ultimately help design **effective, efficient and equitable** policies, actions and measures. It requires an understanding of the economic and social interactions at work behind the observed drivers, as well as a proper assessment of the social and economic costs and benefits of the drivers. For instance, subsistence agriculture has limited economic benefits but critical social and welfare implications. Conversely, commercial and mechanized agriculture can have large economic benefits (employment, profits), but in some cases more limited welfare potential.

Analyzing the drivers shall not only serve to identify them but also to compare them according to their potential for reduced deforestation.

Four indicators are key to comparing drivers:

- The amount deforested or degraded for a unit of a particular driver, such as an increase in the price of agricultural output (i.e. palm oil)
- The benefits (social/economic/environmental) for a unit of a particular driver
- The costs (social/economic/environmental) for a unit of a particular driver
- Availability of REDD-compatible alternatives.

Finally, it is also important to look at the political/social acceptability of addressing the driver. It is essential to also recognize the importance of additional external factors that might influence the impact and inherent dynamic of the drivers. The normalized monetary value, if analyzed in isolation, might imperfectly reflect the other social dimensions that make up the drivers' total value. This is why drivers should in principle not only be compared on the basis of their economic costs and benefits but also include their social costs and benefits. As an example, it might be important to include in any analysis of drivers the possible influence of illegality, non-compliance and corruption to understand how these factors might interfere with PAMs and limit their effectiveness. Is it so important to consider the social costs and benefits when considering drivers?



HOW TO RANK THE DRIVERS?

There are several criteria that can be used to rank the drivers depending on the objectives and strategies being pursued. The choice of indicator is critical to ensure that the analysis of drivers informs the overall objectives and strategies pursued.

The ranking can be based on the amount deforested if the only goal is the deforestation performance: e.g. commercial agriculture might be prioritized. The ranking could rather focus on the “cheapest” drivers (drivers with the lowest net benefits): e.g. inefficient and low-productivity agriculture (subsistence), or equity, highlighting activities with unequal distribution of benefits and costs: e.g. mining. Of course, it could also use a combination of other indicators: environmental integrity, biodiversity, CO₂ absorption potential. Once again, it is important to highlight the political feasibility or acceptability of addressing particular drivers.

There are challenges in this analysis, though. Fine-grained analysis of the mechanisms at play might be too expensive to be carried out for each driver, or data might be missing for some drivers and the implication for Policies and Measures (PAMs) should therefore be explicit. A lack of data might also justify increased efforts to collect data on drivers that represent prioritized areas of intervention. However, in case of a “no-regret” option⁴, which is expected to serve multiple benefits and carry low risk, a government would not have to wait for complete data before acting.

Coordination is also required between ministries to minimize the risk of focusing too much on forest-based drivers and missing key non-forest (e.g. agricultural) drivers.

COMMON PITFALLS IN ANALYZING DRIVERS

- Analyzing historical trends only without looking at potential future scenarios;

⁴ No Regrets Options <http://www.ipcc.ch/ipccreports/tar/wg3/index.php?idp=292>

Chapter 3 I Drivers of Deforestation and Forest Degradation

- Omitting an analysis of indirect drivers;
- Reductionist approaches that neglect non-forestry sectors and their plans for the future;
- Not separating the drivers of deforestation from the drivers of forest degradation, as they are usually not the same;
- Being fixated on particular solutions (e.g. community forestry) before a driver and barrier analysis even starts.

NEXT STEPS

Once the analysis of drivers has been completed, it can inform, among other sources of information, the following:

- The national vision for REDD+;
- The national REDD+ strategy and/or action plan with clear priorities, or support the refinement or modification of existing plans or strategies (see **Module 4: National Strategy (NS) or Action Plan (AP)**);
- Agreement on and development of on Policies and Measures (PAMs) to address the key drivers (see **Module 7: Policies and Measures**).

As new issues arise, such as changes in commodity prices and exchange rates (which can have significant impact) and modifications to incentive systems and/or laws and regulations, any driver analysis must undergo a reality check from time to time.

DRIVERS IN MONGOLIA

As part of development of Mongolia's National REDD+ Strategy a preliminary assessment of drivers of forest change was undertaken (UNREDD, 2016). The study built upon previous work of REDD+ Readiness activities, and was supplemented through analysis of forest data, expert consultation, fieldwork and workshops conducted in 2015. The report presents a preliminary assessment of qualitative and quantitative understanding of the drivers of forest change.

