Assessing the Financial Resources Needed to Implement the Strategic Plan for Biodiversity 2012-2020 and Achieve the Aichi Biodiversity Targets

Forest Cluster Progress Report **27 July 2012**

The forest cluster is made up of four targets, specifically:

- Target 5 – as related to forests (rate of deforestation is halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced)
- Target 7 – as related to forests (sustainable forest management)
- Target 15, as related to forests (restoration of at least 15% of degraded forests)

Target 5 - Deforestation and Degradation

Introduction

Definitions

- Deforestation is the permanent removal of forest cover
- Forest degradation refers to a reduction in quality and quantity of forest growth

According to the World Resources Institute (WRI), about 30 percent of the world's potential forest cover has been completely cleared and a further 20 percent has been degraded.

According to FAO`s Global Forest Resources Assessment for the period 2000-2005, average annual negative change in forest area for countries experiencing net deforestation was 12.9 million ha per year.

Methodology

The estimates for this target are based on a critical review of the "2012 Study on Forest Financing" by the Advisory Group on Finance of the Collaborative Partnership on Forests (CPF). Aiming to inform an agreement on forest finance under the United Nations Forum on Forests in 2013, the study based on input obtained from multiple sources, including published scientific literature, local and national government experts, other experts and representatives of multilateral institutions. Chapter 3 of the study investigates "gaps and needs in forest financing," and provides an overview financial needs of reducing deforestation in the context of REDD+.

The sources given in Chapter 3 were examined and key studies are presented in the following.

Assessment of Resource Needs

100% reduction in deforestation

A report prepared for the Stern Review of the Economics of Climate Change (Grieg-Gran, 2008) estimates the cost for a 100% reduction in deforestation in 8 key countries (Brazil, Indonesia, PNG, Cameroon, Congo, Ghana, Bolivia, and Malaysia). Annual net forest loss in these eight countries equals 6.2 million ha. Eliminating deforestation in all these countries would result in a 46% reduction in global deforestation. This would cost 5-11 bn USD per year, dependent on assumptions about returns to different of foregone land use. Taking into account leakage and administrative costs could add up to 1 bn per year.

Similarly, a study by Strassburg et al. (2008) estimates that reducing emissions from deforestation in the 20 most forested countries by 95% would cost USD 29.6 billions per year, of which USD 20.9 billions are incentives, USD 1.1 billions transaction costs and US$ 7.6 billions forest management and protection costs.

Blaser and Robledo (2007) estimate the cost of a 100% reduction in global deforestation *and* forest degradation, achieved by 2030, to be 12.2 bn USD per year.

50% reduction in deforestation

The Eliasch Review (2008) estimated a cost of 17 to 33 bn USD per year for a 50% reduction in deforestation by 2030. Included in the calculation are opportunity costs of avoided deforestation *and* forest protection costs (including, e.g., designation and enforcement of protected areas). The cost of monitoring emissions over time can also be included in this forest protection costs category. The review estimates that for 25 countries the total recurring monitoring cost could be between $7-17 million per year.

For the same timeframe, by 2030, Kindermann et al. (2008) estimate costs of 17.2 to 28 bn USD per year for a 50% reduction in deforestation. The article, published in PNAS, uses three economic models of global land use and management to analyze the potential contribution of avoided deforestation activities to reduced greenhouse gas emissions.

The only study, in which the given timeframe coincides with the timeframe of the Strategic Plan for Biodiversity is a assessment by the European Commission (2008). The assessment concludes that the cost of a 50% reduction in deforestation, by 2020, is between 15 and 25 bn Euro per year (i.e. 22.5 and 37.5 bn USD).

Obersteiner et al. (2006) indicate that a 50% reduction of carbon emissions from deforestation
By 2025 would require financial resources of some US$33 bn per year.

25% reduction in deforestation

A report of the Informal Working Group on Interim Finance for REDD+ under the UNFCCC finds that a 25% reduction in deforestation is achievable between 2010 and 2015 for a cost of 4 to 7 bn USD per year for results-based incentives and capability building, complementing other REDD+ efforts. Costs are made up of €13-23 billion for payments for emission reductions (of which €3 billion would go towards reduced peat-related emissions) and €2 billion to invest in REDD+ preparatory activities.

Target	Timeline	Scale (USD billion/yr)	Source
100% reduction in deforestation			
In 8 countries		5-11	Grieg Gran[1]
	2030	12.2	Blaser & Robledo[2]
In top 20 countries (95% reduced)		30	Strassburg et al.[3]
50% reduction in deforestation			
	2030	17-33	Eliasch Review[4]
	2030	17.2-28	Kindermann et al.[5]
	2020	22.5-37.5	EC[6]
	2025	33.5	Obersteiner et al.[7]
25% reduction in deforestation			
	2015	4-7	IWG-IFR[8]

Source: Parker et al. (2009), as reported (with adaptations) in the 2012 Study on Forest Financing" by the CPF Advisory Group on Finance

Results and Discussion

Considering the results of the assessment above, the cost for a 50% reduction in deforestation by 2020 may lie somewhere between 20 and 40 bn USD per year. Achieving a 100% reduction in the same timeframe may be considerably more expensive as the returns to foregone land use rise towards the end of the deforestation rate curve.

