DECODING REDD+: RESTORATION IN REDD+

Forest Restoration for Enhancement of Carbon Stocks

An Asia-Pacific Perspective

The Bali Action Plan identified two key areas for the forest sector to contribute significantly to global climate change mitigation efforts. The first area concerned approaches and incentives relating to **reducing emissions from deforestation and forest degradation in developing countries (REDD)**. The second area dealt with the role of **conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries**. 'REDD+' has become synonymous for a combination of these two areas.

The potential to enhance forest carbon stocks through afforestation and reforestation (A/R) on cleared lands has long been recognized by the Parties to the United Nations Framework Convention on Combating Climate Change (UNFCCC). Restoring existing forests degraded through past patterns of land use and exploitation could make a significant contribution. However, to date, forest restoration has not been explicitly included in the discussions under the UNFCCC.

Twelve participants from nine countries in the Asia–Pacific region met in Bangkok, Thailand from 11 to 13 October 2009 to share regional experiences and perspectives on forest restoration, and examine its potential contribution to climate change mitigation.

Key Conclusions

- Forest restoration could make a significant contribution to mitigating greenhouse gas emissions (GHG) both globally and within the region
- Technologies to monitor forest quality changes and achieve effective forest restoration are available
- Like any form of sustainable forest management, effective forest restoration will require participatory planning and appropriate management approaches
- Experience with community forestry in the region suggests that REDD+ restoration can be aligned with the interests of people living in and near forests in many countries.

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Figure 1: Forest Management Strategies for Climate Change Mitigation

Mitigation option	Mitigation opportunity	Mitigation policy instrument
Reduce GHG Emissions	Reducing deforestation	REDD ('first D')
	Reducing forest degradation	REDD ('second D')
Enhancing forest carbon stocks through increased sequestration	Forest restoration (enhancing carbon pools in existing but degraded forests)	REDD+
	Creating new forests and tree cover	CDM A/R (outside forests)

Forest land restoration initiatives could include the following activities:

• Rehabilitation and management of degraded primary forest
• Management of secondary forest
• Restoration of primary forest
• Promotion of natural regeneration on degraded lands
• Ecological restoration

Modified from Blasér, 2009

WHAT IS FOREST RESTORATION?

Considerable confusion surrounds the terminology used to describe enhancement of carbon stocks within forest areas that have become degraded due to past human activity. However, since 2002, the Food and Agriculture Organization of the United Nations (FAO) has led a collaborative process to encourage harmonization of forest terms used by the various international conventions, organizations and processes concerned with forests and forest management.

Participants noted that no final decisions have been made on harmonized definitions and focused their discussions on what they perceived as the key differences between **forest restoration** and **reforestation**. They concluded that:

• In the context of the first commitment period of the Kyoto Protocol, **reforestation** focuses on **increasing forest cover** in areas which were devoid of forest at the end of 1989. This leaves a significant gap in the context of current discussions on a potential REDD+ mechanism.

• **Restoration** implies a focus on forest **quality** and **ecosystem services** from existing but degraded forests. This workshop therefore sought to explore the implications and benefits of including forest restoration in a potential REDD+ mechanism in order to address the aforesaid gap.

For the purpose of discussions on the enhancement of forest carbon stocks in developing countries, the term **forest restoration** will be used to denote **the process of assisting the recovery in the carbon stocks of an existing forest that has been degraded or damaged**.

However, it should be noted that forest restoration usually refers to the restoration of forest values beyond carbon stocks, such as biodiversity and ecosystem integrity. To promote social equity and to protect these other forest values, restoration activities should be undertaken under the social and environmental safeguards for REDD+ currently being discussed under the UNFCCC.

