

Briefing Note:

Developing Strategies to Improve Forest Management – Delivering Results for Mongolia’s Agenda for Forests, Climate Change and Green Development

1.0 Challenges resulting from climate change and temperature rise

1.1 What causes global warming

Global warming and climate change are exacerbated by human activity that releases emission of CO₂ and other greenhouse gases into the atmosphere. Current levels of carbon are 380 ppm, atmospheric carbon has never been above 300ppm for 650,000 years. This is mainly caused through the use of fossil fuels in developed countries, and in recent years for emerging economies such as China, India and Indonesia.

The cutting down of forests releases further greenhouse gases into the atmosphere, and reduces the ability of the earth to absorb more carbon. Forests also provide a wealth of other benefits such as water provision, biodiversity, reducing soil erosion and products such as pine nuts and timber.

- Forests are critical to global climate change system due to their ability to absorb and store carbon, and because their continued deforestation or forest degradation leads to further greenhouse gas emissions.
- Current estimates state that forests account for around 10% of global greenhouse gas emissions (IPCC, 2013).

1.2 Impacts of Climate Change

Since industrialisation the global temperature has increased by 0.7 degrees C, that’s almost the COP 21 target of ensuring global averages do not increase more than 1.6 degrees, a 2 degree rise has been regarded by many experts as catastrophic for global ecosystems and communities. Climate change has occurred before during the earth’s history, but now it is at unprecedented levels, much faster and the earth is inhabited by 6 billion humans.

- Mongolia is extremely vulnerable to climate change with an increase of 2.4 degrees, significantly higher than the global average and over the global target for COP 21.
- Mongolia ranked 8 out of over 100 countries in the Global Climate Risk (2014).

Disasters – climate change threatens to increase the severity of disasters and extreme weather events including more extreme winters, having significant impact on Mongolia’s economy, food security and migration. Increased vulnerability places more pressure on existing steppe and forest resources.

Precipitation– climate change will impact precipitation patterns, with more snow in winter, less rainfall in summer.

- Growing season for farmers will be unpredictable
- Forest growth may change (some areas may have improved growth, but most are likely to be negatively impacted) and germination may change

Water Sources – water sources are rivers are drying up, because of glacier melting and permafrost loss which has significantly declined since between 2015 and 1970's.

- Protection of riparian forest and watersheds is vital.
- Protection of forest can help slow melting of permafrost.

Desertification – increased desertification is exacerbated by climate change and loss of sexual forests

Forests – increased climate warming places greater pressure on forests, increasing risk of forest fire and possible pathogen attack. Changes in soil water levels and in growing seasons

2.0 Forests in Mongolia

Mongolia supports over 17,911,123 ha of forest land which accounts for approximately 11.8% of the country's land area (FRDC, 2015). The forest consists of two main types, namely the northern boreal forests and the southern sexual forests, with approximately 4,699,500 ha comprised of sexual forest.

- The boreal forest is comprised of deciduous and coniferous forest growing in the forest steppe, boreal forest and montane areas, these areas are dominated by conifers including Siberian larch, Scots and Siberian pine, and broadleaf species, particularly birch, with aspen and poplar also occurring.
- The southern sexual forests are located in the southern desert and desert steppe regions, they consist of scattered trees and are rarely over 4m in height, the biomass is reported as being very low. Though sexual forests are important for stabilizing arid zone land and reducing desertification.

The boreal forests are vulnerable to disturbance in environmental conditions and are potentially impacted by climate change. Boreal forests exhibit slow growth which makes them highly different in nature to tropical forests, with interventions such as tree planting or sustainable harvesting regimes more difficult to design.

2.1 Threats to Forests

Mongolia's forests are threatened by deforestation and forest degradation, and this may increase with increased human pressure and climate influence on the resource.

Boreal forest area has decreased with approximately 47,000 ha (0.43%) of 'closed' boreal forest being deforested every year between 2004 and 2014 (FRDC, 2014). In addition, approximately 103,000 ha of closed forest is degraded and reclassified during taxation surveys as 'open forest' (FRDC, 2014).

