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ETFRN NEWS

49



# Financing Sustainable Forest Management

EUROPEAN TROPICAL FOREST RESEARCH NETWORK





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## Preface

In recent years the question of broadening and diversifying the financial basis for forest management has emerged as a key theme in the international forest policy dialogue. Everywhere in the world, policy-makers, researchers and practitioners are taking steps to develop new ways of paying for the goods and services provided by forests.

Most recently, within the context of the 7th meeting of the United Nations Forum on Forests (UNFF-7), the international community adopted a “Non-Legally Binding Instrument” for all types of forests. This instrument expresses a shared understanding that sustainable development policies must be supported by a broad array of financial resources from national, international, public and private sources, in the context of a strengthened enabling policy environment for forest-related governance and management.

Like UNFF, other intergovernmental forest-related instruments — such as the Convention on Biodiversity, the Climate Change Convention, the Convention to Combat Desertification and the International Tropical Timber Organization — have marked sustainable financing of ecosystem management as a key topic. During the next meeting (UNFF-8, in April 2009), an international financing mechanism or framework will be proposed based on the so-called “Portfolio Approach” to support the national and international implementation of sustainable forest management. The “Paramaribo Dialogue: a Country-Led Initiative on Financing for Sustainable Forest Management, in Support of the United Nations Forum on Forests,” that will be held September 8–12, 2008 in Paramaribo, Suriname, will be an important milestone on the path to the elaboration of these proposed mechanisms.

This issue of ETRN News on Financing Sustainable Forest Management brings together more than 35 articles on a variety of current policy and implementation initiatives at the international, national and local levels in this field, as well as views and experiences from experts and case studies of financial mechanisms for sustainable forest management.

This newsletter would not have been possible without the contributions of the authors. Jani Holopainen, Tapani Oksanen, Jyrki Salmi and Anna-Leena Simula from Indufor Oy are acknowledged for collecting and editing the articles. Moreover, I would like to extend my gratitude to Kees van Dijk (Tropenbos International) and Herman Savenije (Dutch Ministry of Agriculture, Nature and Food Quality) for taking the initiative for this ETRN News. Their expertise in and dedication to the subject has brought the publication to fruition and guaranteed the quality of the articles.

Adequate financing for sustainable forest management is directly linked to broader development objectives like poverty alleviation, access to safe drinking water, climate change mitigation and the protection and management of the natural resource base for economic and social development. With this publication we hope to take a step towards realising these goals.



R.G.A. Boot  
Director, Tropenbos International

## Financing for Sustainable Forest Management: an overview

### Sustainable forest management for development

Forests emerged as a priority on the international political agenda at the UN Conference on Environment and Development (UNCED) in Rio de Janeiro (1992). Since then, forests have been addressed in a wide range of internationally agreed conventions and instruments — such as UNFF, UNFCCC, CBD, CCD and ITTO — and at national levels within national forest programmes (NFPs) and similar policy frameworks. Increasingly, high-level political priorities for forests are issues related to human well-being, such as the Millennium Development Goals, the Johannesburg Declaration, poverty reduction and sustainable livelihoods, food security, human health, climate change and conflict mitigation.

Deforestation and forest degradation have continued over the last decades despite all the attention and efforts to implement sustainable forest management (SFM). One of the reasons for the continuation of unsustainable practices is the undervaluation of the multi-functionality of forests. Most non-timber forest goods and services are largely not capturing their value because of lack of markets or other compensation mechanisms. Evolving discussions, at both national and global levels, have emphasized the need to change paradigms concerning forests — their sustainable management and use — and to embrace a broader perspective. Given that major drivers of deforestation and forest degradation, such as demographic expansion, agriculture production, poverty, growing needs for energy and commodities, infrastructure developments, etc. are outside the forest sector, SFM is to be understood as a cross-sectoral issue. Forests — defined in a broad sense to include degraded and secondary forests as well as woodlands, agro-forests and trees outside forests — are an integral part of the economic system, landscape and livelihoods of people. These issues need to be mainstreamed in broader development agendas and addressed at international, national and local levels involving a wide range of stakeholders and actors.



Photo: Jan Jansen

One of the main challenges faced by many countries in stopping forest degradation and deforestation — and in enhancing the contribution of forests to development — is the need to increase the competitiveness of SFM and generate more investment in and revenues from forests. It is increasingly realized that the conventional financing mechanisms and the funding volumes (including ODA) have been insufficient, and that the traditional government-based regulatory, control and incentive approaches to correct or alleviate this situation have fallen significantly short of meeting the critical need. A holistic vision and respective approaches and strategies on forest financing are needed to generate additional and new funding and to respond to the emerging challenges for

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SFM. This will entail the development of a broad array of financing mechanisms and instruments to capture funds from local, national, international, public and private sources. It also requires the strengthening of enabling policy environments and forest-related governance and management.

### This issue

This issue of *ETFRN News* brings together 35 expert articles on financing SFM. It includes current initiatives in policy development and implementation at the international, national and local levels, the views and experiences of experts involved in financing SFM and some specific field cases. The articles have been organized into six sections:

1. Multilateral conventions, agreements and organizations;
2. International non-government organizations;
3. Governance, institutions and financing;
4. Forest investment and capital markets;
5. Payment for forest goods and services; and
6. Forests, climate change and energy.

Together they constitute a comprehensive overview on how forest financing is dealt within intergovernmental forest-related conventions and policy processes, in countries, private organisations and NGOs. The focus is on lessons, complementarities and synergies. This issue of *ETFRN News* is meant for a broad range of policy-makers and practitioners involved in financing of SFM, and as context and inspiration for the ongoing discussions on forest financing in various intergovernmental and national processes. This introductory chapter synthesizes key issues and developments that have emerged from the articles. We conclude by presenting some thoughts on the ways forward in developing a holistic framework for forest financing.

### Multilateral conventions, agreements and organizations

International political momentum for forests, reversing the trend of a decade ago, has been growing, which may create opportunities for new and additional forest financing. Forest-related Multilateral Environmental Agreements (MEAs) and international organizations, as discussed in Section 1, indeed show that adequate financing of SFM has become a significant global concern in deliberations and policies. However, each process tends to have different entry points for addressing financing of SFM.

From the CBD perspective, forest financing should support three objectives: forest conservation and sustainable use; maintenance of ecosystem services; and fair and equitable sharing of benefits with a particular focus on forest protected areas. At the same time, it is recognized that although increased attention to new and additional forest financing affects biodiversity, co-benefits will not necessarily be automatically achieved (see 1.2). On the other hand, GEF (the international financing tool for implementing CBD, UNFCCC and UNCCD objectives) promotes a greater investment in forests, in particular leveraging co-financing from various stakeholder groups and multiple sources by applying innovative and complementary approaches (see 1.3). GEF stresses that threats to forests

arise not only from within the forest sector, but from a variety of other sectors, including expansion of agriculture, shifts in global commodity markets, infrastructure development and the exploration of alternative sources of energy. This increases the need to rapidly identify and expand opportunities to act strategically, not only to maintain the remaining forest resource, but to increase forest cover worldwide.

The Global Mechanism of the UNCCD, as discussed in article 1.4, created the Forest Finance Strategic Program (FFSP) to promote the inclusion of forests in relevant policy processes at international, regional and national levels. The primary focus of the FFSP is triggering local action financed by locally generated forest revenue. It aims to mobilize new sources to benefit SFM, adopting a broader cross-sectoral approach to forests and particularly targeting degraded forests and trees outside the forest. It also targets the mainstreaming of National Action Plans (NAP), NFPs and similar national processes into national economic development processes. Under the Climate Change Convention and Kyoto Protocol various financing instruments have been developed for climate change adaptation and mitigation measures that include projects on forest management, afforestation and deforestation. The evolving policy discussions within UNFCCC to establish a financing mechanism for Reducing Emissions from Deforestation and Degradation (REDD) have induced high expectations for its role as a financing tool for SFM and forest conservation. The article on ITTO (1.5) notes the importance of the capital markets in developing alternative business models such as payment for environmental services (PES) and financing projects. FAO, on the other hand, in its capacity as the Chair of the Collaborative Partnership on Forests, facilitates intergovernmental policy dialogues on forest financing with knowledge, technical and coordination support. At the national and regional levels, FAO provides advice and technical assistance to support capacity building for NFPs and the development of strategies for financing (see 1.6).

One of the most important elements of the “Non-Legally Binding Instrument for all Types of Forests” (NLBI) adopted under the UNFF was the agreement to develop a voluntary global financing mechanism as part of a forest financing framework for new and additional financing to support the national implementation of SFM. Also known as a “Portfolio Approach,” it entails the development of a broad array of funds from national, international, public and private sources, together with the strengthening of enabling policy environments and forest-related governance and management. At UNFF-8, in April 2009, a decision will be made on the architecture of the financing approach (see 1.1).

As a whole the articles in Section 1 reflect a broad range of developments and opportunities that contemplate a possible future financing framework for forests at the international level.<sup>1</sup> It has been noted that, despite increased political momentum, the amount of ODA for forests has not grown substantially, while the number of new mechanisms for multilateral financing appears to be mushrooming, each with specific procedures and criteria. Although many of these mechanisms are, in principle and potentially, complementary in scope, there is a risk of dispersal of strengths and lack of coherence. It could be questioned if so many different stand-alone mechanisms, thriving on the same main ODA source, are needed and how effective and sustainable they are.

Given the limited ODA for forestry, another key question is what role it should play and which functions and mechanisms should be in place in an international finance framework to trigger additional funds and enhance the effective development and use of forest finance at the country levels. This definitely extends beyond the generation of more money and may have to include country capacity-building, technical support, brokerage and facilitation and the creation of enabling conditions and more equitable situations. For that, a shared vision on international forest financing and the role of the multilateral system seems to be very much needed.

### International non-government organizations

Leading international NGOs' approaches to, and visions and perceptions of financing SFM are presented in articles included in Section 2. As demonstrated in article 2.1, WWF promotes SFM financing indirectly by creating markets for sustainably produced forest products. This is done by promoting credible forest certification, exposing illegal and unsustainable practices and by interacting with the forest-product industry using the Global Forest and Trade Network (GFTN) as the main platform. WWF sees responsible investment from, for example, banks, investment funds and other financial institutions as a key mechanism for motivating improvements in forest management and rewarding best practices. In addition, WWF promotes innovative mechanisms such as conservation trust funds, debt-for-nature swaps, ecotourism and PES (see Section 5 for more on PES) for financing SFM.

The article on CIFOR (2.3), using Indonesia as an example, identifies, lack of financial integrity in both the private and public sectors — along with failing to address the question of tenure and occupation of disputed forestlands — as the main reasons for unsustainable forest management practices. Local communities are usually the victims of such management practices. For compensating local forest communities and financing SFM, NGOs such as Forest Trends (FT) stress improving the use of PES (see 2.4). On the issue of using PES as a tool for financing SFM, however, there are also completely opposing views. The Global Forest Coalition, for example, argues that PES schemes are having a negative impact on both indigenous land rights and on land reform for forest communities. They may even end up losing their forests because of the implementation of PES projects such as financing reduced deforestation through carbon offsets (see 2.2).

### Governance, institutions and financing

Good governance is an essential precondition for effectively channelling finance to SFM from both public and private sources. Good governance for financing SFM requires comprehensive, coherent approaches, sustainable development principles, the rule of law, transparency, democracy, participation and accountability (see 3.1). The experience in Nigeria, as documented in article 3.2, shows that politics — by influencing the functioning of governance system and through activities of politicians, leaders, bureaucrats, activists and others — can either facilitate or obstruct SFM.

In many countries, one of the biggest problems in financing SFM is that the net revenue it produces is often too low to make it a competitive land-use option or an attractive

investment opportunity. Traditional markets and mechanisms such as investments, credits, tax incentives are often not enough. The situation becomes even more complex because of the under-valuation of the multi-functionality of forests, a strong dependence on timber as the main source of forest income, inequity in the division of costs and benefits in the wood chain, the long-term nature of forestry cycles, low profitability and high risks. Unsustainable practices resulting in deforestation and forest degradation also jeopardize the situation. Therefore, stopping such practices, which is one of the main challenges — including most of the Latin American countries — is essential to increase the competitiveness of SFM and its attraction to investors. With this as context, article 3.3 discusses the issues of institutionalizing and financing SFM from the perspective of NFP and its financing strategies. Based on the lessons learned from 19 Latin American countries, the article builds a conceptual framework for a national forest financing strategy (NFFS) to support an NFP. The multiple values of forests are being increasingly recognized and several promising and innovative mechanisms, especially in the field of PES and capital-market instruments, are emerging to capture those values. As a result, good forest management is able to generate additional revenues and hence attract new investment, especially in the researched Latin American countries. Nevertheless, the challenge remains to develop NFFSs, determine their objectives, principles and components and determine how they can best be implemented. An NFP can provide an integrated framework and multi-actor process for SFM in which an NFFS can operate. International development cooperation should be supportive in this regard. Individual countries could benefit from international support in designing, developing and implementing an NFFS within the framework of their own NFP. Moreover, such support could facilitate the countries in enhancing coordination, coherence and collaboration among donors, which in turn supports forest development and conservation and the implementation of an NFFS. A training module is available on financing mechanisms for forest conservation and SFM, which has been developed by Wageningen International, FAO and the NFP Facility, based on country experiences from around the globe. The module aims to provide tailor-made capacity-building in the development of NFFSs in support of NFPs (see 3.6).

Article 3.4 focuses on the issue of SFM and timber extraction and trade from the Peruvian perspective. In Peru, the forestry code enacted in 2000 established long-term forest concessions based on competitive bidding processes and the principles of SFM, and provided incentives for forest certification. The code raised hopes for much-needed modernization of the forest sector in the country. However, lack of political will, limited understanding of the potential of Amazonian natural resources, poor communications infrastructure and a lack of institutional presence in remote areas kept the forestry code from being fully implemented and the forest sector from being fully modernized. As a consequence, the forest sector in Peru, particularly small enterprises and local communities, remains at the mercy of *habilitación*, an informal financial practice that supports timber extraction and subsequent trade in remote Amazonian forests, operating on the margins of legality. This mechanism does more harm than good. It undermines the vertical integration of the forest industry and fragments the production chain. It

also estranges the logger from processing plants and exporters. This makes *habilitación* a socially unsound scheme, and not at all conducive to SFM. Modernizing the Peruvian forest sector and establishing a strong NFFS with clearly defined financing mechanisms are much needed to get rid of *habilitación* and promote SFM. Establishing commercially viable partnerships among forest communities, private companies and the public sector could be a solution to the problems of Peruvian forestry because such partnerships benefit all parties. Moreover, these partnerships can provide the forest policy instruments and mechanisms to promote financially viable initiatives that support forestry and related ecosystem functions especially from the point of view of smallholders. Successful examples of such partnerships are evident in countries like India and Tanzania (see 3.5).

### Forest investment and capital markets

Selected articles in Section 4 analyze the role of capital markets in promoting investment in SFM. Since the publication of *The Economics of Climate Change*<sup>2</sup> in 2007, many public funds have been set up and many more are being established to create a system for providing payments and other incentives for reduced deforestation. Article 4.1 looks at some of the impacts of private finance on the forest sector of developing countries. It is revealed that sustainable business models and sustainable finance are important requirements for SFM. Sustainable finance provides “patient” financing, i.e. up-front and long-term investments based on appropriate expectations of return that as a result provide incentives to SFM. However, most private financing has not, so far, been able to provide real incentives for SFM. It has instead worked against sustainability despite the fact that its extent and nature have a vastly larger impact than that of public finance on globally significant forests. Therefore, most private financing rather remains as an obstacle to financing SFM. Despite these negative aspects, northern-based pension funds could still be a potential source of private finance in achieving SFM objectives since SFM offers a green solution to such funds’ biggest problem: the potential long-term risk of future liabilities. SFM, by matching future liabilities with future assets, can generate a moderate but long-term financial return. Second, and more importantly, SFM can provide a source of sustainable incentives to forestland owners and forest communities in developing countries to conserve globally significant forests such as those in Amazonia and Indonesia.

Timber Investment Management Organizations (TIMOs) are widely used mechanisms for forest-land investments. Institutional investors, who mostly look for investment options with diversified potential, such as forest-land, often use TIMOs. One question remains: what opportunities, other than diversification potential, do forests and plantations have to attract investments? The answer is forests’ potential to hedge unexpected inflation which matches with the long-term investment horizon of many institutional investors. This potential originates from two features of forests and plantations: 1) the biological growth of trees, which results in greater timber volume and hence value over time; and 2) possible increases in timber and forest-land prices. High return on investment is also a motivating factor investing in forests and plantations. There are social, environmental, financial and technical risks, however, especially in plantation investments, which

influence the business environment and investment climate. Diversification, in regions, countries, tree species and even management regimes, could be a key tool to mitigate such risks. Forest certification could also provide a way to lessen these risks by requiring forest and plantation management to comply with all aspects of economic, social and environmental sustainability (see 4.2). In article 4.3, the role of the capital market as a source of SFM financing is discussed using examples from some Latin American countries. It is argued that, although the capital market still has operational, legal and technical limitations, it can respond to the needs of a particular sector and develop a mechanism for investors. As a result, necessary funds can be generated to leverage a specific activity such as SFM.