INCLUDING FOREST RESTORATION IN REDD+

Workshop discussions on key issues and challenges for including forest restoration in REDD+ focused on:
- The mitigation potential of forest restoration
- A framework for effective forest restoration
- Monitoring, reporting and verification (MRV) requirements
- The social implications and trade-offs of forest restoration

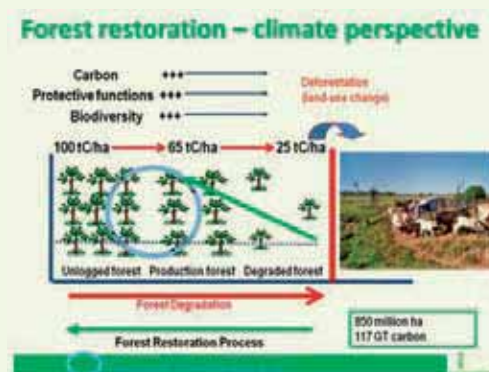## The Mitigation Potential of Forest Restoration

The current consensus is that global emissions must peak before 2020 if irreversible and dangerous impacts of climate change are to be avoided. Recent studies indicate that many of the 2007 International Panel on Climate Change (IPCC) Assessment Report's most pessimistic forecasts of the rates of change will become conservative estimates. Time is running out for the global response to take effect. Likewise, feedback mechanisms related to climate change will make forest restoration increasingly difficult as droughts, forest fires and extreme weather events may cause irreversible damage. If forests in developing countries are to play a key role in climate change mitigation, there is a need for a broad mechanism with a wide range of options.

Linking restoration with other forest mitigation mechanisms, such as REDD, A/R, and sustainable forest management, would help the international community to harness the full potential of forests in developing countries to mitigate climate change.

Forest restoration has great potential to contribute to climate change mitigation. According to some estimates, 850 million ha of global forest landscapes are degraded. Unlogged forests are estimated to store 100 tC/ha, while stocks in degraded forests can be as low as 25 tC/ha. If these landscapes were restored to their former carbon stocks, the mitigation potential could amount to 32 GtC (115GTCO2e). While more refined estimates are needed, the mitigation potential of forest restoration may be higher than REDD and A/R combined.

There is high potential for forest restoration in the Asia--Pacific region. Participants noted ample opportunities and needs for forest restoration in their countries. In the Philippines, large areas of land have been earmarked for forest restoration. In China, the biomass of large forest areas is well below potential levels. In Papua New Guinea, widespread forest degradation has occurred due to fires, shifting cultivation and forest harvesting. In addition, millions of hectares of degraded forests are currently managed by households or local communities, whose efforts could be rewarded through REDD+. The exact potential is unknown due to lack of historical data on forest quality. In most countries improved forest monitoring and assessment are required.

Figure 2: Carbon stocks between unlogged and degraded forests (courtesy Carmenza Robledo)

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[1] Blaser, J. & Robledo, C. 2007. Initial Analysis on the Mitigation Potential in the Forestry Sector. Intercooperation, Bern, August 2007.

A Framework for Effective Forest Restoration

Effective restoration models need to be developed to maximize carbon stocks while maintaining ecological and social safeguards. Successful forest restoration is affected by various factors, such as climatic conditions and previous land use. For example, research has demonstrated that areas formerly used for agricultural purposes are generally able to recover their carbon stock much more quickly than areas that have been cleared for pasture[2].

Any restoration strategy will be context-specific given the varying situations and the differing ecological and socio-economic conditions across the Asia–Pacific region. With this understanding, participants identified and discussed common elements that should be included in a framework for effective forest restoration.

Understanding the factors constraining forest succession: Degraded forests remain degraded because socio-economic factors (such as shifting cultivation, repeated fires, forest harvesting operations) or ecological factors are impeding natural succession. The first step in effective restoration is to identify the factors that are inhibiting recovery so that they can be addressed in planning for forest restoration.

Assisted Natural Regeneration (ANR): In many countries, ANR can be a cost-effective option that supports and accelerates the process of natural regeneration and regrowth. It can cover larger areas than manual reforestation and tends to be less labor-intensive than reforestation.

