

# REDD+ and Climate Change Adaptation: Case Study in Mongolia

## KEY MESSAGES

- A number of decisions under the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD) recognise the potential for synergies between climate change mitigation and adaptation actions.
- Ecosystem-based adaptation to climate change (EBA) can help to achieve REDD+ objectives. For example, sustainable forest management can lead to increased resilience to pests and fire which also have increased incidence or risk as a result of climate change in Mongolia.
- Adaptation actions can decrease the risk of reversals of emission reductions by: (i) modifying future drivers of land-use change; and (ii) supporting forests to adapt to climate change through actions that maintain characteristics of resilient ecosystems.
- The implementation of REDD+ activities can maintain and enhance ecosystem services important for adaptation and the nations sustainable development.
- Forest monitoring is a key activity for adaptation.
- Adaptation and REDD+ actions can contribute towards Mongolia's sustainable development vision particularly related to increased incomes, sustainable development and protection of water resources.
- There are both shared challenges and potential trade-offs between REDD+ and adaptation; the development and application of social and environmental safeguards can help to address some of these.
- Integrating both adaptation and mitigation into wider forest policy and the strategies and plans of related sectors, at local to national scales, can help maximize synergies and minimize trade-offs.
- Experience of joint REDD+ and adaptation actions is still limited. Mongolia can lead through development of a pioneering example of how REDD+, adaptation and sustainable development can be integrated.
- Countries may wish to look for opportunities to link adaptation and mitigation actions and funds.

## Introduction

The primary purpose of REDD+ is to mitigate climate change by reducing emissions from deforestation and forest degradation, and through the conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks. Mitigation is crucial for limiting the extent of climate change and thus the severity of its impacts on society and ecosystems. However, even with our best mitigation efforts, there will still be changes in the climate system. Likely changes for Mongolia may include more frequent extreme cold periods or dzuds, change in permafrost, melting glaciers, increased risk of forest fire, changes to pest life cycles which may increase the incidence of pest outbreaks, change in rainfall patterns, which may affect tree germination and forest growth (in some locations of Mongolia it may be increased forest growth) and increased drought leading to fire, desertification and land degradation.

Adaptation strategies and actions that enable us to reduce the adverse consequences of climate change, as well as to harness beneficial opportunities, are therefore critical. Amongst the

adaptation activities that would be expected to contribute to REDD+, there are those that help forests to adapt so that they can continue to provide ecosystem services in the face of climate change.

This information brief outlines the relationship between REDD+ and adaptation, including possible mutual benefits and trade-offs, particularly in a Mongolian context. It examines the potential for adaptation, particularly ecosystem-based adaptation (EBA, see Box 1), to contribute to REDD+ and Sustainable Development goals in Mongolia. The brief explores how adaptation relates to the resilience of carbon stocks and reducing future drivers of deforestation and forest degradation; and how REDD+ can influence the adaptive capacity of society. Potential challenges to implementing REDD+ and adaptation in mutually advantageous ways are highlighted, as are potential trade-offs that will need to be considered. The brief concludes by offering some options to both REDD+ and adaptation decision-makers for realising the opportunities presented.