### Payments for forest goods and services

In principle, payments for ecosystem/environmental services (PES) bridges the gap between payments and the “unrecognized” demand for environmental services. PES is designed to create markets — and other institutional arrangements to connect providers and users — for “yet to be commoditized” environmental services provided by natural resources such as forests. For these reasons, PES is rapidly gaining attention as a way to provide balance in the trade-off between the supply and demand of environmental goods and services. Since forests provide a vast range of environmental services such as watershed conservation, carbon sequestration and wildlife habitat (much of which are still uncommoditized), PES has been used in many countries as a way to generate additional revenue to finance SFM. Section 5 presents a selection of articles which together describe the current scenario of PES in SFM financing by documenting lessons learned from some Asian, African and Latin American countries. Some innovative PES mechanisms in connection with financing SFM are also described.

Experiences from Asia<sup>3</sup> show that to effectively contribute to SFM, PES schemes must be pro-poor. Excluding socially marginalized people from such initiatives undermines the effectiveness and sustainability of PES. In addition, environmental service providers have to be capable of developing other capital, (human, social, physical and financial) that matches the natural capital. Otherwise, the sustainability of PES will be in question since the provision of such services will then be heavily dependent on the uncertain condition of natural capital. The management of natural resources such as forests — the source of all payable services — will then itself be in jeopardy as a result. Lessons from Ecuador (see 5.2) show that a key factor to secure the financial sustainability of PES schemes is the existence of a group of users who are willing to pay for certain ecosystem services at the local, regional or global level. Secure and clearly defined property rights and land tenure are also necessary, not only for sustainable PES but also to secure effective financing for SFM. The transaction costs of activities such as environmental valuation, legal procedures and monitoring could restrict the financial sustainability of PES in the long run, however.

SFM is no longer considered an attempt to protect biodiversity by isolating large sections of forests from people and investments. Rather, it is perceived to be achieved by restoring and maintaining a sustainable, harmonious and balanced relationship among

all actors and stakeholders of forests, and social, financial and natural capitals. This is the guiding principle of WWF-CARE's equitable payments for watershed services (EPWS), an innovative emerging financing mechanism designed to increase the efficiency and sustainability of forest management (see 5.4). As well as EPWS, some innovative PES mechanisms with immense potential to ensure effective finance for SFM are also slowly making their mark. Recreational value trading (RVT; see 5.6), launched by the Central Union of Farmers and Forest Owners of Finland, is one. RVT allows a municipality, recreational area association or even a state to purchase the recreational value of a specified piece of land, such as forest-land, for a fixed period. It provides an alternative way to obtain income from multi-functional forestry and to respond to the diverse needs of society.

"Landscape auctions" are another new financing tool to generate additional revenue for nature conservation and landscape preservation; they were developed and put into practice in 2007 by the Dutch organization Triple E. This mechanism has the potential to change the way that communities take care of their landscape and forests, and to provide organizations with the means to manage protected forest areas (see 5.7). Although mechanisms like RVT and landscape auctions are, at least initially, designed for developed countries, they could also be successfully implemented in developing countries. Tropical countries are also developing successful and potential initiatives such as BioTrade in Amazonian forests. This mechanism provides an opportunity for sustainable use of biodiversity in the Amazonian region (see 5.8).

There have been many expectations of PES in connection with securing SFM financing. Some of these expectations have been met but most have not. Observations reveal that the actual flows of PES are still very limited. The potential of PES to finance SFM has been in place for ten years, but much of that potential has yet to be materialized. Many PES schemes have functioned more like subsidy schemes — often funded by international development cooperation money — than as real payments for forests' environmental services.

### Forests, climate change and energy

Forests have a vitally important role to play in providing alternative sources of energy and mitigating climate change. The concept of Reducing Emissions from Deforestation and Forest Degradation (REDD) is yet another recognition of forests' role in climate-change mitigation. REDD, irrespective of timber quality or accessibility, increases the potential value of natural forest-land and thus, could tempt both public and private sectors to invest in areas previously considered not commercially viable. This may, however, disadvantage forest-dependent people. Therefore, while governments may think REDD is an opportunity to significantly magnify the monetary value of their forest estate, some NGOs consider it a threat to indigenous rights and community forestry programmes. Nevertheless, REDD has renewed people's interest in the forest sector. Markets are developing for REDD, and some tropical forest nations are even preparing to implement their own REDD strategies in a number of ways, despite the fact that its long-

term shape will remain unclear until UNFCCC negotiations advance much further (see 6.1). REDD could be considered an attempt to stimulate SFM since it has the potential to work through financial markets to provide economic incentives to stakeholders in natural tropical forests. It could make an important contribution to SFM by valuing the maintained carbon stocks of a sustainably managed forest, thus increasing the opportunity cost of converting forest-lands into agricultural lands (see 6.2).

The carbon market could also contribute to financing community forest management (CFM). This is because CFM has the potential to reduce emissions from forest degradation in a cost-effective manner, especially in forests with low commercial value such as savanna woodlands and temperate mountain forests in the tropics. Therefore, carbon funds should, at least in principle, be available for CFM (see 6.6). However, there are doubts over the ability of carbon markets to effectively avert deforestation and contribute to SFM. It is argued that including forest-based carbon credits in anything like the existing size of carbon markets may, in the worst case, depress the price of carbon below a level where real emissions reduction projects are financially viable (see 6.3). It also needs to be determined whether forest conservation — if carbon prices reach a level that makes it more profitable to leave forests standing — could overwhelm SFM, and in consequence restrict even sustainable timber production? The answer will depend on the prices of timber compared to carbon prices, and whether sustainable timber removal will be counted as forest degradation. If it is not counted as forest degradation, SFM could be boosted, since forest owners could profit from both timber sales and carbon storage, and a long-term reduction of emissions from deforestation could be guaranteed. REDD and investment issues from the Indonesian perspective are discussed in article 6.4. Experience shows that the creation of a global REDD mechanism would offer an unprecedented opportunity to substantially expand the financing provided to forest management initiatives in countries now affected by substantial levels of deforestation and forest degradation. It provides the additional advantage that financing would be provided only to successful cases rather than to merely hopeful cases which might or might not produce concrete results. At the same time, REDD would require new dimensions of forest governance in these countries.

In article 6.8, energy and SFM are discussed. This article asserts that the energy sector must invest in SFM for reasons of equity and necessity. This is because sustainability means, in the face of threats of climatic catastrophe, a huge expansion of commercial forestry, which is crucial to the prospect of global climatic sustainability. It also means that forestry activity must be conducted in a sustainable way. No other activity besides forestry can deliver such climatic sustainability while providing a commercial product. On the other hand, no other source besides the energy sector can generate financing on the scale that is necessary for climatic sustainability. Therefore, the energy sector's investments in sustainable large-scale forest plantations may help develop a strategic stock of biomass raw material that could enable it to decrease its dependency on fossil fuels.

## Ways forward

In order to channel optimal and effective financing to SFM, multilateral conventions and organizations need to ensure synergies, complementarities, coherence and effective coordination among themselves. For this purpose, a shared vision among these organizations and conventions on the roles, functions and modus operandi of international forest financing is needed. Establishing such a vision should also contribute to minimizing associated transaction costs. It needs to be kept in mind when discussing international forest financing that most of the financing will continue to come from the private sector. The role of public funding — whether from ODA, international PES, REDD payments or domestic sources — is to a large extent to create the enabling conditions at national and international levels for this investment, to ensure that it effectively contributes to SFM, and to pay for the maintenance of the public-goods and services of forests.

Concurrently, at the international level, new business models should be designed; for example, through promoting credible international certification standards to create favourable market conditions for sustainably produced forest products and services. In addition, risk insurance mechanisms should be developed for forest investments from all sources. Such mechanisms could be developed in cooperation with, for example, investment banks, and integrated into national financial services such as loans and mortgages for forest investments. These mechanisms should enable donors to use relatively small amounts of public finance to steer large private investments into sustainable forestry. This could be a future model to use ODA as a steering mechanism to generate more significant benefits. A key question that still needs to be answered is which functions of forests need to be addressed at the international level to help countries, given their efforts to enhance and diversify the financing of SFM within their policy implementation frameworks. Countries themselves should better articulate the role of bilateral and multilateral resources and support structures by establishing their own priorities and strategies.

These important issues need to be addressed at the country level to ensure sustainable financing for effective forest management practices:

1. Countries need holistic financing strategies for forest sector development, which bind together various opportunities, instruments and sources in a coherent framework that responds to the financing needs of the various types of forest managers;
2. Robust and equitable sectoral policies, strategies, laws and regulations, implemented and enforced by competent institutions, must underpin these financing strategies. In their absence, additional financing may lead to increased deforestation, forest degradation and forest conversion for short-term profit, and further marginalization of forest-dependent communities;
3. Good governance, based on the principles of enhanced law enforcement, transparency, accountability and integrity, must be ensured. The governance system should be kept free of the bad influence of short-term politics and vested interests.

If not, no financial mechanism or convention, be it national or international, can be of best use in financing for SFM;

4. Well-defined and secure forest-land tenure is a precondition for financial flows to SFM. Addressing this issue is a priority; and
5. Land-use planning — involving all relevant sectors — is required to prevent unplanned and uncoordinated change in land use driven by factors outside of the forest sector such as biofuels, cattle farming, and soy and palm-oil plantations. No foreseeable amount of payments for the various products and services of forests can alone counterbalance these impacts.

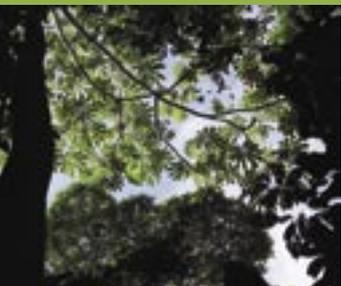
To be effective, and to contribute to the broader objectives of the forest sector and national development, a national forest financing framework needs to be developed and implemented as a multi-stakeholder process within the context of, and applying the principles of, the NFP. It has to accomplish several things:

- "package" the multiple benefits and payments at the forest management unit (FMU) level into a simple, manageable and measurable multifunctional management regime that can be understood and made operational by forest managers, be they public authorities, private companies, local communities or private forest owners;
- streamline monitoring requirements and in general keep transaction costs low in channelling the payments to forest managers; and
- develop specific models for small-scale producers, which enable them to benefit from these payments and do not put them at a disadvantage compared to larger-scale operators.

When looking at the above country-level issues, it is evident that many of them have been discussed and debated for years — if not decades — in the context of the international forest policy dialogue and in national forest policy fora. What has been missing so far is the political will and leadership required for implementation, which has often been blocked by vested interests. The articles in this *ETFRN News* discuss some of the most important developments in forest financing. It is hoped that these developments, along with the promise of new and additional financial resources for SFM, will help to break this deadlock.

### Endnotes

1. This also include World Bank's initiatives such as the Forest Carbon Partnership Facility, the Forest Investment Fund and the Global Forest Partnership, which are not discussed specifically in this issue of *ETFRN News*.
2. Stern, Nicholas. 2007. *The Economics of Climate Change: the Stern Review*. New York and Cambridge: Cambridge University Press.
3. These were gathered through the implementation of the project "Rewarding Upland Poor for the Environmental Services they provide" (see 5.1).



# Section 1

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Multilateral  
conventions,  
agreements and  
organizations

Photo credits

- p.2 Tree fern seen from underneath. Tran Huu Nghi, Tropenbos International Vietnam
- p.6 Women carrying fuel wood. Tran Huu Nghi, Tropenbos International Vietnam
- p.10 Ferns in Cameroon. B. van Gernerden
- p.14 Guiana Shield Initiative
- p.18 Logging truck in Indonesia. Jan van der Ploeg, Tropenbos International
- p.20 Tropenbos International Guyana



## 1.1 UN Forum on Forests

UNITED NATIONS FORUM ON FORESTS  
SECRETARIAT

### Mobilizing financial resources for SFM

At the 1992 UN Conference on Environment and Development (UNCED), the issue of financing was one of the most operationally difficult and politically sensitive topics discussed, and this challenge continued through subsequent deliberations at the Intergovernmental Panel on Forests (IPF), Intergovernmental Forum on Forests (IFF) processes (1995–2000), and the current UN Forum on Forests (UNFF).

In 2003, UNFF convened an ad hoc expert group to discuss good practices, lessons learned and constraints affecting the effectiveness and efficiency of existing financing and the transfer of environmentally sound technologies.<sup>1</sup> Several other international expert meetings, in the form of country-led initiatives (CLIs), were organized in Pretoria, South Africa (1996); Croydon, UK (1999); Oslo, Norway (2001); and San José, Costa Rica (2005).<sup>2</sup> These discussions were instrumental in advancing understanding of the political and technical complexities underpinning forest financing.

In 2006, at its sixth session, UNFF agreed on four Global Objectives on Forests, the fourth of which is, “Reverse the decline in official development assistance for sustainable forest management and mobilize significantly increased new and additional financial resources from all sources for the implementation of sustainable forest management.”

In 2007, following intense negotiations, the seventh session of UNFF adopted the Non-Legally Binding Instrument on All Types of Forests (NLBI) which was hailed by some as a major achievement in international political commitment to SFM. The means of implementation, particularly financing, is one of the key thematic areas within the NLBI, which emphasized that “effective implementation of sustainable forest management is critically dependent upon adequate resources, including financing, capacity development and the transfer of environmentally sound technologies, and recognizing in particular the need to mobilize increased financial resources.” This focus is clearly reflected in the multiple references to financial resources within the body of the



THE CALL FOR  
NEW, INCREASED  
AND ADDITIONAL  
RESOURCES TO  
SUPPORT THE IMPLEMENTATION OF  
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VARIOUS INTERGOVERNMENTAL FOREST  
POLICY MEETINGS OVER THE PAST FEW  
DECADES.

NLBI, in particular the sections related to principles, national policies and measures and International cooperation and means of implementation.<sup>3</sup>

At its 2007 substantive session, the Economic and Social Council of the UN decided<sup>4</sup> that UNFF should “develop and consider, with a view to adopting at the eighth session of the Forum, a voluntary global financial mechanism/portfolio approach/forest financing framework for all types of forests, aiming at mobilizing significantly increased, new and additional resources from all sources to support the implementation of sustainable forest management, the achievement of the global objectives on forests and the implementation of the non-legally binding instrument on all types of forests.” The council also called for an open-ended Ad Hoc Expert Group (AHEG) to meet before the eighth session to develop proposals along these lines.<sup>5</sup>

The issue of possible protocols and framework for a financing mechanism for SFM was raised during deliberations at UNFF7 when the UNFF Bureau presented a possible approach on a funding component for the NLBI. Member States were also presented with a study on forest finance, commissioned by the World Bank’s Programme on Forests (PROFOR), which included recommendations on possible funding sources and protocols. The issues raised during the discussions at UNFF-7 will be carried forward in the preparatory work and analysis being conducted in the lead up to the AHEG meeting on finance<sup>6</sup> and UNFF-8.<sup>7</sup>

As part of this preparatory process, the UNFF Secretariat, together with members of the Collaborative Partnership on Forests, has formed an Advisory Group on Finance. Through this arrangement, FAO, GEF, ITTO, the UNFCCC Secretariat and the World Bank are providing support in preparing background and official documents for both the AHEG meeting and UNFF-8. The documentation for the AHEG meeting will include Notes by the Secretariat on Financing for Sustainable Forest Management; a Secretary-General’s Report on voluntary global financial mechanisms, a portfolio approach and a forest financing framework will be provided for UNFF-8. The AHEG report will also be presented for the consideration of the UNFF.

In addition, the Governments of Suriname, the Netherlands and the United States recently announced their intent to hold a Country-Led Initiative (CLI) in support of UNFF entitled the International Dialogue on Financing Sustainable Forest Management. The CLI will be held in Paramaribo, Suriname in September 2008. More than 100 forest and finance experts, policymakers from governments, international organizations, financial institutions, businesses, philanthropic foundations, NGOs and academic institutions are expected to participate. It is expected that the outcome of the discussions will provide a valuable contribution to deliberations on this issue at the AHEG and UNFF-8.

The same dedication and cooperative spirit that produced the Non-Legally Binding Instrument on All Types of Forests should also result in important decisions on financing issues at UNFF-8. If it does, international cooperation for SFM, the implementation of the NLBI and progress towards the achievement of the four shared Global Objectives on Forests will be elevated to a new level.

Further information on major steps of the process, including AHEG and UNFF as well as official documents, will be made available on the UNFF website ([www.un.org/esa/forests](http://www.un.org/esa/forests)).

### Endnotes

1. Meeting documents are available at [www.un.org/esa/forests/adhoc-finance.html](http://www.un.org/esa/forests/adhoc-finance.html).
2. The official titles of these meetings are: (i) Financing mechanisms and sources of finance for sustainable forestry 4–7 June 1996, Pretoria, South Africa; (ii) Workshop on financing of sustainable forest management, 11–13 October 1999, Croydon, UK; (iii) International workshop of experts on financing sustainable forest management, 22–25 January 2001, Oslo Norway, (iv) Ad hoc expert group on finance and transfer of environmentally sound technologies, 15–19 December 2003, Geneva, Switzerland; and (v) Innovative financial mechanisms: searching for viable alternatives to secure basis the for the financial sustainability of forests, 29 March–1 April 2005, San José, Costa Rica.
3. See resolution 62/98 para 2 (d) and (c); 6 (d), (f), (h) and (i); and 7 (a), (b) and (c).
4. See decision E/2007/277.
5. The Bureau of the eighth session decided that meeting will take place on November 3–7, 2008 at the UN Office in Vienna.
6. See footnote 5.
7. This is being held April 20–May 1, 2009 at UN HQ in New York.