DRIVERS OF DEFORESTATION

The most prominent direct drivers of deforestation were reported as a resulting from mining impacts, severe pest damage and 'deforestation by continued degradation'.

- Deforestation by continued degradation was the most common cause of deforestation, and is the result of several direct and indirect drivers combining, these include the effects of grazing, forest fire, pest damage and environmental change working together leading to deforestation. Once a

forest site has been disturbed it results in environmental change such as in microclimate and loss of soil moisture, in many cases this results in the forest no longer being able to support or regenerate itself.

- Mining leads to deforestation as a result of large-scale open-pit mining operations, which often remove vegetation and top soil ensuring that forest restoration is difficult. More detailed information on the current and future state of mining operations would enable a more quantitative assessment of the impacts of mining, and planning for mitigation measures could be implemented in priority areas.
- Pests need to be considered carefully as they impact forest change at a range of levels, including as both a direct driver of deforestation and degradation, and as a contributory driver affecting 'deforestation by continued degradation'.
- Land use change through change to pasture, agricultural expansion and urban development is not currently a major driver but needs to be evaluated against future land use plans or government policies as they could possibly become significant future drivers. There appears to be no current reported threat to deforestation from hydropower or other large scale infrastructure development.



Source: UNREDD Programme

DRIVERS OF DEGRADATION

The most important drivers of forest degradation are forest fire, minor pest damage, and logging; as mentioned above, it should be highlighted that the continued impacts of these factors through continued degradation often result in an ecological tipping point being reached and as a consequence forest loss.

- Unsustainable logging is estimated to result in an annual average of 34,000 ha / year of degradation in 2004-2014. The effects of unsustainable logging are made worse due to poor logging and post-logging management practices.
- Forest fires are common in Mongolia, with approximately 139,000 ha / year between 2004-2014. It is estimated that 90% of fires are caused by humans in Mongolia, substantiated by police investigations conducted into fire causes.

Chapter 3 | Drivers of Deforestation and Forest Degradation

Once burnt, the resulting opening of crown cover benefits grasses and therefore attracts grazing animals, fire weakened trees are more vulnerable to pathogen infestations.

- Grazing is not a problem in well-stocked forest as shown in the National Forests Inventory results (MET, 2017), however, in the degraded and poorly stocked forests it is reported as being higher.
- Pests are considered here as both a driver of deforestation, with large areas of forest being destroyed through large outbreaks, and as standalone driver of degradation since the forest will recover from small pest infestations. The underlying cause of many pest outbreaks in Mongolia is linked to anthropogenic disturbance, fires and poor forest management strategies. Forest fire increases the amount of dead wood available for insect and pathogen invasion, in addition, fire weakens the health of living trees making them more susceptible to damage.



Source: UNREDD Programme

IMPACT OF CLIMATE CHANGE

The long-term impacts on forests due to climate change are not yet fully comprehended, but include permafrost melting and increased incidence of forest fire. Climate change is also a factor which may be an underlying cause of increased forest vulnerability from pathogens and pests, increasing frequency and severity of droughts creating an environment more conducive to pests. Pest and pathogen may increase in the future as a result of climate change, as has occurred in other boreal forests areas in the world.

UNDERLYING CAUSES & BARRIERS

The underlying causes of forest change include demographic, economic, technological, policy & institutional, cultural & socio-political, and environmental factors. In

Mongolia, technical capacity development, regulation and policy strengthening, awareness raising, and direct funding of activities maintaining and enhancing carbon stocks, and sustainable forest management have promise for addressing the drivers of forest change. These broad types of policies and measures will emerge from examining interactions between drivers' underlying causes. All drivers provide entry points for designing useful intervention to address them.

REFLECTION POINT



How would you rank drivers for assessing their impact on Mongolian forests?



Source: NEMA of Selenge province)

Exercises

1. True or False?

The fact that livelihoods may depend on activities related to drivers of deforestation and degradation is addressed by the Warsaw Framework Decision on DDFD.

2. This module has introduced the importance of good analysis of the DDFD. Which of the following are made more likely from an analysis of drivers?

Chapter 3 I Drivers of Deforestation and Forest Degradation

Agreement on a national vision for REDD+	Reduction in use of fossil fuels	Clear justification for the selection of particular REDD+ activities
		
Initiation of a safeguards and Safeguards Information System (SIS) work stream	Formulation of a prioritized national REDD+ strategy and/or action plan	Better understanding of the link between changes in forest area and a specific economic activities
		



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