The estimates above are mostly based on estimated opportunity costs for forgone land use. Most do not take into account transaction costs (for setting up, implementing and verifying projects to reduce deforestation), cost associated with leakage, or the cost of removing institutional barriers, e.g. land tenure reform.

It is also important to note that the estimates above focuses on reducing deforestation only. With the exception of Blaser and Robledo (2007), they do not include cost estimates for reducing forest degradation and fragmentation.

[1] Grieg-Gran M (2008) The cost of avoiding deforestation. Update for the Eliasch Review of the background paper prepared for the Stern Review of the economics of climate change. London.
[2] Blaser and Robledo (2007).
[3] Strassburg B, Turner K, Fisher B & Schaeffer R (2008) An Empirically-Derived Mechanism of Combined Incentives to Reduce Emissions from Deforestation.
[4] Eliasch Review (2008)
[5] Kindermann G, Obersteiner M, Sohngen B, Sathaye J, Andrasko K, Rametsteiner E, Schlamadinger B, Wunder S, & Beach R, (2008) Global Cost Estimates of Reducing Carbon Emissions Through Avoided Deforestation. PNAS. Vol. 105 No. 30. 10302-10307.
[6] European Commission (2008) Addressing the Challenges of Deforestation and Forest Degradation to Tackle Climate Change and Biodiversity Loss. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. COM(2008) 645 final. Brussels.
[7] Obersteiner M, Kindermann G, Rametsteiner E &Sohngen, B (2006) Economics of Avoiding Deforestation. Trieste. Updated to Kindermann G, Rametsteiner E, Obersteiner M & McCallcum C 2007. Predicting the Deforestation Trend under Different Carbon Prices. FEEM 7(8).
[8] IWG-IFR (2009).

Target 7 – Sustainable Forest Management

Introduction

Definition
The United Nations General Assembly defines sustainable forest management (SFM) as a "dynamic and evolving concept, which aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations".

The SFM concept encompasses both natural and planted forests in all geographic regions and climatic zones, and all forest functions, managed for conservation, production or multiple purposes, to provide a range of forest ecosystem goods and services at the local, national, regional and global levels.

Methodology

Literature review.

Assessment of Resource Needs

Estimating existing financial flows to, and resource needs for, SFM has proven to be difficult. A small number of studies have attempted to so, but the overall conclusions remain unclear. The estimates include the following:

- Tomaselli (2006, cited in Cosslett 2012) calculates annual global forest sector investment at approximately 64 bn USD, of which some 18 bn USD, or 28%, is spent on 'upstream forests and sustainable forest management', while the remaining 46 bn USD goes to 'downstream forest-based industry and trade.' He estimates the financial needs for 'forestry and SFM' at between 33 bn USD and 70 bn USD, with the variation between low and high-end estimates depending on "whether environmental externalities (e.g., compensation for deforestation and forest degradation) are included or not."
- Blaser and Robledo (2007) estimate for non-annex one countries under the UNFCCC (i.e. developing countries) that achieving SFM in tropical and subtropical regions would cost 7.3 bn USD per year and in temperate and boreal regions 1 bn USD per year.
- The study of the CPF Advisory Group on Finance (2012) states that "it has been estimated that globally the required funding for sustainable forest management is between US$ 70 to 160 billion per year."

Results and Discussion

In discussing resource needs for SFM, it is important to note that not all funding has to be new and additional. Rather, existing forest financing has to be *transformed* in the direction of sustainability. Such a transformation can be facilitated by policies and incentives designed to enhance the profitability of SFM practices as compared with business-as-usual practices. For example, transforming business-as-usual practices through regulatory and/or incentive-based measures (such as certification or reduced impact logging) would lead to more sustainable

practices and add to SFM financing without necessarily requiring increased overall forest sector funding (Cosslett 2012).

It is also important to note the danger of double counting resource needs for SFM and reducing deforestation and forest degradation. The latter may be understood as a key ingredient for achieving SFM. Inclusion or exclusion of deforestation and forest degradation may therefore in part explain the differences in the range of estimates above.

Target 15 – Forest Restoration

Introduction

According to global restoration assessment carried out by IUCN, the World Resources Institute (WRI), and South Dakota State University for the Global Partnership on Forest Landscape Restoration (GPFLR), more than two billion hectares of deforested and degraded forest land worldwide may have the potential to be restored.

IUCN estimates that restoring 150 million hectares would be worth US$ 85 billion per year to national and global economies.

Assessment of Resource Needs

- Blaser and Robledo (2007) estimate for non-annex one countries under the UNFCCC (i.e. developing countries) that afforestation and reforestation (A/R) would cost 0.1-0.4 bn USD/year. However, in response to this estimate, Simula (2008) points out that: "The estimate […] does not reflect the entire potential of this measure in developing countries because it refers only to lands that are eligible for the CDM (i.e., that were not forest in 1990). The total A/R potential is significantly higher. […] In addition, the estimate […] does not consider investments in capacity building of governments, smallholders, communities, and other stakeholders and other upfront investment costs […]."