## 1.2 Sustainable forest financing and the CBD

TIM CHRISTOPHERSEN, MARKUS LEHMANN  
AND YIBIN XIANG

Mechanisms for forest financing are evolving rapidly. Development assistance for forestry has increased only slightly in recent years;<sup>1</sup> however, new and innovative opportunities are emerging, such as reducing emissions from deforestation and forest degradation (REDD). Most instruments directly or indirectly affect biodiversity, but co-benefits for biodiversity from forest financing—for instance from REDD mechanisms—will not necessarily be automatically achieved. Ideally, forest financing should support all three objectives of the Convention on Biological Diversity (CBD): the conservation of biodiversity, its sustainable use, and the fair and equitable sharing of its benefits. Forest financing mechanisms should specifically address three issues:

- financing for forest conservation and sustainable use, particularly for protected areas (PAs), and for other in-situ and ex-situ conservation measures;
- support for other aspects of sustainable forest management (SFM), in particular the maintenance of ecosystem services, and those SFM aspects that correspond directly to the Ecosystem Approach, such as ecosystem or landscape-level planning, participatory approach, and cross-sector decision-making;
- ensuring the fair and equitable sharing of benefits derived from forest biodiversity, in particular through the involvement of indigenous and local communities.



FINANCING MECHANISMS,  
PARTICULARLY REDD,  
PRESENT BOTH  
OPPORTUNITIES AND  
CHALLENGES IN THE EFFORT TO ACHIEVE  
SUSTAINABLE FOREST FINANCING.

### Financing for forest conservation and sustainable use

Approximately 11% of all forests are allocated for the conservation of biodiversity, mostly in the form of PAs (FAO 2006). The current financial shortfall for core operations and effective management of PAs in developing countries is estimated to be between €2.3 and 8.2 billion per year (Emerton, Bishop and Thomas 2006; Bruner, Hanks and Hannah 2003). Covering this financing gap would yield a high return on investment in terms of economic, social, and cultural benefits. In Canada, for example, Parks Canada sites generate annual tourism revenues of €950 million for the national economy, five times the amount spent

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on them by government. In Brazil, four forest management reserves totaling 40,000 km<sup>2</sup> which were designated in 2006 for sustainable timber extraction are expected to generate €63 million in annual gross revenue from timber and to provide some 8,600 jobs (Mulongoy and Gidda 2008).

The CBD's financial mechanism, the Global Environment Facility (GEF), is a key source of support for the establishment and maintenance of forest PAs and for SFM. Since 2000, GEF has supported 92 forest-related projects in 52 countries with €247 million from its trust fund. It has generated €959 million in co-financing.

A significant funding gap for the conservation of forest biodiversity remains, however. Increasing the available funding for forest PAs, including money from new and additional sources, should be a priority for future forest financing.

### SFM and Payments for Ecosystem Services (PES)

Timber and non-timber forest products (NTFPs) are benefits derived from forest biodiversity, as are most forest ecosystem services, such as water filtration, recreational opportunities and carbon sequestration. Innovative financing approaches for these and other forest ecosystem services are emerging, including pilot initiatives from the private sector. The main focus is carbon sequestration, and reducing emissions from deforestation and forest degradation (REDD). The CBD views REDD as an important opportunity for forest biodiversity (decision VIII/30). Consistent with a recommendation of the CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), the CBD Secretariat is involved in preparing pilot and demonstration projects in collaboration with the members of the Collaborative Partnership on Forests, notably the UNFCCC Secretariat and the World Bank.

Sustainable forest financing should aim to avoid any negative impacts on biodiversity. Moreover, it should maximize the biodiversity benefits of REDD mechanisms and other PES schemes. For instance, in order to maximize REDD's biodiversity benefits, it has recently been proposed to bundle payments for carbon sequestration and for biodiversity conservation (Peterson et al. 2007). This could allow REDD projects and approaches to generate a "biodiversity premium" for forest owners and managers.

These and other suggestions should be explored further. A number of tools prepared under the CBD can provide useful support to this end. The CBD Secretariat maintains a database on incentive measures<sup>2</sup> that includes information on innovative ways to finance forest ecosystem services. The secretariat has also published a "toolkit" which includes examples of financial incentives.<sup>3</sup>

While several Parties to the CBD, including China, Costa Rica and Panama, have considerable experience with national payment schemes for ecosystem services, there is limited experience with International Payments for Ecosystem Services (IPES). Future forest financing mechanisms should build on national PES experience, while striving to improve cooperation at the international level. In order to support further work on this

important aspect, the CBD Secretariat is cooperating closely with a project undertaken by UNEP and IUCN which seeks to overcome the most salient technical and political obstacles associated with scaling up PES to the international level, through a greater focus on biodiversity. The project has released an analysis of opportunities to realize biodiversity benefits within REDD mechanisms, and an assessment of the potential private demand for international ecosystem services, with a focus on avoided deforestation.<sup>4</sup> A comprehensive publication on IPES is being prepared.<sup>5</sup>

### Fair and equitable sharing of benefits

Targeting the right recipients is key to the development of successful financing mechanisms. In order to generate effective incentives for forest conservation and sustainable use, biodiversity stewards need to benefit from financing mechanisms in a fair and equitable manner. Although this might be easily achieved if biodiversity stewards owned the forest, land tenure rights and ownership are unclear in many cases, particularly in developing countries, as shown in a recent analysis of CBD's work on forest biodiversity.<sup>6</sup> This finding confirms earlier research<sup>7</sup> (e.g., Jaramillo and Kelly 1997).

Designing and implementing mechanisms which ensure the fair and equitable sharing of benefits with local biodiversity stewards, in particular indigenous and local communities, is a major challenge. Their early, full and effective involvement during the design phase of any new mechanisms will be a critical success factor and will ensure that traditional ecological knowledge is utilized to the fullest extent. The CBD operates a special trust fund that supports the effective participation of representatives of indigenous and local communities in relevant meetings under the CBD.

Parties to the CBD are currently negotiating an international regime on Access and Benefit Sharing (ABS). The regime may eventually provide further practical guidance on how to achieve the fair and equitable sharing of benefits in the context of sustainable forest financing.

### Next steps

The Parties to the CBD have repeatedly emphasized the need to allocate new and additional resources for the conservation and sustainable use of biodiversity in developing countries. This goal is included in the framework for reaching the 2010 target to "substantially reduce the loss of biodiversity" (decision VIII/15). Forest financing from a variety of sources will be of key importance in reaching this target, since forests are home to more than two-thirds of all terrestrial species. Maintaining and safeguarding this diversity — while at the same time using it sustainably, and sharing its benefits in a fair and equitable manner — should be at the heart of any forest financing mechanisms.

## Endnotes

1. According to OECD figures, marked aid to forest biodiversity was about €143 million in 2006, accounting for 10.75% of total marked aid to biodiversity and 51.75% of total aid to forestry. In the two-year period 2005–2006, 0.45% of total Official Development Assistance (ODA) was spent on forestry; 1.91% of ODA was spent on biodiversity. Taking two-year nominal averages of bilateral assistance (2000–2001 and 2005–2006), biodiversity-related forestry assistance grew much less than overall aid to biodiversity but more than assistance to forestry. Nominal development assistance in forestry for biodiversity in 2005–2006 was 71% higher than in 2000–2001, while nominal development assistance to forestry increased by only 22% and marked aid to biodiversity by 108% (cf. UNEP/CBD/COP/9/INF/5: [www.cbd.int/doc/?meeting=COP-09](http://www.cbd.int/doc/?meeting=COP-09)).
2. CBD Database on Incentive Measures: [www.cbd.int/incentives/case-studies.shtml](http://www.cbd.int/incentives/case-studies.shtml).
3. “Cross-Sectoral Toolkit for the Conservation and Sustainable Management of Forest Biodiversity”, CBD Technical Series: [www.cbd.int/programmes/outreach/awareness/ts.shtml](http://www.cbd.int/programmes/outreach/awareness/ts.shtml).
4. See Peterson et al. (2007) and Huberman et al. (2008).
5. See for further information [www.unep.ch/etb/areas/ipes.php](http://www.unep.ch/etb/areas/ipes.php).
6. See Document UNEP/CBD/SBSTTA/13/3://[www.cbd.int/doc/meetings/sbstta/sbstta-13/official/sbstta-13-03-en.doc](http://www.cbd.int/doc/meetings/sbstta/sbstta-13/official/sbstta-13-03-en.doc).
7. See Document UNEP/CBD/WS-Incentives/2/INF/1: [www.cbd.int/doc/meetings/im/wsim-02/information/wsim-02-inf-01-en.doc](http://www.cbd.int/doc/meetings/im/wsim-02/information/wsim-02-inf-01-en.doc).

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## 1.3 GEF's financing strategy for SFM

GUSTAVO FONSECA, ANDREA KUTTER AND MARK ZIMSKY

Conserving forest ecosystems is a core element of the mandate of the Global Environment Facility (GEF). Forest ecosystems provide multiple benefits, including being the repository of more than half of the world's biodiversity. Forests have become a central concern for improving the global environment. For GEF, sustainable forest management (SFM) is a broad concept dealing with the conservation and appropriate use of forests, including conservation of biological diversity; prevention, control and reversal of land degradation; mitigation or adaptation to climate change; and the sustainable production of timber and non-timber forest products. At GEF-4, in Washington D.C. in June 2006, SFM was centre stage.

In the past 15 years, GEF has invested more than €630 million in SFM activities to maintain and enhance the economic, social and environmental values of all types of forests for the benefit of present and future generations.<sup>1</sup> Financing strategies are an integral part of the three major Rio conventions: the UN Convention on Biological Diversity (CBD), the UN Framework Convention on Climate Change (UNFCCC) and the UN Convention on Combating Desertification and Drought (UNCCD), for which GEF is the financial mechanism.<sup>2</sup>

### The GEF Programme on SFM

In the past, GEF addressed SFM in an uncoordinated way, due to the way in which GEF project funding was made available. Before the last replenishment cycle, most of the GEF-supported SFM projects drew resources from the biodiversity focal area, with a heavy emphasis on improving the management of forest protected areas. They focused to a lesser extent from the focal areas of land degradation and climate change. It was not until GEF-4 that other dimensions of SFM started being directly addressed, particularly those dealing with forest management in the larger landscape.<sup>3</sup>



GEF'S PROGRAMME  
IN SFM PROVIDES A  
WAY FOR COUNTRIES  
TO RECEIVE FUNDING

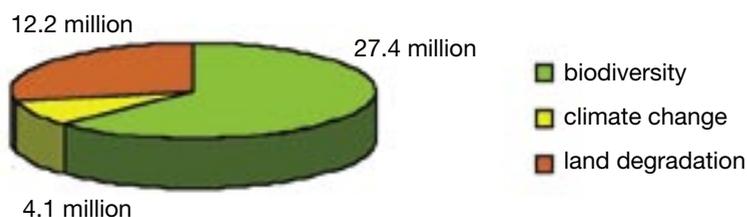
FOR PROJECTS THAT DRAW ON PREVIOUSLY  
SEGREGATED RESOURCE POOLS IN THE AREAS  
OF BIODIVERSITY, CLIMATE CHANGE AND  
LAND DEGRADATION

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The GEF-4 strategy (2006–2010)<sup>4</sup> has substantially changed the dynamic of GEF's internal funding structure. It enhances cross-sector integration by promoting the pooling of GEF resources for individual projects that generate multiple global environmental benefits. GEF's programme in SFM provides a way for countries to receive funding for projects that draw on previously segregated resource pools in the areas of biodiversity, climate change and land degradation (Figure 1).

**Figure 1. GEF SFM programme: resource use by focal area (in €)**



As part of this SFM approach, GEF recognizes that forest ecosystems are not solely a key habitat for globally important plant and animal species, but also a source of water and the basis of livelihoods for millions of people. It also draws on recent findings that changes in land use and land cover — including forest degradation and deforestation — contribute to more than 20% of global greenhouse gas emissions. CO<sub>2</sub> emissions from tropical deforestation are expected to increase atmospheric CO<sub>2</sub> by 29–129 ppm within 100 years, far above prior estimates.<sup>5</sup> Slowing tropical deforestation has become central to the global environmental agenda as a vital component of climate change mitigation.

In November 2007, the GEF Council approved a dedicated SFM programme (Box 1). It is financed through resources from the GEF trust fund and leverages co-financing from various stakeholder groups, including governments, bilateral and multilateral donors and the private sector.<sup>6</sup> During the first six months of programme implementation, the GEF has committed about €44 million and leveraged about €142 million in co-financing. GEF investments in SFM during the fourth replenishment period will likely exceed €159 million. With the growing interest in SFM in the international community, the co-financing target is expected to be close to €630 million.

#### Box 1. Priorities of GEF's SFM programme

- sustainable financing of protected area systems at the national level
- strengthen terrestrial protected area networks
- strengthen the policy and regulatory framework for mainstreaming biodiversity
- foster markets for biodiversity goods and services
- support sustainable forest management in the wider landscapes
- promote sustainable biomass production
- prevent, control and manage invasive alien species
- manage LULUCF as a means to protect carbon stocks and reduce greenhouse gas emissions

A special incentive mechanism, a Tropical Forest Account (TFA), has been established to encourage greater investment in tropical forest management by forest-rich countries. By investing the resources allocated to them under the GEF's Resource Allocation Framework,<sup>7</sup> countries with significant tropical forest resources can leverage additional funds from the GEF. Regions like the Congo Basin, Amazon and New Guinea are already developing concepts to draw from this mechanism for capacity development support for a future financing scheme under reduced emissions from degradation and deforestation (REDD), and to implement sustainable forest management. The innovative project portfolio that is emerging reflects the leveraging power of multiple sources of funding and complementary approaches, and shows real potential to deliver multiple benefits from the conservation and sustainable use of forest ecosystems.

### Next steps

The fourth replenishment period of the GEF is a turning point in many ways. The time has come to revisit the GEF's role as the largest funding mechanism dedicated to protecting global biodiversity, helping mitigate causes and impacts of climate change, and preventing further land degradation. There is an increased need to rapidly identify and expand opportunities to act strategically, not only to maintain the remaining forest resources, but to increase forest cover worldwide. The renewed emphasis on forests in the GEF highlights an irreplaceable global good whose value to society remains to be fully assessed and demonstrates concrete ways to deal with existing and emerging threats to forest ecosystems.

As the GEF gains experience through the implementation of its SFM programme, it builds the foundation for a more ambitious global forest initiative in GEF-5, incorporating more explicit climate change mitigation via REDD. Threats to forests for their conservation and sustainable management arise from a variety of sectors, including the expansion of agriculture, shifts in global commodity markets and infrastructure development; opportunities arise from exploring alternative sources of energy. More importantly, the role of forests in global carbon emissions is becoming better known in policy circles. GEF must be prepared to act swiftly in this area; the effective implementation of the SFM strategy and other related programmes will require a more comprehensive and inclusive approach.

Going forward, the GEF will move from solely dealing with individual projects designed to achieve specific focal area objectives to larger programmes composed of many complementary projects, which draw on resources from various GEF focal areas. A programmematic approach such as this fosters strategic cross-fertilization and enables new multi-focal area initiatives to emerge.

## Endnotes

1. See GEF Council paper "GEF Activities Related to Forests" (GEF/C.27/14 ), 2005.
2. See "Instrument of the Establishment of the Restructured Global Environment Facility," 2008.
3. See GEF Council paper "Focal Area Strategies and Strategic Programming for GEF-4" (GEF/C.31/10), 2007.
4. See footnote 3.
5. See "Climate Change 2007: Synthesis Report," IPCC, 2007.
6. See Council paper "Work Programme" (GEF/C.32/6/Rev.1), 2007.
7. See GEF Council paper "Implementing the GEF Resource Allocation Framework" (GEF/C.27/5/Rev.1), 2005.



## 1.4 UNCCD and forest finance

### THE GLOBAL MECHANISM OF UNCCD

The Global Mechanism (GM) is a subsidiary body of the United Nations Convention to Combat Desertification (UNCCD). Its core mandate includes, “to increase the effectiveness and efficiency of existing financial mechanisms ... to promote actions leading to the mobilization of channelling of substantial financial resources ... to developing country Parties to combat land degradation and poverty.” The GM has developed and will start implementing a Forest Finance Strategic Programme (FFSP). In initiating the FFSP, the GM was guided by, among other things, its Consolidated Strategy and Enhanced Approach (CSEA) and specific UNCCD Conference of Parties (CoP) decisions.