The main causes of these changes are unsustainable logging, fire, pests, grazing and a complex interaction of these causes leading to deforestation and forest degradation.

- **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 by over logging and post-logging. Enterprises do not appropriately manage for minimizing the impacts of fire and subsequent pest damage, alongside resulting accessibility for grazing and additional timber extraction.

- **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. Once burnt, the resulting opening of crown cover benefits grasses and therefore attracts grazing animals, fire weakened trees are more vulnerable to pest and fungal infestations.
- **Pests** – Insect pests are considered here as both a driver of forest degradation since the forest will recover from small pest infestations, in other cases post insect infestation and stress can lead to deforestation. Pest outbreaks have been damaging in recent years with approximately 9000 ha of forest damaged¹ annually (FRDC, 2014).
- **Climate Change** - 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. 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.

2.2 Economic Values of Forests

Looking at the recorded contribution of the sector to GDP (currently less than 0.5% – around MNT 70 billion or USD 40 million), it would be easy to believe that forests have little or no value. The reality is, however, very different from this. A recent study carried out by the United Nations Development Programme found that selected boreal forest services are worth around MNT 430 billion a year to the national economy: a figure that is more than six times higher than that found in “official” GDP estimates².

Findings on forest sector values:

- **Timber and fuelwood** at current levels may have an annual sale value of almost MNT 200 billion (US\$ 142 million), and generate MNT 66 billion (US\$ 48 million) in operating profits to producers. Just over half of this value comes from unlicensed removals. The GIZ National Forest Inventory program has determined timber stocks in Mongolia and believe there is potential for increased sustainable harvesting of timber..
- **Non-timber forest product** collection has a total value of almost MNT 16.5 billion (US\$ 12.18 million) a year, spread over around half of the rural population in soums with boreal forest. More than 90% of this value comes from unlicensed removals, and three quarters is accounted for by home-consumed products which never enter the market.

¹ Currently a dataset provided by Ministry of Environment and Tourism is being examined to verify this figure.

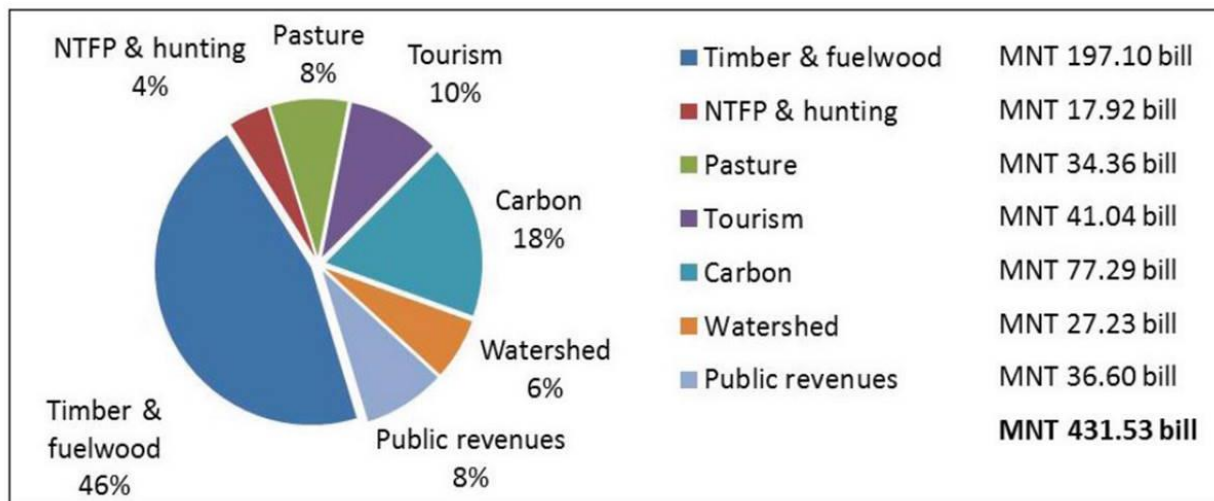
² (It is worth noting that the UNDP study focuses only on those forest services which could be valued on the basis of existing data: timber and fuelwood, wild plants and animals, pasture, tourism, watershed protection and climate change mitigation. These figures should therefore be seen as minimum estimates).