### **Box 1.0 What is Ecosystem-based Adaptation?**

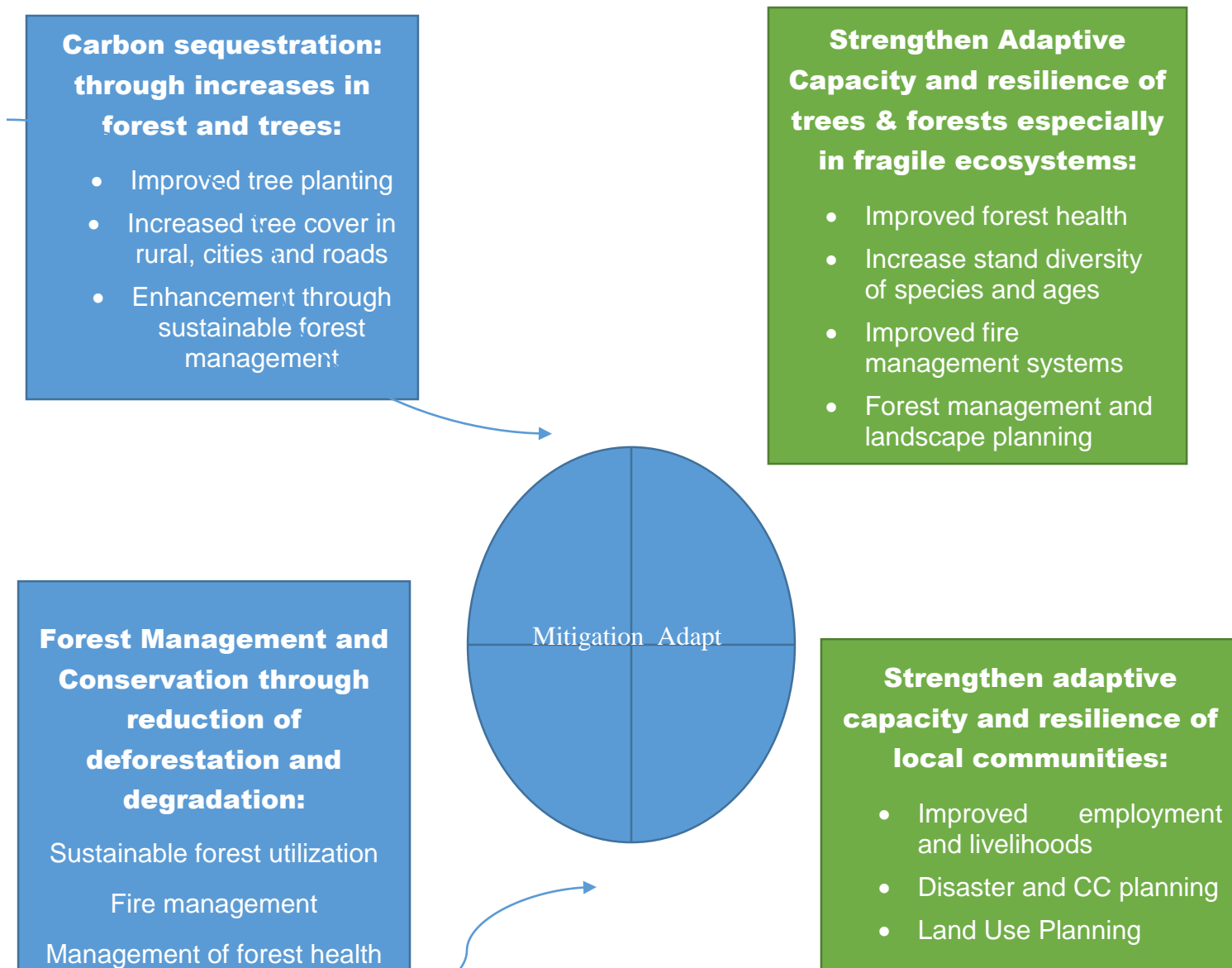
Ecosystem-based adaptation to climate change (EBA) is defined as 'the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people adapt to the adverse effects of climate change'<sup>ii</sup>. Examples of EBA relevant to REDD+ include:

1. conservation, sustainable management and/or restoration of forests to stabilize steep slopes, intercept rainfall; maintain permafrost resources and maintain watersheds and freshwater sources;
2. conservation, sustainable management and/or restoration of saxual forests to reduce the impact of desertification and land degradation from climate change and poor management of forest resources;
3. establishment of diverse livelihoods systems and improved grazing to provide flexible livelihood and income options to adapt to climatic variability or extreme climatic events.

- **Climate Change Mitigation** refers to efforts to reduce or prevent emission of greenhouse gases. **Mitigation** can mean using new technologies and renewable energies, or reducing emissions from deforestation and forests degradation.
- **Adaptation** is adjustment in natural or human systems in response to actual or expected climatic changes or their effects.
- **Resilience** is the increase in the ability of species or ecosystems to absorb or adapt to the effects of climate change, e.g. by building forest ecosystem complexity or livelihood models which can withstand climate impacts

## How forest management and REDD+ can help tackle climate change

Land use, grazing, insects and pathogens, forests fire and illegal, or unsustainable extraction, have long been seen as a problem for forest managers for many years, adding climate uncertainty and impact to this situation presents additional challenges to managers to maintain ecosystems and develop productive and protective forests. Alterations in temperature and precipitation under climate change can impact forests in several ways. These include shifting patterns of species as a result of soil moisture conditions or environmental condition, increasing frequency and magnitude of disturbance events, intensifying the impact of forest fires and pest damage, and placing undue pressure on local communities around forest areas.



## Policy Background

A number of decisions made under the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD) are relevant to the relationship between REDD+ and adaptation actions. Under the UNFCCC, decision 1/CP.16<sup>2</sup> makes it clear that adaptation must be addressed with the same priority as mitigation by Parties. The set of safeguards that the Parties to the UNFCCC agreed should be promoted and supported when undertaking REDD+ activities (the so called 'Cancun safeguards'), include protecting and conserving ecosystem services and enhancing 'other social and environmental benefits'<sup>3</sup>.

Additionally, decision 9/CP.19<sup>4</sup> encourages entities financing REDD+ to provide financial resources for joint mitigation and adaptation approaches for the integral and sustainable management of forests. The decision also recognizes the importance of incentivizing non-carbon benefits for the long-term sustainability of REDD+ activities. Such non-carbon benefits, and the ecosystem services and social and environmental benefits referred to in the Cancun

safeguards, could include those relevant to climate change adaptation.