### Forest Finance Strategic Programme

The FFSP promotes the inclusion of forests of relevance to the UNCCD in relevant policy processes as a prerequisite for investment and in national, regional and international considerations of forest finance and investments. This includes forests in arid and semi-arid regions, degraded forests, low-density forests (both in terms of carbon and biomass) and — most importantly — forests and trees outside large, mainly, tropical, forests. These are often the forests on which poor rural populations depend and on which their livelihoods are based. The GM’s focus for this programme is, as its mandate dictates, financing considerations and their potential for increased investments. The GM is not a technical agency that implements forestry projects. It provides advice, mainly to governments, on sectors and mechanisms and on ways to increase financing for sustainable land management (SLM) and concerns of the UNCCD.

Countries implementing Multilateral Environmental Agreements (MEAs) have inevitably initiated forest-related national policies and actions. Such actions usually include afforestation, reforestation, forest protection, rehabilitation of degraded forests and agro-forestry. They are carried out for several reasons:

- to alleviate pressure on natural forests to conserve biodiversity and/or protect watersheds;



THE GM’S FOCUS IS TO MAINSTREAM THE INTEGRATION OF NAPs, NFPs AND SIMILAR

PROCESSES INTO NATIONAL DEVELOPMENT PROCESSES AND TO SUPPORT FINANCING MECHANISMS FOR TREES OUTSIDE FORESTS AND LOW-DENSITY FOREST ECOSYSTEMS.

- to provide woody biomass to meet increasing demands for forest products from increasing human populations;
- to sequester carbon and hence reduce global warming;
- to stabilise fragile areas and ecosystems; and
- to improve land productivity.

Other actions have been initiated by the forestry sector to meet some or all of these objectives, sometimes as part of an effort to implement an MEA. The objectives are part of the recently agreed Non-legally Binding Instrument on forests (NLBI) of the UN Forum on Forests and of National Action Plans (NAPs) to combat desertification and the National Forest Programmes (NFPs) of many countries. In fact, many NAP and NFP actions relate to forest/vegetation cover and are based on these or similar principles. This is not surprising, since the causes of deforestation and land degradation/desertification are closely related and there is strong correlation between sustainable forest management (SFM) and SLM. In many developing countries, implementation of MEAs and other forest-related instruments (FRIs) has been financed by both bilateral and multilateral donor agencies, international non-governmental organisations (NGOs) and national budgets.

The FFSP has several goals:

- to engage in new forms of collaboration, strategic alliances and partnerships in view of changes in development financing;
- to link with actors and engage in a sector that has not traditionally been involved in UNCCD implementation, but which has significant potential for increasing investment of UNCCD implementation;
- to benefit from financing that is increasingly being made available to forestry within the context of CBD and UNFCCC and which can be mobilised to benefit SLM; and
- forests provide an opportunity to efficiently attain the multiple objectives of MEAs.

### The Global Mechanism and financing of SFM

Global attention to forests has for decades been skewed in favour of the large forests in protected areas (PAs) owned by the state, particularly in forest-rich countries. The bulk of forest/tree cover in many countries is often found outside these areas. This is why the NLBI refers to “all types of forests” and “trees outside forests.” These forests and trees are often considered unproductive despite their value to local economies, livelihoods and carbon sequestration. They are under pressure from uncontrolled harvesting — especially for wood-fuel — invasion by arable farming and overgrazing. This is creating land degradation hotspots. For these reasons, the FFSP will target degraded forests outside PAs.

The overall objective of the FFSP is to increase investment for degraded forests and forests in dry lands as a direct contribution to reducing poverty and enhancing rural development. Specific objectives include developing and implementing national and regional initiatives in GM’s focus countries to rehabilitate degraded forests as part of an overall effort to implement UNCCD. Targeted forests may be in forest-rich countries or

in countries with low forest cover, depending on national realities and priorities and clear indications that GM's engagement will add value and enhance its work.

FFSP's main focus is mainstreaming NAPs, NFPs and similar processes into national development processes. The programme will also carry out initiatives such as these that will create support for mainstreaming:

- Innovative financing mechanisms — ODA and domestic budgets by themselves are inadequate for long-term funding for SFM/SLM. To succeed, SLM and SFM need more reliable sources of funding. Through the FFSP, the GM will initiate country-level efforts to promote a number of activities, such as transparency in forest harvesting and revenue collection. It will also assist countries to use any increased revenues to create self-replenishing financing mechanisms. This will require close liaison between the FFSP and the World Bank's Forestry Law Enforcement and Governance programme.
- Public Information and Education — Providing basic information about biodiversity and ecosystems will be more effective in obtaining the support of people and their governments than sentimental appeals or warnings about the dangers of deforestation.
- Capacity building — Increased awareness often reveals institutional, organisational and technical capacity gaps and opportunities and can improve the way in which a system functions. FFSP will build capacity and help a country fill the gaps and/or harness the opportunities. This will be mainly achieved by including forest financing components in the GM's initiatives in developing Integrated Financing Strategies.
- Forest valuation through adding value — Most of the unmanaged forests in developing countries provide subsistence safety nets for the rural poor. Their contribution to GDP is grossly undervalued, if at all, and their resources are reaching their limit. Adding value and product development for NTFPs for niche markets, community-based ecotourism, agro-tourism and bio-prospecting should help in creating livelihoods that are partially independent of land/forest productivity. The proceeds could contribute to capitalisation and commercialisation of these endeavours, which would reduce poverty and provide incentives for investment in SLM/SFM.
- Piloting Frontline Implementation – Within the context of the Global Partnership on Forest Landscape Restoration, FFSP will participate in innovative pilot projects to rehabilitate degraded forests, especially in its target countries.

### Current implementation and lessons learned

FFSP is responsive to GM's regional programmes and operational cycles and on the aims of GM's strategic programmes: provision of technical backstopping; catalysing resource mobilisation through GM's networks, lessons learned and cutting-edge knowledge; and a coherent corporate approach to resource mobilisation using systematic channels and feedback. FFSP has reviewed the current and potential forestry content of GM's regional programmes to see whether they need to be adjusted. FFSP has also initiated a dialogue with both bilateral and multilateral bodies at the national and international

level, focusing on degraded forests and trees outside forests in the context of SFM and SLM. Most notably, GM is now participating in the Collaborative Partnership on Forests (CPF) of the United Nations Forum on Forests (UNFF) as a joint activity with the UNCCD Secretariat. GM has successfully drawn the CPF's attention to SFM and SLM, in particular in its most recent discussions on forests and climate change and finance. It has also worked to direct the global focus to degraded forests and trees outside PAs.

It will be important to ensure that any definitions of ecosystem types eligible under REDD do not exclude low-density forest ecosystems and woodlands. While eligibility for REDD does not guarantee a business case for carbon investment into such areas, it is a necessary precondition.

The most crucial precondition for UNCCD-relevant forests is that they be explicitly included in the language of international agreements and in how they define forests and deforestation. It is also essential that an international agreement include provisions for forest degradation, and not just outright deforestation.

There is no global entity dedicated to systematic mainstreaming. GM has experience in mainstreaming NAPs into Poverty Reduction Strategy Papers (PRSPs), which gives it a comparative advantage to fill this void. This experience should now be combined with NFP mainstreaming. If no NFP is in place, the Food and Agriculture Organisation (FAO)'s NFP Facility, the World Bank's Programme on Forests (PROFOR) and other partners will assist in developing one. If an NFP already exists and has been mainstreamed at the national level, FFSP will focus on broadening mainstreaming at sub-national levels.

The major lesson learned is that global dialogue on financing SFM is long on rhetoric and short on achievements. Foreign capital investment is now seen as a panacea when in fact local action — financed by locally generated forest revenue — is adequate, if national forestry and fiscal policies, laws and procedures are even partially implemented.



## 1.5 International Tropical Timber Organization

RAMON CARRILLO

Since 2006, the International Tropical Timber Organization (ITTO) has facilitated the promotion of investment in natural tropical forests at the national, regional and international level. Several meetings have been held for this purpose:

- International Tropical Forest Investment Forum: issues and opportunities for investment in natural tropical forests (Cancun, Mexico, April 2006);
- Latin America Tropical Forest Investment Forum (Curitiba, Brazil, November 2006);
- Asia-Pacific Tropical Forest Investment Forum (Bangkok, Thailand, August 2007);
- West-Central Africa Tropical Forest Investment Forum (Accra, Ghana, August 2007); and
- Bolivia Tropical Forest Investment Forum (La Paz, Bolivia, March 2008).

The aim of these meetings was to identify opportunities for investment in natural tropical forests, based on their multifunctionality (such as supply of wood, non-timber forest products

or NTFPs, and environmental services) and propose ways to overcome the barriers to and risks in investment opportunities. Discussions have illustrated how such investments can benefit private investors, governments and forest-dependent communities.

The meetings were organized in collaboration with relevant partners (FAO, the World Bank, Inter-American Development Bank, African Development Bank, industry associations, forestry organizations and relevant NGOs). They brought together more than 600 participants from different sectors, such as private investors, private banking, fund and asset managers, development banks, forest industries, forest communities and forest owners, brokers and traders, governments and NGOs.

Current levels of investment in natural tropical forests are inadequate for their sustainable management and for avoiding conversion to other land uses which are more



CURRENT LEVELS OF INVESTMENT IN NATURAL TROPICAL FORESTS ARE INADEQUATE FOR THEIR

SUSTAINABLE MANAGEMENT AND FOR AVOIDING CONVERSION TO OTHER LAND USES WHICH ARE MORE COMPETITIVE IN THE SHORT TERM.

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**Ramon Carrillo** is Project Manager for ITTO's Forest Industry Division.

competitive in the short term. Economic interests can be aligned with sustainability and poverty alleviation, however, by improving conventional financial mechanisms (such as taxation) and adopting innovative ones (such as payment for environmental services), and by developing effective policies and government incentive programmes.

### Recommendations

Several recommendations to stakeholders (local and central governments, small and large scale enterprises, regional and international organizations, NGOs and local communities) arose from the meetings, related to supporting investment in natural tropical forests and linking forestry operations to capital markets.

#### Supporting investment in natural tropical forests

- securing land tenure and access rights (including transparent and secure concession contracts where appropriate);
- strengthening forest governance;
- developing less complex and more equitable taxation;
- simplifying bureaucratic and regulatory procedures;
- adjusting financial incentives for sustainable forest management (SFM) in natural forests to make it competitive with other land uses;
- developing appropriate public procurement policies for timber, taking into account the needs of SFM in natural forests; and
- promoting accessible credit lines for small or medium forest enterprises.

#### Linking forestry operations to capital markets

- managing forest for multiple uses within ecological limits;
- developing alternative business models for NTFPs and for environmental services;
- investing in improvements in technology, infrastructure, innovation and productivity;
- creating a balance between small and large enterprises through vertical integration;
- providing capacity building to improve managerial business skills in the forestry sector, in order to facilitate market access;
- developing better marketing of certified forest products;
- incorporating social responsibility principles;
- developing risk management mechanisms; and
- considering new financial mechanisms such as carbon markets.

ITTO is ready to continue facilitating the promotion of investment in tropical forests. It has included appropriate actions in its Biennial Work Programme (2008–2009) to convene investment workshops at the national level (the first of which was recently completed in Bolivia, as listed above) and to carry out case studies that may help illustrate how these recommendations can be put into practice.



## 1.6 FAO support of SFM financing

TIINA VÄHÄNEN AND MARCO BOSCOLO

Financing for sustainable forest management (SFM) comes from various sources: budget allocations of central and local governments, revenues from the sale of forest-related goods and services, private sector investments, and contributions of international cooperation, including bilateral and multilateral partners and NGOs. In spite of local and international calls for improved conservation and management of forest resources in developing countries, funding for SFM remains insufficient and is not always used effectively. Partly because of these reasons, the extent of tropical forest areas under SFM is still rather limited.

FAO works on forest finance at a number of levels. Although FAO is not a funding agency, it provides policy advice and technical support to help countries increase investment in forestry. At the national level, FAO supports the development of national financing strategies and provides various tools and analyses (e.g., forest valuation; economic analysis of forestry policies; trends in costs and prices; and forest revenue systems).

FAO also provides information and analyses to facilitate intergovernmental forest policy dialogues, notably the United Nations Forum on Forests (UNFF) and in the context of the implementation of the decision on Reducing Emissions from Deforestation and Degradation (REDD) of the United Nations Framework Convention on Climate Change (UNFCCC).



AT THE NATIONAL LEVEL, FAO SUPPORTS THE DEVELOPMENT OF NATIONAL FINANCING

STRATEGIES AND PROVIDES VARIOUS TOOLS AND ANALYSES (FOR EXAMPLE FOREST VALUATION; ECONOMIC ANALYSIS OF FORESTRY POLICIES; TRENDS IN COSTS AND PRICES; AND FOREST REVENUE SYSTEMS).

### FAO's current work on forest financing

#### *Supporting international dialogues on forest finance*

With a view to support the forthcoming deliberations on forest finance of an ad-hoc expert group convened under the auspices of the UNFF, FAO and the National Forest Programme (NFP) Facility are working to update, enrich and elaborate a database of funding sources for sustainable forest management that is maintained by FAO. The database, known as the Collaborative Partnership on Forests (CPF) Sourcebook on Funding for Sustainable Forest Management, is accessible through the internet.<sup>1</sup> The

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Tiina Vähänen and Marco Boscolo work for FAO.

updated database will aid in analyzing the coverage and gaps in funding the national measures identified in UNFF's new Non-Legally Binding Instrument on All Types of Forests (NLBI). The analysis aims to better inform participants in the UNFF dialogue of the existing types of national and international funding related to forests. The CPF sourcebook also provides information on funding for forestry. It compiles information on funding sources, policies and delivery mechanisms, with a particular focus on projects in developing countries. Its information comes from various sources: donor agencies and countries, CPF members, international forest-related organizations and instruments, development banks, private companies, regional processes, foundations and INGOs.

### *Information sharing about forest finance in Latin America*

In an effort to better understand the variety and effectiveness of forest financing mechanisms in Latin America, the Dutch government has supported the project *Estrategias y mecanismos financieros para la conservacion y el uso sostenible de los bosques – Fase 1: America Latina*. The project has assessed the Latin America experience with financing mechanisms and helped increase the capacity of national forest programs for the participatory development of national strategies for forest financing. The first phase of the project was executed between 2005 and 2007 by FAO in partnership with IUCN's Regional Office for Central America (IUCN-ORMA) and the Central American Commission for Environment and Development (CCAD). In the Amazon region (in Brazil, Bolivia, Ecuador, Peru and Colombia) the project was executed by OTCA/DGIS/GTZ-BMZ through its *Programa Regional Amazonia*. A total of 19 country assessments, sub-regional and regional syntheses have been completed and are now available on line.<sup>2</sup> More information about the project and some of the lessons learned are described in article 3.3.

### *National Forest Programme Facility*

Hosted by FAO, the facility provides a funding mechanism and an information initiative to support the NFP process, with a particular focus on enhancing stakeholder participation. It emphasizes an approach focused on assisting non-government actors, through funding and capacity building, to participate in forest policy formulation and implementation processes. It has recently extended its support and now covers 57 partner countries and four regional entities. The facility is financed through a multidonor trust fund supported by 13 funding partners.<sup>3</sup>

### *Supporting national forest programs in the development of financing strategies*

The assessment of the Latin America experience with forest financing mechanisms led to the development of a capacity-building module. In close collaboration with the NFP Facility, the module has been tested in Namibia (in English) and Guatemala (in Spanish) in 2007 (for more information, see 3.6).<sup>4</sup>

### *Supporting GEF in the development of a strategic programme for SFM*

In 2007, FAO helped develop a new Global Environment Facility (GEF) strategic programme on sustainable forest management (SFM). Together with UNEP, FAO prepared a strategic programme framework that identifies priorities for support in the forest sector. GEF has identified FAO as an agency with a comparative advantage in forestry and has already taken advantage of this new opportunity by preparing forestry projects in a number of countries that may be eligible for its funding.

### *Forest taxation and SFM*

FAO has been examining the ways in which forest policies can harness financial and economic forces to influence the behaviour of forest users and beneficiaries with the goal of improving forest management.<sup>5</sup> For example, one ongoing initiative focuses on streamlining and improving the concession system in Liberia to improve government revenues and correct rent-capture imbalances between the government and concession holders.

### *Forest valuation database*

At the local level, FAO helps analyze the costs and benefits of forestry projects and policies and the valuation of non-market goods and services. It also provides training and guidelines for economic appraisal and helps establish community-based enterprises for revenue generation, especially in Africa and Latin America. FAO also maintains a database on forest valuation that collects information on the value of the environmental benefits of forests.<sup>6</sup>

### *Microfinance and forest-based small-scale enterprises*

FAO promotes the creation of community-based tree and forest product enterprises to provide local communities with more opportunities to benefit from forest resources, while also giving them greater incentives to sustainably manage and protect those resources.<sup>7</sup> FAO's publication on microfinance and forest-based small-scale enterprises<sup>8</sup> examined the ways in which different types of microfinance institutions can assist small-scale enterprises and forest communities. It also covers a range of services including savings, group lending, leasing, insurance and cash transfers.