An Enabling Policy Environment: Some participants cited the necessity for restoration and conservation to become land-use planning and policy priorities. Policies would clarify planning, management and monitoring options for restoration, and harmonize them with other forest governance processes such as decentralization.

Financial Incentives: In most cases, forest restoration does not deliver immediate revenue from enhanced environmental services. In the absence of appropriate incentives, pressure to convert degraded forests to other land uses may increase. Environmental service payments through REDD+ may tip the cost–benefit scales away from potential conversion towards restoration. However, additional financing and incentives will often be needed upfront, and should be transparent and accountable.

Capacity Building: Throughout the Asia–Pacific region, technical skills are required both in the areas of restoration ecology and management and in measuring and monitoring carbon stocks. Several participants cited the need for adequately trained personnel in areas such as carbon accounting, forest inventory, land-use mapping, geographic information systems and remote sensing analysis. In some countries, these skills exist within the central government agencies but not at provincial, district or local levels.

Participatory Approaches and Institutions: Community forestry experience in the region has shown that forests can be successfully conserved, restored and managed through participatory approaches and community-based institutions. The consensus among the participants was that there was a need for participatory approaches and inclusion of community-based institutions within the framework for effective forest restoration.

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[2] Dr David Lamb, citing Silver et al. 2000, *Restoration Ecology,* 8: 394.

MONITORING, REPORTING AND VERIFICATION (MRV)

As in the case of forest degradation, assessing changes in forest carbon stocks from forest restoration considers, besides the extent of forest area, forest conditions and forest use. It is therefore more complex and costly than just measuring forest area alone. Participants agreed that the problems with MRV of restoration are similar to the problems with MRV associated with forest degradation, which were discussed in Decoding REDD: Addressing and Assessing the Second 'D'.

The following points re-emerged as key considerations for effective MRV of forest restoration:
- Few developing countries currently have the capacity to reliably assess changes in forest carbon stocks

- Models for comprehensive carbon accounting are currently being tested throughout the Asia–Pacific region

- Significant amounts of human and financial resources will need to be mobilized to undertake MRV of changes in forest conditions and carbon stocks

- Remote sensing can assess forest areas on a large scale, but will need to be supported in parallel by ground truthing–an activity that people living in and near forests can conduct with appropriate training and verification.

Social Implications and Trade-offs of Forest Restoration

Forest restoration has the potential to facilitate the long-term improvement of the livelihoods of people living in and near forests. Nevertheless, there are also some trade-offs. Forest restoration may limit forest access and use rights. Some communities living inside degraded forest areas may have to relocate. However, loss of some forest resources may be compensated for by income from new sources such as payment for environmental services (PES).

Co-benefits from Forest Restoration

Experience in the Asia–Pacific region demonstrates that forest restoration has the potential to deliver significant co-benefits to communities. These include:

Ecological benefits:	*Economic benefits:*
• Improved watershed protection • More effective biodiversity conservation • Soil quality improvement • Increased supply of non-timber forest roducts (NTFPs)	• Increased income from PES payments • Improved soil quality will increase agricultural productivity and food security • Income from NTFPs • Opportunities for income from eco-tourism

Climate Change Adaptation: Forest restoration can improve landscape resilience to withstand the impacts of climate change through effects such as improved soil stability and water quality. These benefits are complemented by enhanced resilience of communities, as the enhanced productivity of forest services becomes a source of stability for local people amidst changing environmental and economic conditions. Income diversification also provides a safety net, especially during years of poor agricultural production.

Collaborative Planning Approaches: Collaborative planning is a prerequisite for successful forest restoration and can help to identify and minimize potential negative trade-offs. Participants agreed that greater involvement of the grassroots level must be undertaken if REDD+ efforts are to be successful. Experience in several countries has shown that the costs of restoration can be reduced by involving communities. Community engagement in planning can also contribute to the sustainability of restoration initiatives.

RESTORATION: ISSUES AND IMPLICATIONS FOR REDD+

While forest restoration alone provides many benefits for local people, as part of a holistic REDD+ package, its benefits can be multiplied. In addition to promoting the positive aspects of forest restoration, potentially negative trade-offs can be offset, such as land-use conflicts and loss of some income streams.