The Aichi Biodiversity Targets of the CBD's Strategic Plan for Biodiversity 2011-2020<sup>5</sup> include Target 15 on conservation, restoration, climate change mitigation and adaptation. In addition, Parties are invited to integrate EBA into relevant strategies<sup>7</sup>, which could include strategies related to REDD+, and are encouraged to consider reviewing land-use planning with a view to enhancing EBA<sup>8</sup>.

The first session of the United Nations Environment Assembly (UNEA) of the United Nations Environment Programme passed resolution 1/8 on EBA<sup>9</sup>. This encourages all countries to include and improve EBA in their national policies, including EBA actions that relate to the sustainable management of forests.

**The decisions outlined above have contributed to an increased interest from governments and other stakeholders in exploring the complementarity between REDD+ and adaptation actions.**

## How can climate change adaptation support REDD+?

The choice of climate change adaptation approaches depends on the climate change projected to occur within a region and the local context. Ecosystem services need to be considered in relation to human adaptation because of the dependency of livelihoods and economic sectors on them. In addition, ecosystems can provide a range of adaptation options. Therefore, conserving forests and the ecosystem services they provide can be both an adaptation measure, and contribute to REDD+ objectives at the same time (see Box 2 on the monetary value of such services). For example, **using EBA such as natural forest restoration, rather than hard infrastructural approaches such as fences walls, to adapt to increased**

**land degradation and desertification, can enhance forest carbon stocks.**

**Note:** Not all problems are related to climate change. Desertification and land degradation is also heavily influenced by over-grazing, poor water management and over-exploitation of forest resources.

**EBA actions have the potential to directly reduce both current and future pressures that lead to deforestation and forest degradation. They can therefore help both to reduce emissions and to limit the risk of reversals of emissions reductions and removals.**

Considering adaptation needs within REDD+ planning can increase the sustainability of REDD+ actions aimed at reducing deforestation and/ or degradation through promoting alternative livelihoods. Future

Supporting forests to adapt to climate change through actions that maintain characteristics of resilient ecosystems can also decrease the risk of the release of carbon dioxide stored in forests as climate change advances. Characteristics of resilient ecosystems are likely to include diversity, and high degrees of naturalness and intactness. Actions that support such characteristics include:

- reforestation approaches that result in ecosystems with more natural features such mixed-age stands;
- selecting locations that connect to existing areas of natural forest including along climate gradients;

### **How can REDD+ support climate change adaptation?**

Depending on how REDD+ strategies and programmes are structured, **the implementation of REDD+ activities has the potential to maintain and enhance ecosystem services important for adaptation.** For example, REDD+ actions to restore or conserve forests on steep slopes could improve regulation of surface run-off and sediment transfer into rivers helping to manage soil erosion and water quality, recognizing that effectiveness is dependent on many factors including types of forests and soil.

impacts of climate change may undermine these actions if they have not been considered during planning . Working with adaptation practitioners and projects when planning REDD+ actions, including drawing upon climate change impact and vulnerability assessments already undertaken, will help to improve the actions' resilience.

**Mongolia has experienced three times the mean global temperature increase in temperature.**

- protection of watersheds, riparian zones and oases with forest cover and community-based water resource management strategies, and
- using management approaches which maximize forest growth through sustainable thinning which means that trees have less competition for water, light and minerals resulting in increased resilience to pest and diseases.

By helping to secure ecosystem services important for adaptation, these actions can reduce vulnerability and related pressures for land-use change.

The most important ecosystem services for adaptation at a given location can be identified through climate change impact, vulnerability and adaptation assessments. **The way REDD+ is implemented can also influence society's adaptive capacity<sup>xiv</sup>.** Adaptive capacity is 'the ability of humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences.



**Cancun Safeguard (e).** That actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 of this decision are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits

Promoting and supporting Cancun safeguard (e)<sup>13</sup> can help to ensure existing natural capital is maintained, and potentially enhanced. REDD+ actions can also contribute to building other capital types resulting in a diverse asset base. For example, REDD+ may build human capital by improving understanding on, and providing tools for, sustainable management of forests, or by providing marketing and product development assistance for non-timber forest products.

REDD+ may also support equitable access to assets and participation in rule making on access and use as REDD+ readiness activities can clarify rights to land. Complex procedures to gain rights can restrict access and use, and deter forest users from engaging in forest management.

The establishment of multi-stakeholder/sectoral platforms by REDD+ programmes such as Technical Working Groups, REDD+ task Force of the civil society forum Forests and Sustainable Development Council can support the sharing of experience on how REDD+ work has influenced society's ability to adapt. Experiences of coordinating across multiple sectors related to forest management, and that impact adaptive capacity, could also be shared. Such platforms can support access to up-to-date information and so help enable REDD+ strategies to track and adapt to changing context.