### **Endnotes**

1. See [www.fao.org/forestry/cpf-sourcebook](http://www.fao.org/forestry/cpf-sourcebook).
2. Go to [www.fao.org/forestry/mecanismosfinancieros](http://www.fao.org/forestry/mecanismosfinancieros).
3. See [www.nfp-facility.org](http://www.nfp-facility.org) for more information.
4. Information (in English and Spanish) about the capacity building module and the training materials is available at [www.fao.org/forestry/site/43642/en/](http://www.fao.org/forestry/site/43642/en/).
5. See [www.fao.org/forestry/finance](http://www.fao.org/forestry/finance).
6. See <http://foris.fao.org/valuation/search/index.jsf>.
7. See [www.fao.org/forestry/enterprises](http://www.fao.org/forestry/enterprises).
8. FAO Forestry Paper 146, 2005: <ftp://ftp.fao.org/docrep/fao/008/a0226e/a0226e00.pdf>.



# Section 2

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## International non-government organizations

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- p.25 Jan van der Ploeg, Tropenbos International
- p.28 Global Forest Coalition
- p.33 Tropenbos International
- p.36 Carina Bracer



## 2.1 WWF's global role in SFM

ROD TAYLOR

### WWF's overall mission and forest programme

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature. It will do this in several ways:

- conserving the world's biological diversity;
- ensuring that the use of renewable natural resources is sustainable; and
- promoting the reduction of pollution and wasteful consumption.

WWF's work on forests aims to protect the most significant and threatened forests, promote and encourage responsible forestry and restore lost or degraded forests to a more authentic state. Much of this involves field activities implemented by staff in local offices or by local partners. A key strength of WWF is that it can provide "local to global" solutions. For example, in promoting responsible forestry WWF has helped develop forest certification as a globally applicable benchmark of good practice. Through the Global Forest and Trade Network (GFTN) it works with over 370 companies committed to responsible forestry. At the national level it advocates policies that will support good practice, while at the local level it provides hands-on technical support to companies committed to certification.



WWF INDIRECTLY  
PROMOTES THE  
FINANCING OF  
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ARE PRODUCED RESPONSIBLY.

### WWF's support to SFM financing in production forests

WWF indirectly promotes the financing of SFM by creating markets for forest products that are produced responsibly. It does this primarily by promoting credible forest certification, and by exposing illegal and unsustainable practices that undercut the market with cheap products and make it difficult for responsible producers to compete. GFTN is WWF's main platform for interacting with the forest products industry on these issues.

WWF also sees responsible investing as a key mechanism for motivating improvements in forest management and rewarding best practice. WWF works with banks, investment funds and other financial institutions to develop investment policies and screening

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practices that include strong environmental and social safeguards. Its premise is that this screening can help avoid ill-conceived projects with negative impacts, while reducing the risks to banks and investors and ensuring that responsible producers have better access to finance.

WWF recognises that well-managed and appropriately located plantations can be compatible with biodiversity conservation and local human needs while also contributing to economic growth and generating employment. So-called “fastwood” plantations are becoming increasingly important in supplying the world’s wood, paper fibre and bio-energy. However, much of the expansion in the sector has come from the conversion of natural forests and other habitats of high conservation value, such as grasslands and wetlands. In many cases, plantations have caused significant social impacts due to a disregard for the rights and interests of local communities. Without significant change in policies and practices the expansion of fastwood plantations will continue to cause controversy in many parts of the world. WWF works with various stakeholders to identify best practices and promote a landscape approach to plantation management that seeks to balance intensive wood production, biodiversity conservation and improved livelihoods at a landscape scale.

### **WWF’s support to the financing forest management in protected areas**

Inadequate funding remains the most serious and widespread weakness in protected-area (PA) management worldwide. Many organizations, including WWF, have done innovative thinking and experimentation around funding mechanisms such as conservation trust funds, debt-for-nature swaps, ecotourism and payment for environmental services, yet their practical implementation remains a challenge (see 5.4).

The IUCN typology of PAs includes the creation of reserves by for-profit companies on private land. WWF has recently begun work to demonstrate the mechanisms by which private companies can create PAs and integrate them within national and international PA networks.

WWF also works directly with park managers to address specific threats. Where successful, such direct interventions ultimately reduce the need for park financing by reducing the costs of remedial work and creating local capacity. These interventions, if properly documented, can also be replicated at other sites.

### **A strategy to help prevent climate change**

Keeping the rise in global temperatures below two degrees will require a cut in greenhouse gases to 80% below 1990 levels by 2050. This requires steep reductions in all emission sources, including the roughly 20% coming from deforestation. The “Bali roadmap” calls for measures to reduce emissions from deforestation and degradation (REDD) to be written into the post-Kyoto climate agreement. WWF has established a Forest-Based Carbon Initiative to support development of national REDD programmes, establish credible international standards for REDD projects, and create both market and voluntary funding mechanisms for REDD. The initiative aims to ensure that REDD initiatives

generate co-benefits such as biodiversity, water conservation, poverty alleviation and safeguarding the rights of indigenous peoples and local communities. Clearly, SFM can reduce emissions associated with forest degradation and prevent a gradual decline in forest quality that ultimately results in deforestation. In developing new REDD mechanisms, policy-makers should draw heavily on well-established SFM principles and implementation experience.

Climate change will affect forests and create a need for new investment in adaptation strategies. Managing for climate change will add a critical new dimension to SFM; unmanaged adaptation of forests to climate change would have a negative impact if forests become carbon emitters instead of carbon sinks.

### How does WWF finance its activities?

WWF operates in more than 100 countries and raises some €239 million per year. Some 60 per cent of the funds raised every year come from membership fees, personal donations, trusts, legacies and other gifts. Contributions from governments and aid agencies account for more than 20 per cent of WWF income. Corporate donations, sponsorships, and royalties from licensing the Panda logo provide additional funding.



## 2.2 REDD: the pay-the-polluter principle

SIMONE LOVERA

If some people thought that the abbreviation “PPP” stood for the Polluter Pays Principle, it is high time to wake up to the new realities of forest finance. Under the new proposals to compensate countries or corporations for reducing the emissions from deforestation in developing countries (REDD), PPP stands for the Pay the Polluter Principle.

The Forest Carbon Partnership Facility (FCPF) is a clear example of how this principle will be implemented. The objectives of this newly proposed World Bank facility, which was presented at the 13th Conference of the Parties of the UN Framework Convention on Climate Change (UNFCCC) in Bali, are to inform the UNFCCC process on the basis of carbon offset pilot projects and to prepare developing countries so that they are ready to participate in a carbon offset market for forestry projects.

As the UNFCCC parties are still actively discussing whether positive incentives for reducing deforestation should be financed through carbon offsets or through public funding, the move by the World Bank to promote the market-based option is politically premature. It raises the question of who governs the World Bank, as it does not seem to be governed by the 191 countries that are Parties to the UNFCCC.

The facility has already received a stamp of approval by the leaders of the G8, who are highly interested in the possibility of buying cheap carbon offsets in developing countries to avoid difficult emission cuts in their own countries. The bank has also actively consulted the private sector and other commercial stakeholders such as the Washington-based conservation organizations with which it is involved in a Global Forest Alliance.

The facility presents a win-win option for these Northern actors: Northern donors can give generous grants to an institution controlled by Northern donors while pretending



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THE PARTIES TO  
THE CLIMATE

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DEVELOPING COUNTRIES EXPRESSED  
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BANK UNDERMINING THE UNFCCC  
PROCESS WITH ITS NEW, INDEPENDENT  
AND UNREGULATED CARBON FINANCE  
INITIATIVES.

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they are “green” and helping developing countries. The Northern consumers that form the constituency of Northern conservation organizations can continue to waste energy, since their consumption will be offset. The World Bank itself can make millions of dollars by channeling all this money, providing consultancy services to make developing countries “ready” for the carbon market, and by designing complicated monitoring systems, carbon accounting methodologies and pilot projects. A brief analysis of conservation projects administered by the World Bank such as the failed Sundarbans Biodiversity Conservation project in Bangladesh shows that up to 53% of the budget was spent on foreign consultants and an additional 19% on local consultants and consultancy-related travel.

Southern civil-society organizations, indigenous peoples’ organizations (IPOs) and other movements representing forest-dependent peoples were not consulted about the facility before it was presented in Bali. As a result, the presentation was marked by a lively protest action by a wide coalition of indigenous and non-indigenous activists calling on governments not to put their money into the FCPF. They also presented a joint statement that was supported by 73 IPOs and calling upon governments to seriously rethink REDD strategies, since pouring a lot of funding into tropical forests is likely to have devastating social and ecological impacts. As a reaction to this opposition, the formal launch of the facility was postponed to May 2008 to allow time for three regional consultations with indigenous peoples. At least one of those groups, the Latin American consultation, was declared invalid by the indigenous participants themselves as they rejected the consultation methodology developed by the Bank. The only concrete change resulting from the consultations was one observer seat for an indigenous person (not necessarily a representative person) in the governing body of the FCPF. This makes it clear that despite being stipulated otherwise by the UN Declaration on the Rights of Indigenous Peoples, the bank still interprets PIC as Prior Informed Consultation, not Prior Informed Consent.

The proposed facility will be a broker between buyers and sellers of forest-related carbon offsets. It will also provide funding to countries to build their capacity to develop projects to be sold on the international carbon market through a so-called readiness fund. Since the World Bank will both assist countries to be ready for the carbon market by installing proper accounting methodologies and be the Trustee for the facility, there is a perceived conflict of interest. The World Bank will use around €190 million in public financing to subsidize countries to enable them to sell their carbon offset initiatives. This mixed approach of market- and non-market-based funding is promoted by many large Northern conservation groups who are actively lobbying for public grants to be used to subsidize the sale of their forest conservation projects on the international carbon market.

Funds will go only to tropical and sub-tropical forest countries. The facility will give priority to countries with large forest estates, where forests play a key role in the economy of the country and where deforestation or degradation rates are high or expected to be high. This seems to indicate that countries that have taken successful steps in the past years to comply with their UNFCCC obligations to halt deforestation will not receive any funding, while countries that are failing to reduce deforestation or that are currently developing plans to cut down most of their forests can expect large

sums of compensation to reduce deforestation. The Democratic Republic of Congo has already reacted to these plans by threatening to cut down all its forests if it is not fully compensated for every hectare of forest it spares. A cynical detail in this respect is that the DRC would never have had the capacity to cut down its forests in the first place if it had not benefited from a major World Bank grant to its forestry sector under a recent post-conflict loan that was slammed by the Bank's Inspection Panel as being in violation with practically every guideline and safeguard policy the World Bank has ever written for itself. Likewise, the Government of Papua New Guinea (PNG) is demanding compensation to comply with conditions of a World Bank loan to its forestry sector that require PNG to combat corruption and illegal logging. So countries are now demanding compensation from the World Bank for complying with their very own forest laws. Meanwhile, countries like Costa Rica, India or Suriname that have either successfully halted their deforestation or never devastated their forests in the first place are likely to lose out on compensation funds as they cannot prove that new efforts will be additional to existing policies.

The historical relationship between the World Bank and forests is a rather sad one. The overall impact of non-forest-related World Bank-financed projects on the world's forests over the past decades can be summarized with the term "devastating." The World Bank has financed some of the most destructive projects ever, opening up previous tropical forests like the Amazon, Congo Basin and Borneo for mining, hydro-electricity, plantations and logging companies. Most World Bank initiatives to invest in tropical forestry, from the Tropical Forestry Action Plan to the Congo Basin post-conflict loans, have increased deforestation instead of reducing it. At the last major World Bank Forest Policy Review a large coalition of NGOs asked for a sharp decrease of World Bank intervention in forest policy under the slogan "Less Bank, More Forest".<sup>2</sup>

The World Bank promotes its new facility with the argument that deforestation causes around 20% of global warming, so halting it would be 20% of the solution. But it forgets to tell people that reducing deforestation will not contribute anything to halting global warming if it is financed through carbon offsets. By definition, financing reduced deforestation through carbon offsets means that for every tonne of carbon stored in forests another tonne of carbon is going up in smoke in the country that pays for the offset. Forests are a very fragile carbon sink, especially in times of increased forest fires due to climate change and rising agrofuels demand. There is also no solution to the problem of leakage; i.e., halting deforestation in one area or one country will always lead to increased deforestation in another area or country as long as the overall, worldwide consumption of timber, pulp, meat, agrofuels and other products that destroy forests continues to increase.

Meanwhile, the forest peoples who will be the guinea pigs in this learning process of implementing pilot projects will be at the lose-lose side of the scale. First, they will lose their forests due to the land grabbing that has already started now that (potential) large landholders are realizing they can apply a "pay-or-I-cut" approach to every hectare of forest land taken from Indigenous Peoples and landless farmers. Payment for environmental services' schemes are already having a negative effect on both Indigenous

land rights claims and land reform, and such indirect effects are not nullified by vague promises of prior informed consultation on specific projects.

Most traditional forest peoples will not benefit from any pilot projects as they do not have deforestation rates they can reduce; most of them have successfully conserved their forests for centuries. The facility and similar REDD proposals are clearly directed towards compensating the logging, soy and oil-palm companies, and countries that have for years been financed by the World Bank and other banks to destroy forests and will now be compensated for a potential willingness not to do so. Such companies can deliver economies of scale, and they have the marketing skills and financial resources to invest in the complicated procedures to obtain carbon offsets. Moreover, indigenous women and men will lose as they are in the frontline of climate change, while carbon offsets through avoided or reduced deforestation will by definition compromise the tough but equitable and rights-based climate regime that is so desperately needed to deal with the greatest social and moral challenge the world community has ever seen.

Happily, there are alternatives too: the Norwegian government has definitely set the stage in this respect by announcing a generous €343 million annual grant for 2008–2012 to help countries conserve forests; this money will be in addition to their emission cuts, not instead of it. It can be hoped that this money will be spent on initiatives and projects that have proven to be successful, like large-scale recognition of indigenous and tribal peoples' land rights and promoting the hundreds of small-scale, often women-led forest conservation and restoration projects that have already succeeded in saving millions of hectares of forests.

### Endnotes

1. The Global Forest Coalition is a worldwide coalition of NGOs and indigenous peoples organizations that strives to rights-based, effective forest policies. For more information, please visit [www.globalforestcoalition.org](http://www.globalforestcoalition.org).
2. See [www.foei.org](http://www.foei.org).

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## 2.3 Forest finance in Indonesia

BAMBANG SETIONO

### Funds and political will, but few success stories

Many, if not most, developing countries depend to some degree on their forests and other natural resources to help lift them out of poverty. In Indonesia, for example, the Suharto government opened the forestry sector to commercial logging in the late 1960s to cool down an inflation rate of more than 1000 percent. The sector helped finance the nation's development for the next 30 years. At the beginning of the country's Reformasi era in early 1998, forests also played a significant role in addressing the worst financial crisis in Indonesia's modern history, which ultimately led to Suharto's fall from power. With the economy in tatters, the government compromised the nation's forestry resources by writing off more than €2 billion in debt belonging to giant wood-based companies.

Since the late 1960s, Indonesia's timber industry has created enormous wealth for the private sector and for governments. The annual earnings of wood-based companies, including pulp and paper firms, is currently in the range of €3 billion; during the Suharto era, they reached €4 billion per year. Even today, despite a declining supply of sustainable wood, several of Indonesia's timber-based conglomerates are among the nation's top ten exporters, and some of them have extended their investments to Singapore and China. They have also invested in other industries related to the forestry sector, such as oil palm and coal mining. Combined with their involvement in timber production, the total annual value of this investment is more than €9 billion. The country's forest-based conglomerates have also entered real estate, financial services and insurance. The building of these business empires has led to the creation of a handful of world-class companies, such as Sinar Mas and Raja Garuda Mas. Unfortunately, these conglomerates rarely create local jobs that prevent natural forests from being logged. Most of the jobs created were in the Java Islands and abroad. Local people still have a hard time finding jobs that do not depend on logging natural forests.



DESPITE BILLIONS OF DOLLARS OF ANNUAL TURNOVER AND MILLIONS OF DOLLARS IN FINANCIAL INCENTIVES — AND THE CENTRAL GOVERNMENT'S POLITICAL WILL TO STOP ILLEGAL LOGGING, PLANT MORE TREES, PROTECT THE ENVIRONMENT, AND ERADICATE POVERTY — TIMBER COMPANIES AND GOVERNMENT AGENCIES STILL FAIL TO PRACTISE SFM.

Timber-based industries have also provided significant revenue to Indonesia's central government. Timber companies must pay reforestation funds and royalty fees (PSDH) of approximately about €4 per cubic metre of logs. They also have to pay licence fees to operate as timber companies. With a wood demand of more than 60 million cubic metres per year, the government should theoretically receive revenues of approximately €533 million per year. In fact, however, the government receives only €127–190 million in revenue from the forestry sector.

With this enormous wealth, timber companies and the central government have introduced many financial incentives to promote sustainable forest management in Indonesia. Each large forest-based company is required to have a community development programme; for some companies, the annual budgets of such programmes are as much as €3 million. With hundreds of large forest-based companies (including those operating in the oil and gas sector), the combined total annual budgets for community development programmes in forested areas could easily reach billions of Euros. Recent laws in Indonesia also now require large private companies to implement corporate social responsibility programmes. The Ministry of Forestry has introduced a community-based timber plantation programme (hutan tanaman rakyat or HTR) that gives local communities the right to develop timber plantations in production forest areas controlled by the Ministry of Forestry. The Ministry of Forestry also provides financial support, and has allocated more than €317 million, to local communities for the period 2007–2011.