- **Pasture** is an important seasonal source of pasture for livestock, to a value of more than MNT 34.5 billion (US\$ 24.70 million) contribution to herders' gross margins. This comprises up to 5% of the value of livestock production in soums with boreal forests.
- **Hunting** under permit in boreal forest areas generates products with an annual market value of between MNT 91 million (US\$ 65,000) if sold locally and MNT 2.7 billion (US\$1.9 million) if hunted for sport.
- **Forest-based leisure tourism** directly generates more than MNT 22.7 billion (US\$ 16.34 million) in visitor spending and sales, supports up to 6,000 jobs and wage earnings of MNT 18.31 billion (US\$ 13.17 million), and makes a direct contribution to GDP of MNT 55.26 billion (US\$ 39.73 million). Its multiplier effects across the economy are substantial: the total contribution to GDP may be in excess of MNT 144 billion (US\$ 103.75 million).
- **Forest watershed protection** services in the Upper Tuul basin alone are worth MNT 27.2 billion (US\$ 19.6 million) a year to urban water users.

The net value of forest goods and services to users calculated in this study is some MNT 395 billion (US\$284 million).

The government earns more than MNT 36 billion (US\$26.3 million) in revenues from forest product harvesting and utilisation activities, including tourism and water but excluding the taxes paid by other forest-based enterprises.

The total annual direct value-added from the forest sector is equivalent to a figure that is around 3.1% the value of GDP, while the public revenues directly generated are equivalent to around 1.4% of all tax revenues.



3.0 Meeting International Climate Change Commitments

Mongolia has been highly active in meeting its international commitments for addressing climate change.

United Nations Framework Convention on Climate Change - Mongolia has made international commitments to climate change as a signatory of the UN Framework Convention on Climate Change (UNFCCC, in 1992) and the Paris Agreement in 2016.

- Mongolia was one of the first countries to ratify and sign the Paris Agreement in 2016.

UN Reducing Emissions from Deforestation and Forest Degradation - The concept of mitigation of climate change through avoiding deforestation was raised through the United Nations Framework Convention on Climate Change (UNFCCC). Parties to the UNFCCC agreed to consider mechanisms to address climate change through reducing emissions from deforestation and forest degradation through; a mechanism known as Reducing Emissions from Deforestation and Forest Degradation³ (REDD+). In June 2011, Mongolia became a partner country of the United Nations initiative in Reducing Emissions from Deforestation and Forest Degradation in countries (UN-REDD Programme). Since then Mongolia has taken significant steps towards implementing REDD+, Mongolia approved its National REDD+ Road Map in 2014, and the UN-REDD National Program started officially in 2016.

- The main goal of the programme is to support the Mongolian government in REDD readiness.

REDD+ readiness relates to the efforts a country undertakes to develop the capacities and operational systems needed to implement REDD+ in the context the UNFCCC. Support to REDD+ readiness is provided to countries through bilateral and multilateral initiatives, including the UN-REDD Programme. This includes both financial and technical support to help countries develop the four elements identified through UNFCCC negotiations, as follows:

- a national strategy or action plan
- a national forest reference emission level or forest reference level (FRL),
- a national forest monitoring system, and
- a system for providing information on safeguards.

A national REDD+ strategy or action plan contributes toward more effective management and monitoring of forest resources, improved forest governance and greater discourse with communities and civil society, improved maintenance and provision of ecosystem services.

- REDD+ contributes towards wider green development efforts for climate change mitigation and adaptation.

³ The rationale for REDD+ is for countries to implement policies and strategies for retaining forest carbon stocks instead of clearing for other land uses or to prevent reducing carbon stocks through degrading activities such as illegal logging or forests fire. REDD+ highlights the benefits for establishing global and national commitments to tackling climate change through working reducing greenhouse gas emissions in the forest sector. However, it also should be viewed in a wider context as successful REDD+ strategies will contribute towards more effective management and monitoring of forest resources, improved forest governance and greater discourse with communities and civil society, improved maintenance and provision of ecosystem services, and as a part of wider green development efforts for climate change mitigation and adaptation.