REDD+ could act as a window of opportunity for reforming the forestry sector (including timber production). If this is the case, then it may provide an opportunity for considering adopting approaches to helping forests adapt to climate change as outlined in this brief.

## Challenges and trade-offs

**Decision makers and practitioners should take account of a number of potential challenges and trade-offs (compromises that may have to be made) when considering the relationship between REDD+ and adaptation.**

First, climate change means that the current context for mitigation and adaptation measures is likely to change in the future. For example, degradation pressures from increased risk from forests fire may change. As another example, sustainable development strategies need to consider forests conservation actions, for mitigation the impacts of precipitation changes which may affect downstream development. Establishing processes to incorporate relevant information as it becomes available (for example on emerging local changes due to climate change), as part of adaptive management, can help to overcome challenges.

Another challenge is that mitigation efforts are driven by the need for global benefits (in terms of reducing greenhouse gas emissions and therefore global climate change), whereas the primary driver for adaptation action is locally specific, as are the benefits.

**Overall, REDD+ and adaptation actions can be complementary, although it also needs to**

**be noted that REDD+ actions will not be able to achieve all adaptation goals, and adaptation actions will not be able to achieve all REDD+ goals.**

A common challenge for both REDD+ and adaptation is the need to work across sectors. For REDD+, this is an imperative in order to address the drivers of deforestation and forest degradation, to mobilize funding, and to be integrated into economic strategies. For adaptation, the large range of sectors that may be impacted by climate change and that may have activities that impact upon adaptation options means that coordination across sectors is essential.

Establishing multi-sectoral coordination units/teams will be important for successful REDD+ and adaptation planning, and will provide platforms to discuss links between mitigation and adaptation actions.

**Integrating both adaptation and mitigation into wider forest policy and the strategies and plans of related sectors at the local to national scales can help maximize synergies and minimize trade-offs.**

Finally, **the number of examples of joint REDD+ (and mitigation generally) and adaptation programmes and projects is still relatively limited.**

The reasons for this vary but include the current separation between adaptation and mitigation policies and funds, and the cost of monitoring both themes. This challenge can be overcome by developing practical guidance, and making it available, to support those interested in

undertaking joint REDD+ and adaptation work, including on adapting sustainable management of forests to climate change. Documenting more national-level case studies can provide further evidence on the benefits of implementing joint actions. Such evidence may influence donors to provide support for, and amend funding processes to be more conducive to, building greater complementarities in REDD+ and adaptation work.

### Mongolia: Integrating Adaptation into the National REDD+ Strategy

The National REDD+ strategy will embrace the combination of mitigation and adaptation strategies.

Climate Change Threat	Action
Desertification and Soil Erosion in Saxual Forest	Sustainable Firewood Collection and Oasis Protection
Increased temperatures leading to increased fire risk	Forest Fire Control and Sustainable Forest Management
Change in temperatures increasing risk of pests	Sustainable Forest Management
Increased vulnerability of water sources	Protection and Conservation of Existing Forest Stocks
Climatic influence on germination	Manage Genetic Diversity of Seed Stocks

### Options for enhancing the linkages between REDD+ and adaptation

An important step towards realising opportunities and addressing the challenges presented in this brief, is for **REDD+ and adaptation strategies, plans and programmes to explicitly acknowledge complementarities.** This may promote and facilitate coordination between REDD+ and adaptation focal points, implementing agencies and practitioners.

**Deliberate efforts should be made by REDD+ and adaptation practitioners to share relevant information between REDD+ and adaptation processes,** thereby possibly reducing the costs of respective information gathering efforts. For example, climate change

impact and vulnerability assessments for adaptation projects may consider the impact of climate change on forests or forest ecosystem services.

From the REDD+ side, safeguard information systems will collect information that, depending on the scale, may be relevant for adaptation planning. For example, information on the social benefits of REDD+ interventions could be useful for assessing vulnerability to climate change impacts. Information on forest type, location and carbon stocks collected through National Forest Monitoring Systems, may also be useful for those planning forest-based EBA interventions. Assessments of ecosystem services and their value are useful for both



REDD+ and adaptation efforts to enable more balanced assessment of the costs and benefits of different options.

Adaptation and REDD+ are often addressed through different processes, discussed in parallel policy debates that are often not linked, led by different ministries or institutions, and involve different constituencies and funding. **More efforts should be made by national forums and regional initiatives to bring adaptation and REDD+ practitioners together**

**to share information and experience.**

Capturing and disseminating the outcomes of such joint initiatives may inspire further actions to enhance the linkages between REDD+ and adaptation. Currently there are a limited number of joint REDD+ and adaptation programmes and projects, however REDD+ and adaptation actions are advancing at such rapid rates that there will be an increasing number of opportunities to implement both sets of actions in a complementary manner.

## INSERT DIAGRAMS

## References

## Acknowledgements