Despite billions of dollars of annual turnover and millions of dollars in financial incentives — and the central government's political will to stop illegal logging, plant more trees, protect the environment, and eradicate poverty — timber companies and government agencies still fail to practise sustainable forest management. They do not have the necessary forest resources, tools, expertise, skills or institutions to support sustainable forest businesses at the current level. For example, forest fires are an annual problem, but there is still insufficient capacity in the form of equipment and monitoring systems to prevent or extinguish them. This problem is especially apparent with district governments, which under the current decentralization era in Indonesia have more power in managing forests.

### Drivers of unsustainable forest finance

Most community development programmes and government financial incentives fail to reduce the dependency on timber from natural forests. Up to 70 percent of timber consumed by Indonesia's wood-processing companies is from natural forests. This huge demand for industrial timber has led to timber companies and local communities encroaching on protected forests, national parks and abandoned production forests. Financial incentives have also failed to stop the government practice (including Parliament) of converting forests into oil-palm and coal-mining areas. Community development programmes and government financial incentives fail to promote the sustainable use of unproductive lands for developing oil palm and other agricultural industries. Most of these incentives fail to address questions of tenure and occupation of disputed forest lands by local communities. Often, the disputed lands are owned by the central government (forest areas) or controlled by private companies (forests and non-forest areas).

Another reason for these unsustainable forest-related financial practices is a lack of financial integrity in the industry and the public sector. Despite accumulating billions of dollars of wealth from their forestry operations, many large timber companies spend less than one percent of their total cash flow on developing industrial timber plantations. Most of the revenue of these companies is used to purchase raw materials, often from their affiliates or from companies they control. At the time of Indonesia's financial crisis in 1998, these export-based companies reported huge losses due to uncollected receivables or financial engineering transactions such as currency swaps and hedging, allowing them to wipe out windfall gains of more than €2 billion following the plunge in the rupiah. If they did not report a loss, the government did not have to write off any of the debt that now becomes a major burden for many years.

Lack of financial integrity is also found in the government financial system. There is no effective financial measure in place that can ensure that timber companies have fulfilled their financial obligations for each log they cut. At best, the government has usually been able to collect only about one-third of expected revenues. In 2008, for example, the government set a very low target for timber revenue collection (about €127 million) in the state budget. (The central government also reported receiving royalty from coal mining in the amount of €277 million per year.) An ineffective system for collecting timber revenue has contributed to delays and inaccuracies in the profit-sharing of this revenue between the central, provincial and district governments. This leads to more conflict in forested areas. Provincial and district governments promote conversion of forest areas into plantations or support the use of forest areas for mining development.

### Recommendations

Local communities are the victims of unsustainable forest management. Local people are often hired by forest-based companies to clear natural forests. They get very little pay and are an easy target for forest law enforcement that is still focused on illegal logging processes. The private sector and the government must create jobs in areas where forests are being managed. More local jobs will be the key trigger for protecting and conserving natural forests. The lack of funds and the debt write-off from wood-based companies has significantly limited job opportunities for local breadwinners and their families. Failure to collect timber revenue has reduced the capacity of governments — especially district governments — to create local jobs.

Improving financial integrity in both the public and private sector would create a situation that would foster job creation and promote sustainable forest management. With more transparency and accountability as well as law enforcement of organized crime or white-collar crimes (not just the logging process), more funds from forest-based businesses should be available for forests and local communities. It is in the interest of private companies and government officers to develop industrial and community timber plantations when there is no opportunity to corrupt and manipulate forest finance. Implementing anti-money laundering and anti-corruption measures, as well as an effective environmental accounting and auditing standard, is the key to better financial integrity in forest finance.



## 2.4 Innovative financing and incentives for SFM

MICHAEL JENKINS, MICHAEL RICHARDS AND  
CARINA BRACER

The concept of Sustainable Forest Management (SFM) has existed for several decades, although it still lacks the financing mechanisms needed to make it a significant part of a vibrant, productive forest economy. Forest Trends' approach is based on the notion that market failure (weak or absent markets or compensation systems for forest services) is a key factor in the lack of SFM and maintenance of ecosystem services in tropical countries.

Forest Trends (FT) therefore focuses on improving the use of payment for ecosystem service (PES) mechanisms as compensation for forest communities, while at the same time recognizing that it is essential to tackle the policy and governance failures that prevent the use of financial mechanisms. These failures cause prohibitively high opportunity costs and drive up transaction costs for PES arrangements, which creates a considerable barrier to market entry for communities. FT advocates a coordinated approach to improving mechanisms for PES and exploring the integration of various forest financing practices, including developing case studies and best-practice guidelines — focused on the legal, policy and institutional frameworks needed for PES — for governments. This is vital to reduce risks and transactions costs for both PES buyers and sellers.

FT's range of activities, including direct project support, promotion of innovative PES mechanisms and measuring project impacts, should make significant contributions to long-term sustainable financing and provide practical experiences of SFM and ecosystem service maintenance. The Netherlands-funded United Nations Forum on Forests (UNFF) work to be presented at the Suriname Country-Led Initiative (CLI) event in September 2008 will contribute to developing some of the PES instruments described here, with a particular emphasis on partnership opportunities with public and private institutions.



FOREST TRENDS  
FOCUSES ON  
IMPROVING THE  
USE OF PAYMENT  
FOR ECOSYSTEM SERVICE (PES)  
MECHANISMS AS COMPENSATION FOR  
FOREST COMMUNITIES, WHILE AT THE  
SAME TIME RECOGNIZING THAT IT IS  
ESSENTIAL TO TACKLE THE POLICY AND  
GOVERNANCE FAILURES THAT PREVENT  
THE USE OF FINANCIAL MECHANISMS.

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Michael Jenkins, Michael Richards and Carina Bracer work for the Katoomba Group.

### The portfolio approach

An important component of FT's strategy is exploring how to integrate a range of finance approaches and instruments with broader governance, legal, policy and tenure strategies. Given that these instruments are complementary and that a balanced supply and demand approach is essential, a "portfolio" approach to forest finance is called for. Apart from developing the PES suite of mechanisms, instruments for forest finance need to include strategies in the following areas:

- certification and forest law enforcement and governance (FLEG) strategies;
- risk-mitigation strategies within SFM finance;
- promotion of appropriate credit and support for small and medium forest enterprises (SMFEs);
- philanthropic, private-sector and Overseas Development Assistance finance;
- institutional innovations such as company-community partnerships;
- increased transparency and accountability;
- reform of forest fees and concession allocation prices; and
- alternative tenure and business models.

A portfolio approach, components of which are described below, would help countries develop an understanding of how the various aspects fit together, and explore the institutional changes necessary. On a global level, the proposed International Financing Mechanism can become a key instrument for supporting more coordinated national forest finance programmes.

### Marketing community-based ecosystem services

A Katoomba Ecosystem Services Incubator is working in Latin America to provide the appropriate legal, financial and technical assistance to community PES projects with the aim of getting ecosystem service products to the marketplace while simultaneously building a portfolio of projects and experiences. This will support pro-poor PES. The programme also involves exploring the application of innovative and appropriate methodologies and standards for PES, especially for multiple benefits (carbon, water and biodiversity), known as bundling. The incubator acts as an intermediary institution and "honest broker" between community PES projects and investors and buyers in the market. These experiences will enable the Katoomba Group (KG) to develop and document a strong understanding of good practice related to such factors as methodologies, standards, aggregator mechanisms and equitable contracting in order to promote pro-poor PES more widely in Latin America and in other regions. The extension of the incubator system to Africa is under development.

### Measuring the impact of investment

KG is also developing a toolbox for measuring social and environmental impacts. It is broadly applicable to ecosystem service projects and can be used as a strategy to document and identify the impacts of investment on this type of ecosystem financing. This is particularly important for voluntary carbon-market transactions involving multiple-benefit carbon. Investors or buyers want to know which particular benefit is

supported by their money. Indicators such as the social return on investment (SROI) will be essential for the regulatory carbon markets, including Reduced Emissions from Deforestation and Degradation (REDD), as buyers become more discerning about wider social and environmental (biodiversity) impacts.

### Support for eco-certification

Eco-certification can be another important PES instrument, although it has been disappointing to date for timber-based SFM. Because of the economic incentives gap when moving from current management practices to certified SFM, the opportunity cost of giving up business-as-usual profits is too high. One methodological objective of the Incubator is to explore the combined or double certification opportunities in adding PES products to timber- or agroforestry-based SFM.

An initial incubator project will support struggling community FSC groups on steep hillsides in northern Honduras by helping them develop a validated avoided-deforestation project design document (PDD) using the Climate, Community and Biodiversity Alliance (CCBA) standard. This will test the hypothesis that adding carbon credits or other PES to timber revenues can overcome the viability constraint to certified SFM and will explore ways of joining certification systems. The incubator will also work with agroforestry certified systems (e.g., shade-tree/organic cocoa or coffee production) to identify ways in which producers can benefit from carbon payments.

### Promotion of bundled PES mechanisms

Much in the same way as identifying the potential for double certification with sustainable timber production, Forest Trends recognizes that while carbon is highly marketable, there is untapped potential to capture the hydrological and biodiversity values of forest ecosystems. Carbon payments could prove important for leveraging other PES mechanisms. This bundled or stacked approach involves a challenge: if existing services are already provided, it will be difficult to prove additionality when seeking new investment.

### Biodiversity offset payments

Working with governments, companies, NGOs, the financial sector and conservation experts, Forest Trends' Business and Biodiversity Offsets Programme (BBOP) is intended to develop good practice and methodologies for offsetting the social impacts — related to species, habitat, ecosystem and biodiversity — of mining, energy exploration and other infrastructure and development projects. Forest Trends, Conservation International and the Wildlife Conservation Society jointly lead BBOP, which involves a wide range of partners working on the following initiatives:

- demonstrating conservation and livelihood outcomes in a portfolio of biodiversity offset pilot projects;
- developing, test and disseminate best practices on biodiversity offsets; and,
- contributing to policy and corporate developments on biodiversity offsets to meet conservation and business objectives.

While BBOP is concerned with voluntary biodiversity offsets, Forest Trends is also keenly following the development of regulatory biodiversity offset approaches; for example, the Brazilian Tradable Forest Conservation Obligations approach. Regulatory offsets have huge potential for more cost-effective and equitable compliance compared to conventional “command and control” approaches, and as a possible component of national REDD programmes, but they also require significant institutional and regulatory capacity.

### Development of pro-poor REDD programmes

Like many organizations, Forest Trends is concerned with the equity impact of REDD, in view of the likely trade-offs between carbon additionality and equity. While there should be opportunities for community conservation where forests can be shown to be under threat, some governments may prioritize a “fences and fines” approach and compensate developers, who are more powerful. Forest Trends works to support pro-poor REDD in several ways:

- appropriate policy, regulatory and institutional reforms (the indirect poverty benefits of such reforms could be more important than direct cash payments);
- comparative analysis of conservation opportunity costs, which will be higher for communities than companies, and therefore less of a drain on national REDD budgets;
- action research on how to reduce community transaction costs (e.g., aggregator mechanisms);
- building synergies between REDD and adaptation strategies.





# Section 3

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Governance,  
institutions  
and financing

#### Photo credits

- p.43 Jan van der Ploeg, Tropenbos International Indonesia
- p.46 Aminu Ibrahim
- p.50 Overview of forest in Brownsberg, Suriname. Roderick Zagt, Tropenbos International
- p.54 Jeanette Mulder, Tropenbos International Vietnam
- p.62 An expert from the Ministry of Lands, Mrs. Suma, speaks eloquently about what it means to have a Village Land Certificate. Liwale District. Lindi Region, Southern Tanzania. Photo: Indufor Oy/Mr.Bariki Kaale, 2005
- p.64 In Village Land Certificate ceremonies, 13 Village Natural Resource Committees receive a bicycle to participate in meetings of MUHIMA, the joint villages' management association. Nicodemous Banduka, Regional Commissioner and Jorma Pauku, Ambassador of Finland, act as masters of ceremonies, Liwale District, Lindi Region, Southern Tanzania. Photo: Indufor Oy/Bariki Kaale, 2005
- p.67 Angai Village Land Forest Reserve has become a reality. Nicodemous Banduka, Regional Commissioner, tells the representatives of 13 villages they have now 520 476 ha of land, 141 553 ha of which is miombo woodlands which they own. Liwale District, Lindi Region, Southern Tanzania. Photo: Indufor Oy/Bariki Kaale, 2005
- p.70 Juanita Franco, Tropenbos International



## 3.1 Governance for SFM finance

ROOPE HUSGAFVEL

Sustainable forest management (SFM) requires management approaches that are in line with the principles of sustainable development. The global community has created institutions, organizations and regimes to establish and promote effective governance. Governance encompasses decision-making, management and leadership processes, actors and activities at various levels as well as related institutions, both formal and informal. Governance affects overall sustainable development as well as specific aspects such as SFM. Decision-makers operate at local, national, regional and international levels and today's issues increasingly result from interrelated and interdependent development that affects all of these levels.

Governance systems and related quality issues are major components of effective forest finance in both the public and private sector. They are also a crucial part of effective decision-making. An assessment of current international policy development (e.g., UNFF/The Non-legally Binding Instrument on all Types of Forests; WB/Payment for Environmental Services (PES) and Reducing Emissions from Deforestation and Degradation (REDD), CBD/Expanded Programme of Work on Forest Biological Diversity and UNFCCC/Bali Action Plan) raises an interesting point about SFM and related financing. Financing for SFM implies dynamic and evolving approaches that include economic, social and environmental dimensions.

### Sustainable development and good governance

Applying the principles of sustainable development to forest finance requires five components:

- 1) state responsibility for ensuring SFM and its finance;
- 2) good governance, public participation and access to justice and information;
- 3) poverty reduction, equity and shared responsibilities;
- 4) a precautionary approach to natural resources, ecosystems and human health; and



INFORMED  
DECISION-MAKING  
ON FINANCE FOR  
SFM DEMANDS

AN UNDERSTANDING OF THE OVERALL  
GLOBAL GOVERNANCE FRAMEWORK,  
INCLUDING THE FUNDAMENTAL  
PRINCIPLES OF SUSTAINABLE  
DEVELOPMENT AND THE ELEMENTS OF  
SFM.

- 5) integration and effective relationships, particularly in relation to human rights and social, economic and environmental objectives.

Governance for sustainable development — including policy, legal and market frameworks — requires a coherent and balanced approach as well as coordination and integration between economic, social and environmental regimes and instruments at all levels.

Financing involves trade-offs among the elements of SFM:

- the extent of forest resources;
- the forest's biological diversity;
- forest health and vitality;
- productive functions of forest resources;
- protective functions of forest resources;
- socio-economic functions of the forest; and
- the legal, policy and institutional framework.

Effective governance for forest finance requires comprehensive, coherent and cross-sectoral approaches. It also needs sustainable development, including economic, social and environmental dimensions. The rule of law, democracy, participation, transparency and accountability are also essential, along with respect for human rights and for upstanding practices. Informed decision-making, linking governance and research, is also required, as is identifying, defining and prioritizing research needs and addressing gaps in existing knowledge.

SFM and its financing have several requirements:

- good governance and an enabling environment for forest investment (institutional development and capacity building for finance);
- coherence and interaction between different policies and programs;
- participation and involvement of local communities, forest owners, indigenous people and other stakeholders in forest decision-making processes, with an emphasis on their capacity, rights, benefits, interests, incentives and access to markets (including fair and equitable sharing of benefits);
- comprehensive cost-benefit analysis about land-use changes and incorporation of timber and non-timber forest products, services and values as well as traditional forest-related knowledge;
- ecosystem-level management and planning;
- innovative policy approaches and positive incentives for SFM (such as the PES and REDD approaches); and
- international cooperation, increased official development assistance and new financial resources from all sources (including the private and public sector, public-private partnerships and international organizations).

### Payments for Environmental Services (PES)

Governance for PES involves developing appropriate institutions within the existing framework and/or developing new institutions. They must guarantee that the providers of environmental services actually provide the services and those who benefit from them pay

for them. The system needs to be oriented to the long term, well adapted to local conditions and based on the interests of stakeholders and relevant research. The PES system requires policy and/or market support to function properly and to manage the value of services.

### Reducing emissions from deforestation and forest degradation (REDD)

Governance for REDD requires that mutually supportive arrangements be established among international obligations/opportunities and that these be balanced by national development priorities on the part of sovereign governments and by local conditions. It requires a framework which can effectively and reliably maintain multiple forest values and sustainably deliver appropriate benefits, incentives, payments and revenue. REDD strategies and approaches are closely linked to policy and legal reforms, new and innovative management practices, rural development and land-use planning. They also connect to PES systems and to a supportive economic framework, including targeted incentives. In addition, they link to many different dimensions of development and to good governance, new entrepreneurship opportunities and other private-sector initiatives. Multidisciplinary research and capacity building in the form of education are needed to guarantee informed decision-making. The lessons learned in VITRI's experience of sustainable resource management and environmental governance at the local level are presented in Box 1.