REDD+ also has the potential to create a more enabling environment for forest restoration. For example, REDD+ will require improved governance and the clarification of land tenure issues. Clearly, questions such as 'Who owns the trees?' 'Who owns the carbon?' 'What are the incentives and penalties for forest use?' 'Who decides the future of the forest?' must be answered before forest restoration can successfully deliver enhanced carbon stocks and co-benefits.

Promoting Positive Outcomes

Benefits from Restoration		Benefits of including Restoration in REDD+
Healthier forest ecosystem	→	Generation of additional income for communities who provide services such as forest inventory and monitoring
Conservation of biodiversity	→	Provision of incentives for additional actions in conservation
Enhanced environmental services	→	REDD+ can help in packaging all the benefits to make them more marketable for payments than each service alone
Increased abundance of forest resources	→	Increased income and food security

Minimizing Negative Outcomes

Impacts of Restoration		Benefits of including Restoration in REDD+
Conflicts over land use	→	Increased stakeholder participation in designing REDD+ programs can foster collaboration and minimize conflict
Loss of access to forest resources	→	New mechanisms for benefit sharing can compensate for losses
Relocation of people living within forest areas	→	Greater clarity of tenure and ownership may bring stronger rights to access and use of forest
Livelihood impacts	→	PES payments bring in revenue to replace losses in other kinds of income

RECOMMENDATIONS FOR POLICY AND IMPLEMENTATION

The workshop concluded that there is considerable potential for forest restoration in the Asia–Pacific region, and that steps need to be taken to create a more enabling environment for restoration activities. Accordingly, participants proposed the following recommendations for national-level policymakers and international climate change negotiators.

Implications for National Policymakers

- Forest restoration has high potential to contribute to both climate change mitigation and adaptation.
- Restoration can be a cost-effective way of addressing multiple socio-economic and environmental objectives. It enhances ecosystem services and may help to provide a financially viable alternative to forest conversion.
- In order to take full advantage of REDD+, participatory planning and forest management are essential for achieving sustainable forest conservation and management outcomes.
- There is a need to address governance and policy gaps by institutionalizing or harmonizing existing local governance structures and frameworks for managing forests. At the same time, multi-stakeholder platforms need to be provided for interventions and adaptive management.
- High-quality data on forest quantity and conditions are needed to fully access benefits from REDD+ activities. Forest quality assessments should be included in regular national forest inventories.

Implications for International Negotiators

- The climate change mitigation potential through forest restoration of degraded forests is likely to be at least as great as the potential of REDD and A/R combined.
- Failure to explicitly include provisions for forest restoration in the REDD+ mechanism will greatly reduce the contribution of improved forest conservation and management in developing countries to global climate change mitigation efforts.
- International assistance is needed to ensure adequate capacities for including forest quality assessment in national forest/GHG inventories, baselines and monitoring in developing countries.
- To realize the potential of forest restoration and all other activities under REDD+, developed countries must commit to deep cuts in GHG emissions in line with IPCC recommendations.

DECODING REDD
2009 WORKSHOP SERIES

As an international organization focused on people and forests, RECOFTC is concerned with the impact of forest policies and practices on the livelihoods and well-being of forest-dependent people.

Together, RECOFTC and the Nature Conservancy-led Responsible Asia Forestry and Trade (TNC--RAFT) program are building a network of government and civil society representatives from Asia and the Pacific to develop and share knowledge and emerging experience on this important climate change strategy.

In 2009, the Decoding REDD workshop series focused on unresolved issues, feeding expert knowledge and opinion into national climate change strategy discussions, and into key UNFCCC meetings leading up to December's COP-15, where final decisions on REDD will be made.

For further information please contact Ben Vickers, RECOFTC climate change focal point (ben@recoftc.org) or visit RECOFTC's website www.recoftc.org

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