5.0 Delivering Results for Mongolia's Agenda for Forests, Climate Change and Green Development

Two major strategies to tackle climate change:

Mitigation: reduce GHG emissions to address the cause

- Reducing the use of fossil fuels (coal, oil, gas) by moving into renewable, green energies to satisfy the energy needs of the global economy
- Reducing energy consumption by increasing energy efficiency in buildings thermodynamic insulation of buildings)
- Preserving the earth's ability to store carbon by protecting forests and steppes as natural carbon sinks (in other words measures to prevent from degradation)

Adaptation: adjustments in how we live to adapt to changing climate and reduce vulnerability, in other words addressing the effects

- Integrate disaster risk reduction and climate risk reduction into national and local development plans
- Protect and restore water catchment areas, river basins and water sources
- Planning to enable forests to be resilient through maximizing altitudinal gradients and dispersal corridors
- Promote alternative livelihoods and increase resilience of forests resource dependent communities

5.1 Addressing Forest and Climate Change through REDD+ Strategy

Measures for REDD+ are equally important for mitigation and adaptation, adaptation to climate change will pose many pressures on communities, ecosystems and sustainable development.

5.2 Sustainable Development Goals (SDG) and Mongolia's Sustainable Development Vision (SDV) for 2020

The Sustainable Development Goals (SDG's) have raised international ambition to conserve forests setting a universal target to halt deforestation by 2020. The SDGs are the new global development agenda to eradicate poverty, reduce inequality and protect the planet until 2030. **17 goals/ 169 targets** that all countries have are expected to work towards.

- Mongolia's government has already incorporated the SDGs into its **Sustainable Development Vision for 2030**. The goals and aspirations of the SDGs and the SDV have also been translated into the new Government Action Plan.
- REDD+ Mongolia can be a useful means to deliver on the SDG's as the forest sector is related to many of the SDG goals.

SDG 15 Life on Land – Sustainability of Terrestrial Ecosystems



Protect, restore and promote sustainable use of terrestrial ecosystems sustainably managed forests, combat desertification, and reduce land and reduce land degradation and halt biodiversity loss

SDG 15 is addressed through the REDD+ strategy will help to devise management strategies for both the saxual forests, which are important for combating desertification, and the boreal forests. It will provide management strategies for maintaining water resources, ecosysem srVICES and provide timber and non-timber forests products. REDD+ addresses protection and maintenance of forests ecosystems to:

- Conservation, restoration and sustainable use of forests (✓ *target 15.1*),
- Reduce deforestation and forests degradation (✓ *target 15.2*),
- Combat desertification in saxual forests and edge of boreal forests (✓ *target 15.3*),
- Conserve and strengthen the resilience of protected areas (✓ *target 15.4; 15.5, 15.7*),
- Promote equitable forests based livelihoods and (✓ *target 15.6*),
- *Mobilize finance resources inside and outside Mongolia, initiate ecosystem service payment and for sustainable forest management (✓ 15.a, b).*

SDG 13 Climate Change - Take urgent action to tackle climate change and it's impacts



SDG 13 addresses both climate adaptation and mitigation. As well as strengthening people's resilience and reducing their vulnerability to climate-related risks and hazards, it aims to better operationalize actions to mitigate climate change. Efforts to enhance climate change education, awareness, capacity-building and mainstreaming into policy and planning form an integral part of this goal.

REDD+ project is helping to strengthen resilience and adaptive capacity to:

- climate related hazards and natural disasters (✓ *target 13.1*),

- integrate climate change measures into national policies, strategies, and planning (*✓ target 13.2*),
- improve education, awareness raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning (*✓ target 13.3*),
- implement UNFCCC commitments to mobilize finance for mitigation in developing countries (*✓ target 13.a*)
- promote mechanisms for raising capacities for effective climate change related planning and management (*✓ target 13.b*).

Footnote Information

REDD+ Mongolia is implemented by the Ministry of Environment and Tourism in conjunction with UN-REDD National Program which is supported by three UN agencies, UNDP, FAO and UNEP.