#### Box 1. Summary of VITRI's experience

- Successful experiences of environmental governance are found at the local level and often involve public participation, including better recognition of local peoples' interests, rights and knowledge.
- Local-level sustainability can be supported by various means, including voluntary and market-based approaches.
- Local governance and sustainability require strong institutions and acknowledged rights of local people, as well as their participation in decision-making about the management of resources including SFM and environmental services.
- A global governance framework for SFM exists and it requires comprehensive, cross-sectoral and coherent approaches at all levels.
- Local-level management regimes for sustainable resource management and improved livelihoods are essential. These must be based on shared management authority and responsibility (and the associated costs and benefits) by the state and the people living in or close to the resource.
- Effective government support and the political will to develop and implement partnership arrangements at the national level are essential.
- A clearly understood and transparent legislative framework for partnerships, as well as secure land and resource rights, are needed to establish incentives.
- Local-level resource management institutions (user groups, committees and associations) must be developed and must be accessible to all community members.
- Any governance framework needs to be flexible and appropriate to specific local conditions, problems and opportunities. It must also be clear, simple and affordable and it should establish incentives for long-term sustainable resource management.



## 3.2 A political perspective on SFM financing

AMINU IBRAHIM AND MUSA HASSAN

In Nigeria, financing for SFM is more likely to be determined by political realities than by price mechanisms such as revenue generation from forest goods and services. Even though the country has recently undergone a major shift towards a free market economy, its policy in rural development — forestry in particular — remains oriented to development administration. This is largely due to three factors:

- the historical/colonial legacy;
- the emergence of UN-sponsored development programmes (such as UNDP, UNEP and GEF); and
- the economic and technical assistance provided by developed countries.

The Katsina afforestation project symbolises how politics can facilitate or obstruct financing for sustainable forest management. The project started in January 1987; the European Union then EEC was the major donor, supporting the project with financial and technical assistance. The EEC also financed about six other similar forestry projects in the arid zone of Nigeria.

The project was established by the Lomé I Convention, which was signed in 1975 by the EEC and the African, Caribbean and Pacific states (ACP). Lomé II, between the federal government of Nigeria and the EEC, identified a variety of rural development projects in Nigeria that could be jointly financed by the two parties. Within the framework of Lomé II, Nigeria's federal Ministry of National Planning requested assistance in financing an afforestation project in the arid zone of Nigeria.

By January 1987 the first phase of the initiative, known as the EEC/FGN Katsina Afforestation Project (KAP), commenced with €9.4 million from the EEC and a counterpart fund equivalent to €4.0 million from the Nigerian government. The aim of the project was to improve the standard of living of local people through providing forestry



THE AFFORESTATION PROJECT IMPLEMENTED IN KATSINA STATE IN THE NORTHERN PART OF NIGERIA IS A GOOD EXAMPLE OF HOW POLITICS, BOTH LOCAL AND INTERNATIONAL, INFLUENCES FORESTRY FINANCING IN THE DEVELOPING WORLD.

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services such as fuelwood and poles. This would reduce pressure on the remaining natural vegetation and reverse the trend of environmental degradation. It is generally accepted that in drought-prone regions such as the project area, the enhancement of tree growth will greatly contribute to these goals (EEC/FGN 1993). The project had several objectives:

- to curb the ongoing desertification processes in the arid zone of Katsina State;
- to safeguard and improve conditions for agricultural production in the area; and
- to promote self sufficiency among rural people through the production of traditional domestic forestry products such as firewood, poles, fodder, livestock and medicine.

### Achievements

KAP provided a practical and functional intervention initiative through community-driven development. The concept proved to be effective, sustainable and results-oriented. The project's achievements were impressive: it produced and distributed more than 20 million free seedlings; and more than 47,000 registered agro-forestry farmers were assisted in many ways. Today, 121 of the 250 shelter belts in Katsina State were established by the project. Most of the project's achievements exceeded the target (Table 1).

**Table 1. Project targets and achievements**

Item	target (1987–91)	achievement	% of target
Shelter belts	85	94	111
<b>Extension activities</b>			
Wind breaks	6,250	7,227	116
Wood lots	4,325	4,545	105
Trees on farmlands	3,915	2,462	63
Total number of farmers	14,490	14,234	98
Number of boys' schools	—	31	
Number of girls' schools	—	6	
Number of women's groups	—	31	
<b>Nurseries</b>			
Central nurseries	5	6	120
District nurseries	—	10	
Community nurseries	—	10	
Seedlings raised	2,600,000	4,660,000	179

Source: *Greenlight Magazine* Vol. 3, No. 2, Nov. 1991, Young Foresters' Club EEC/FGN Katsina Afforestation Project, School Programme, Katsina State.

These were some of the project benefits:

- reduction of land degradation;
- poverty reduction and improvement of the livelihoods of the communities;
- improvement of agricultural productivity;
- reduction of stress and conflict over the use of natural resources;
- environmental awareness and sensitization; and
- sustainable rural development through a participatory approach.

### Project failure

The project was supposed to be implemented in four phases. Unfortunately, barely a year into the second phase — and despite the project's success — funding and technical assistance were abruptly suspended by the EU due to the political sanctions imposed on Nigeria. At that time Nigeria had executed some activists in the oil-producing part of the country who were clamouring for an independent state. Rather than taking bold and stringent measures directly against the military junta, however, the EU instead suspended the project. With the return of "democracy" in Nigeria in 1999 and the restoration of diplomatic ties between the EU and Nigeria, it was expected that project funding and technical assistance would also be restored. That did not happen. Regional politics contributed to the EU's decision to direct its efforts away from northern Nigeria (and from forestry and related projects) to different projects in the south of the country.

Although the Katsina Afforestation Project is still running, it suffers from inadequate funding. This results in several problems:

- difficulty in maintaining and managing forestry and protected areas;
- insufficient staff;
- damaged infrastructure; and
- grounded machinery and operational vehicles.

Funding forestry activities does not appear to be attractive to politicians or policy-makers in the developing world. There is little commitment to financing for sustainable forest management. This is particularly true for the non-timber forest product harvesting predominant in the sub-Saharan region.

When trying to address sustainable rural development and reduce poverty, these leaders instead make huge investments in non-forestry projects such as rural water schemes, feeder roads and irrigation, not realizing that an investment in the forestry sector could be just as effective in addressing those concerns. A small investment in forestry can bring immediate benefits to a local community. It can also provide raw materials for and employment opportunities in a number of industries such as pharmaceuticals (medicinal plants), furniture (wood) and possibly for second-generation biofuels, derived from woody material, which are still under development. It can also increase national revenue and contribute to a favourable balance of payment, as well as reduce global warming. Although the world is faced with a range of environmental calamities, such as desertification, drought and erosion — which sustainable forest management can help to address — politicians are not willing to make substantial investments in forestry.

Although they may be interested in political or ceremonial events, such as a tree-planting campaign, they do not have a serious commitment to the goals of SFM.

Even in the rainforests of Africa, where there is significant industrial logging and fair trade in timber could provide financing for sustainable forest management, politics could undermine this effort, as shown in several reports. Counsell, Long and Wilson (2007) report that some logging companies in Liberia and Congo engaged in complicity by supporting groups to commit atrocities against local people or rival groups, and by supporting either the government or rebels to fuel conflict between them. In addition, corrupt government officials and their armed opponents allowed companies to ignore forestry laws in return for financial and logistical support during wars.

Given the current concern for climate change, however, and the world's search for an alternative to fossil fuels, the prospect for financing for SFM is encouraging. In many cases, the developing countries that contribute the least to carbon emissions are the most affected by climate change. Their resilience is continuously being eroded and their livelihoods undermined. As a mitigation measure, the highest-emitting nations, such as the U.S., EU and Japan, have a responsibility to reduce the carbon emissions they produce through carbon financing. Forestry provides an inexpensive means of sequestering carbon from the atmosphere, and Africa and other parts of the developing world should witness a remarkable in-flow of carbon credits. The intervention of international development agencies (such as the World Bank, GEF, UNEP and UNDP) in carbon financing would greatly assist in preventing some of the political intrigues and complicity that are the major threats to financing SFM.

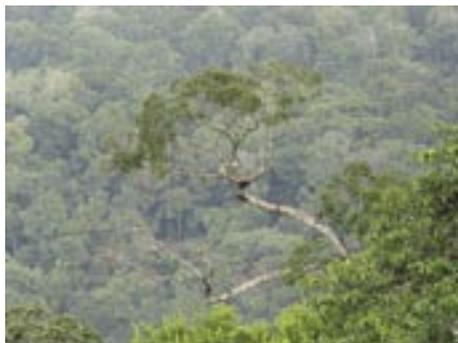
### Recommendation

Politics can either facilitate or obstruct sustainable forest management through the activities and influences of politicians, leaders, bureaucrats, activists and others. For this reason it is necessary to build a strong political will and commitment to forestry by the government at all levels in order to develop a robust financing mechanism for sustainable forest management. The formation of an autonomous financing institution is recommended for forest-fund disbursement; it must have clear accounting rules and procedures as well as monitoring and evaluation processes. As carbon credits and funds from other schemes continue to flow into the developing world, the approach adopted by the Katsina Afforestation Project —community-driven development with funding contributed by the local community, home governments (local, state and federal) and the EU — could provide a model for financing SFM. This is possible only if there is a strong political will and commitment.

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### 3.3 Financing strategies in national forest programmes

HERMAN SAVENIJE AND KEES VAN DIJK

#### Some preliminary findings from Latin America

In recent years the question of how to broaden and diversify the financial basis for sustainable forest management (SFM) has received increasing attention in policy-making, research agendas and the field of implementation, both nationally and internationally. One of the main challenges faced by many countries — including those in Latin America — in stopping forest degradation and deforestation is the need to increase the competitiveness of good forest management and its attraction to investors. National forest programs and their financing are key to this endeavour. In many countries, however, financing is often insufficient and ad hoc and is limited to a small number of traditional financing instruments, such as credits and subsidies and forest funds. Furthermore, the discussions on forest finance too often focus on government and bi- and multilateral Official Development Assistance (ODA) as funding sources for SFM. In reality the level of private financing in the forest sector far exceeds these sources (see also 4.1).

The multiple values of forests are increasingly being recognized, however, and several innovative and promising mechanisms have emerged. This generates additional revenues for forest management and attracts new investment. It is also increasingly understood that stand-alone instruments are ineffective and need to be embedded in a broad enabling institutional and policy framework. The challenge is to develop national forest financing strategies, determine their objectives, principles and components and determine how they can best be implemented.

This article summarizes the experience in forest financing from Latin America based on 19 country studies<sup>1</sup> that have emerged from the collaborative work of the FAO/IUCN/CCAD project “Strategies and Financial Mechanisms for Sustainable Forest Use and Conservation in Latin America”<sup>2</sup> and the regional OTCA-DGIS-BMZ/GTZ-programme.



A NATIONAL FOREST PROGRAM PROVIDES AN INTEGRATED FRAMEWORK FOR

A NATIONAL FOREST FINANCING STRATEGY, WHICH CAN CONTRIBUTE TO THE DEVELOPMENT OF SUSTAINABLE FOREST MANAGEMENT.

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Several issues need to be considered, both nationally and/or internationally, in developing and implementing comprehensive and well-defined national forest financing strategies that are based on local realities and needs. This article is a summary of a synthesis document<sup>3</sup> and is intended to stimulate discussion and feedback.

#### Conceptual framework

One of the main problems impeding SFM in many countries is that revenues from forest use and conservation are too low to make SFM a competitive land use option or an attractive investment opportunity. It is clear that if the forest does not have a sufficient high financial value – or opportunity cost – it tends to disappear, degrade, or be replaced by other more attractive uses, including unsustainable ones.

Many complex problems hamper the financing of SFM:

- undervaluation of the wide range of forest functions;
- a strong dependence on timber as the main source of income;
- an inequity in the division of costs and benefits in the wood chain;
- the long-term nature of forestry cycles; and
- low profitability and high perceived risks.

Furthermore, forest practices in the tropics often have low productivity and efficiency, and are carried out with obsolete technologies and without sustainability considerations. Most forest managers have little if any access to existing financial mechanisms at reasonable terms. Unstable and inefficient political, legal and institutional frameworks constrain forest governance and worsen the already poor reputation of the forest sector. These factors are not conducive to forest investment or a sound business environment.

There are many opportunities to improve this situation, however. It is increasingly being recognized that conventional visions and policies on forest financing, including the level of financing needed, are insufficient to achieve SFM. There is growing interest in the potential of innovative market mechanisms and other arrangements. New and promising financing sources and mechanisms are emerging, especially in the field of payment for environmental services (PES) and capital market instruments. These can contribute to additional and diversified sources of investment and income. It is also increasingly understood that financing mechanisms alone are ineffective and less sustainable if they are not embedded in policy and institutional frameworks.

Mechanisms for investment and the payment of goods and services are two sides of the same coin, to be treated in an inclusive and integrated manner. Based on the analysis of the country studies and the assessment of problems, opportunities and challenges the conceptual framework presented in Figure 1 was developed. It distinguishes five main elements and their interrelations, which should be taken into account in the analysis and development of forest financing in a country:

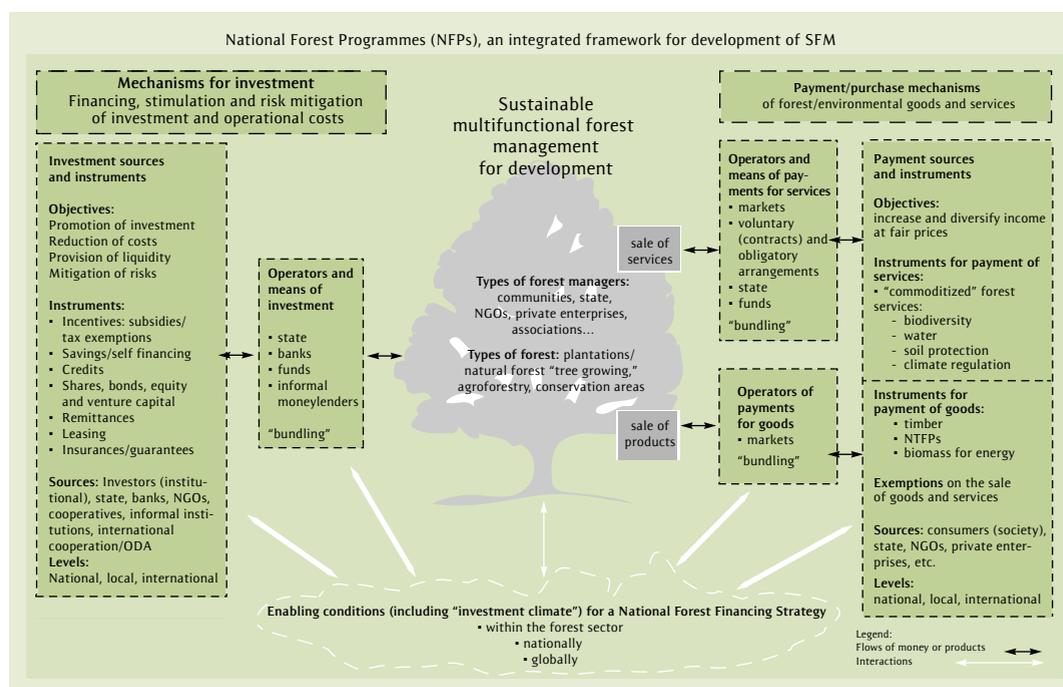
- sustainable forest management as the central focus, with an emphasis on the diversity in forest stakeholders and forest types and in management objectives and conditions;

- investment financing mechanisms (the whole set of sources, instruments and operators for financing, promotion and risk mitigation of investment in SFM);
- mechanisms for the payment for goods and services (the whole set of sources, instruments and operators to establish adequate payments to forest managers);
- the enabling environment for the effective functioning of the financing mechanisms; and
- a National Forest Financing Strategy (NFFS) as the set of criteria, actions and arrangements for formulating and implementing an effective financing system in a country.

A National Forest Program is an integrated framework and multi-actor process for SFM in which a NFFS can operate.

### Figure 1. Conceptual framework for a National Forest Financing Strategy

A multi-actor process based on conditionality, additionality, functionality and equity



### One size does not fit all

In Latin America, each country has its own realities, needs and potential. These specifics are the point of departure for the development of forest financing. Some countries already have advanced mechanisms; others do not reach beyond the ideas created by international cooperation pilot projects. Given these large differences, there is great scope for sharing knowledge and for learning and capacity building among sectors, countries and regions as the basis for policy development, innovation and implementation.

### A change in approach

Forest financing is still largely biased towards unsustainable exploitation. Market-oriented timber production enterprises, such as pulp and paper conglomerates and large-scale exploitation companies, have been the main users of private and public financing of natural forests). Less attention has been paid to other factors:

- smallholders and small and medium enterprises;
- management of natural forests;
- inequities in the value chains, both in financing investment and payment,
- informal financing mechanisms;
- rehabilitation of degraded forest lands, management of logged forests and secondary forests;
- formalization, institutionalisation and scaling-up of promising financial mechanisms;
- linkages between sectors, particularly the financial and forest sector;
- the application of sustainability criteria, particularly social and environmental aspects;
- the general lack of information, the biased attention to wood and the undervaluation of the non-timber functions of the forest affect the quantification, visibility and understanding of the real contribution of forests to the national economy and to society at large.

### Sources of funding

Private money is the main source of forest financing. In most countries it is by far the main source of investment and payment. It is also growing rapidly, both in scale and diversity of mechanisms. The main potential for additional sources of investment is the creation of capital market instruments (institutional capital, private capital, business capital), the development of mechanisms for the payment of environmental services (local, national and global), bundling and/or packaging and with risk mitigation instruments. There is sufficient evidence that the financial sector has the dynamics, creativity and flexibility needed to reap the opportunities offered by the forest sector.

In most Latin American countries, PES schemes are new and innovative instruments with a clear potential to provide increased revenue for forest management. Processes and regulations still need to be established and institutionalised, however. Most current PES schemes are implemented at an experimental scale, and are often dependent on international incentive subsidies. Relatively few of them function as payments in a real sense of the word. There is a tendency to overestimate what markets can do in generating payments for forest and environmental services. Several issues need to be addressed:

- further elaboration of PES initiatives, particularly their scaling-up and institutionalization;
- further elaboration of PES initiatives;
- voluntary versus regulated payments;
- commoditization and accurate pricing of services;
- better design of projects and programs; and
- determining how to create demand and a willingness to pay.

## Constraints to financing

Money is not always the biggest problem. The main constraints to investment in and adequate payments for SFM are the conditions that prevail in the forest sector, the country and internationally. These include factors related to governance and institutions, such as the level of trust, transparency and accountability, the prevalence of illegality and corruption, the existence of stable laws and policies, and access to and reliability of information. One problem that prevents new sources of financing is the lack of tenure security and/or clarity on land and forest resources. In many cases there is a lack of a legal, political and institutional environment that can provide stability and security in the long term. Investing in this enabling environment may be more effective and sustainable than the financing mechanisms themselves.

## National forest financing strategies

A national forest financing strategy (NFFS) must consider the diversity of stakeholders in forest policy and management, including the different levels (local, national and international) at which forest sector development occurs. A strategy must be part of an NFP and be integrated in the national development strategy. It must incorporate both the tangible and intangible products of the forest. It should also allow for the diversity in forest types and quality, environmental and socio-economic and political-institutional conditions, specific forest management objectives and the distinct financing requirements.

An effective NFFS has four criteria:

- conditionality – the incorporation of sustainability and financial aspects;
- additionality – creating additional revenue and more access to investment financing mechanisms and systems of risk mitigation;
- functionality – effective and efficient mechanisms; and
- equity – the fair distribution of costs, benefits and responsibilities throughout the value chains and among the relevant actors in the sector.

An NFFS must be more than just a document. Its effectiveness will be enhanced if it is designed as a multi-actor participatory process of dialogue, coordination, collaboration and negotiation. It requires strong, long-term commitment and ownership by all parties.

National governments should take the lead to create an enabling environment and provide financing: long-term state commitment to the forest sector is essential. NGOs (environmental and social) have been important and acknowledged partners in forest development and management, and also need to be involved in the development and implementation of an NFFS.

The private sector — large and small — continues to be the main engine for forest development and its finance, always searching out attractive opportunities. More and more, society is requiring the forest sector to incorporate sustainability and responsible enterprise criteria in its daily practices.

### International development cooperation

International development cooperation and/or an international voluntary mechanism for forest financing can facilitate SFM by including the following functions in its portfolio: facilitation, acting as a broker for new and additional finance (payments and investments); advisory services and technical assistance; and creation of platforms of exchange and inspiration.

Countries could benefit from international support in the following fields:

- design, development and implementation of an NFFS within the framework of their NFP;
- creation of an enabling environment for forest investment and for the payment of goods and services, including governance, institutional and transparency aspects;
- development of innovative instruments and mechanisms for investment finance and their administration;
- creating and strengthening a nationally and internationally fair market for forest goods, with an equitable environment of competitiveness which promotes legality and forest certification;
- development of payment mechanisms for forest/environmental services that include the design and application of international mechanisms for global services (such as carbon and biodiversity);
- design, organization and financial structuring of a portfolio of projects (“business cases”) and programs for forest investment and payment, promoting new alliances (for example, community-business associations, public-private partnerships, and national and international alliances);
- strengthening the capacities of different regional, national and local stakeholders in forest financing; and
- facilitating enhanced coordination, coherence and collaboration among donors that support forest development and conservation and the implementation of an NFFS.



### Endnotes

1. The countries included in the national studies were Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela.
2. For more background on the objectives and results of the project, including all documentation, see [www.fao.org/forestry/mecanismosfinancieros](http://www.fao.org/forestry/mecanismosfinancieros).
3. Van Dijk, Kees and Herman Savenije. In press. *Hacia estrategias nacionales de financiamiento para el manejo forestal sostenible en América Latina - Síntesis del estado actual y experiencias de algunos países*.



## 3.4 Timber extraction and trade in Peru

EDGAR MARAVI, ROBERTO KOMETTER  
AND VICTOR GONZALEZ

### The financial risk factor

Despite Peru's spectacular Amazonian landscapes and the rich natural resources contained in its 65 million hectares of tropical forests, rural populations in and around forest ecosystems live in conditions of extreme poverty. For more than 30 years the forest sector in Peru has lacked sound forest policy, legislation and good governance, and has been plagued by poor labour practices and widespread corruption. This has resulted in over-exploitation of forest resources and a failure to develop opportunities for those whose livelihoods depend on forests. It has also caused the forest sector to be considered a high risk for conventional lending and investment.

One of the factors that prevent sound development of the forest sector in Peru is lack of access to the formal financial system. The inherent risks in the forestry business, the difficulties of enforcing the law and protecting access rights to forest resources, and perceived corruption make the sector unattractive to the banking system. The limited investment in sustainable forest management restricts any opportunities for planning timber production over the long term.

Financial services in the forest sector are basically informal, particularly through *habilitación* and other practices, similar to sharecropping, where interest rates in some cases reach 100 percent. This drives forest operators to selectively over-harvest and to focus on timber species with a high commercial value that have greatest demand in the international market.

The forestry code (Law No. 27308, enacted in 2000), established long-term forest concessions based on competitive bidding processes and the principles of sustainable forest management and provided incentives for forest certification. The code raised



THIS IS A PRELIMINARY  
OVERVIEW OF ONGOING  
FIELD AND ANALYTICAL  
WORK ON *HABILITACIÓN*,

AN INFORMAL FINANCIAL PRACTICE  
THAT SUPPORTS TIMBER EXTRACTION IN  
THE DEEP FORESTS OF THE AMAZONIAN  
RIVERS IN PERU.

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hopes for much-needed modernization of the forest sector. Several factors prevented the forestry law from being fully implemented and the forest sector from being modernized, however:

- lack of political will;
- limited understanding of the potential of Amazonian natural resources;
- poor communications infrastructure; and
- lack of institutional presence in remote areas.

In 2003, in an attempt to support the new forest concessions, international cooperation agencies sponsored two lending service initiatives that targeted small and medium-size concessionaires. FONDEBOSQUE, a semi-independent trust fund created under the forestry law, and the *Fondo de Fideicomiso*, a revolving loan fund of the WWF-Peru-CEDISA *Caja Rural de San Martín* (CRSM) consortia, provided small loans together with technical assistance on forest management. The CRSM, a local savings-and-loan organization, operated the lending services on behalf of the consortia with a modest capital of €483,000. As of October 2006, only 15 per cent of the loans had been repaid; 46 percent of the portfolio was in default; and 39 percent was considered bad debt. Numerous reasons were given for these grim results, including government agencies' lack of institutional capacity to comply with forest permits, problems in the design of the fund and borrowers' lack of business acumen. According to unconfirmed anecdotal information from forest concessionaires, FONDEBOSQUE loans had similar results. These experiences, along with other unsuccessful financing attempts, left the forest sector in Peru at the mercy of *habilitación*.

### Informal financial services

The informal nature of logging is a distinctive characteristic of Peru's forest activities. In the current conditions — and despite its negative economic and social aspects — the *habilitación* is an important informal financial service that helps to keep the timber industry running. The timber industry generates approximately €77 million (FOB) per year; a good part of this is financed by *habilitación*. Forest concessions have been unable to overcome the significant risk of investing in Peru's forest sector, and financial services through the *habilitación* scheme continue to provide working capital for large number of forestry operations. Despite the acute limitations facing producers in remote areas and the lack of public administration and banking services, working capital for forest operators continues to flow, particularly for mahogany (*Swietenia macrophylla*), cedar (*Cedrella odorata*) and virola (*Virola sp.*).

### *Habilitación*

Institutional factors — such as lack of collateral value of forest concession contracts and an absence of incentives to develop productive infrastructure — continue to hamper competitiveness. The true economic value of timber resources in these concessions is unknown and the forest authority has inadequate institutional capacity to comply with deadlines for due diligence and mandatory administrative procedures.

*Habilitación* provides financial resources to loggers and poor communities and continues to finance the forest industry. *Habilitación* is an extensive network of economic agents (*habilitadores* and *patrones*) willing to provide lending operations in the most remote areas along the Amazonian River basin in spite of unfavourable conditions such as lack of equipment and capital of small concessionaires and producers' limited ability to comply with the development and implementation of management plans (Figure 1). Borrowers using the *habilitación* scheme have access to financial services that — although costly — do not require collateral and are available despite scanty business administration skills and limited access to primary processing and transportation infrastructure (saw mills, dry kilns, river ports, piers and roads).

**Figure 1. The timber value chain**



## Economic agents

### Exporter

The exporter provides working capital in exchange for certain timber species and is responsible for preparing export-quality products. The exporter further processes export-quality timber in its own sawmills and dry kilns, obtains export permits and often ensures “legalization” of timber. Some exporters are vertically integrated through their forest concessions; some have established subsidiary corporations in consumer countries such as the United States, Mexico and the Dominican Republic.

### Sawmill

Sawmills are located strategically in the capital of the department/region and are the hub at the end of the production chain. In some cases sawmills are owned by independent contractors who provide services for a fee per board foot; however, the exporters usually own the more sophisticated processing plants and equipment.

### Habilitador

The *habilitador*, known also as the *maderero*, is a merchant who through the *patrones* distributes cash at very high interest rates (often up to 100 percent), food staples and equipment in order to secure a steady supply of specific species of timber. The *habilitador* ensures that permits and required formal documentations are in order to demonstrate timber “legality” and is the contact with the forest industry through the sawmills or directly with the exporter. The *habilitador* is responsible for delivering the product to the lumber yards and uses working capital from an exporter — or occasionally from an independent investor — who has enough political clout to influence the legalization of

timber illegally harvested. The *habilitador* may own a sawmill; most of these are outdated, although some *habilitadores* have recently acquired more modern portable sawmills.

### *Patrón (Boss/headman)*

The *patrón* is a local trader in charge of the operations on behalf of the *habilitador* in a specific area on the tributary of a larger river. The *patrón* arranges verbal or written cutting contracts with individual timber extractors, indigenous communities or salaried workers, offering advances in cash and in-kind goods — at high prices — in exchange for pre-established types and quality of logs to be delivered at the end of the harvest season. In some cases the *patrón* sets up a team of workers and establishes an operations camp for several months in a forest concession or on community land. These camps sometimes operate illegally on unauthorized forest land. Wages for forest workers range from €6–9 per day.

### *Logger/forest worker/indigenous peoples*

These are the actual extractors of round wood and represent the last point of the debtor chain. In some cases, for example, indigenous communities, they actually own the forests. They are usually illiterate, unaware of market forces and do not participate in the market economy. They are truly disenfranchised and live in conditions of extreme poverty. They face a range of problems in trying to earn the fair value of the timber or be credited for the actual volume of their production.

Experience shows, however, that *habilitación* is based on unsound social practices. It requires a steady supply of labour, which has significant negative impacts on indigenous communities and poor people. It also results in over-exploitation of timber species with high commercial value from national forest lands, protected areas and indigenous peoples' territories. *Habilitación* supports both legal and illegal logging. Its persistence is due to its being the sole source of capital, which gives it unchallenged control of the local labour market and makes it the single buyer of high-value timber.

*Habilitación* perpetuates indebtedness on the part of local peoples due to high interest rates, overpriced in-kind advances and endless credit balances. Often the indebted logger ends up working to pay debts and borrowing more money or in-kind products to survive through the next harvest season. Because indigenous communities have no knowledge of how to measure or value timber, its amount and market value are usually underestimated. The *patrón* often argues that the value of the timber does not cover advances previously made to the community, which then has to enter into a new cutting contract that further deepens its debt to the *patrón*. In some cases the *patrón* sets up a camp deep in the forest and hires workers from the local indigenous communities or elsewhere. Workers receive their wages in advance and are required to buy overpriced basic food products and even tools from the *patrón*. Many indebted workers try to flee these camps, but in some cases are prevented from leaving by armed *patrones*.

*Habilitación* is a socially unsound scheme: it undermines the vertical integration of the forest industry and fragments the production chain by enabling it to cope with little if

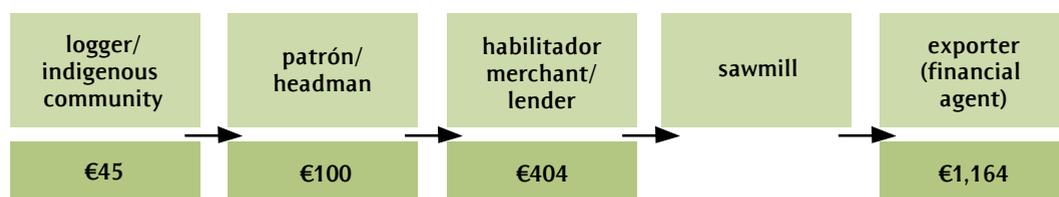
any infrastructure and with other factors that otherwise would compromise the financial viability of logging operations. It estranges the logger from the processing plant and from the exporter.

### Local and global markets

River-mouth prices and sawmill prices of round wood are very important elements in the economics of timber in the Amazonian area of Peru. Fraudulent calculations of timber volume and discounts or penalties under the pretext of poor quality round wood also increase profits for middlemen and exporters. This deception is made possible because of the disenfranchised state of loggers and indigenous people. Illiteracy and lack of basic information about market prices, product standards and general timber market information also subject loggers and indigenous peoples to unfair practices during log scaling and grading. In addition, middlemen cheat local people when calculating the total volume of sawn wood per log. These are all standard practices at the mouth of the river where products are delivered; this further supports *habilitación* by allowing the *patrón* to pay high interest rates to the *habilitador* and still make a profit.

Conventionally, prices vary from river to river according to the distance to the sawmill and the extent of loggers' information about prices in the provincial market. In the case of mahogany, prices go up dramatically as the round wood reaches sawmills and becomes "legalized." As of Monday, May 12, 2008 the price per cubic metre at the river mouth of a tributary of the Ucayali River was €100 per/m<sup>3</sup> (*patrón* or small concessionaire price). In Pucallpa at the sawmill gate (*habilitador* price) it was €404 per/m<sup>3</sup> (which includes the sawmill cost and transport). The FOB price of export-quality mahogany at the end of 2007 was €1164 per/m<sup>3</sup> (Figure 2).

**Figure 2. Timber price for mahogany through the value chain per cubic metre**



Note: Information on independent sawmill charge for processed cubic metre was not found. In most cases sawmills are owned by exporters and a market price does not exist.

Prices paid to loggers or indigenous communities are difficult to estimate since timber-cutting contracts are verbal and payments are made through overpricing in-kind goods and underpricing timber value. They may vary between €32–45 per cubic metre. The prices in Figure 2 show the significant difference in profits made by each participant. This disparity is due to five important factors:

- lack of working capital for logging operations under high risk conditions;
- "legalization" of the harvested timber from unauthorized forest lands or protected areas;

- lack of market information on the part of loggers and forest owners (indigenous communities);
- lack of government control and supervision; and
- corruption.

## Conclusions

Modernizing the forest sector in Peru will be extremely challenging and would likely have a greater chance of success if it were carried out in stages. Although further analysis is required before providing conclusive proposals, it is clear that financial services will be an important part of this process. Progressively modernizing the *habilitación* scheme may have a substantial impact on the timber value chain by reducing illegal logging and over-harvesting, deterring forced labour practices, and by reducing or eliminating fraud, deception, loan sharking and tax evasion. The following four preliminary proposals should be tested through further comprehensive analysis:

- review the economic, financial and environmental dimensions of the *habilitación* scheme to identify triggers and key factors that with specific interventions would help modernize the sector;
- use selected local radio stations in local languages to deliver market information on prices per timber species along the value chain, the cost of and ways to access capital, and market prices of basic food, tools, equipment and goods;
- promote best practices for basic log scaling and log grading through local forestry committees to prevent fraud and deception; and
- register *habilitadores* to formalize commercial activities and provide control of their business and logging practices.





## 3.5 Commercially viable forestry partnerships

ANNA-LEENA SIMULA

### The view of smallholders and communities

The private sector, governments, smallholders and communities are increasingly willing to establish joint ventures to enhance sustainable forest management, including production of timber and non-timber forest products (NTFPs), protection of watersheds, conservation of endangered species and ecosystems, and mitigation of climate change. These partnerships can provide a mechanism to secure financing for sustainable forest management.

Several fundamental questions need to be answered:

- what are the key driving forces behind successful partnerships<sup>1</sup> between smallholders/communities and companies and/or governments?
- why do some partnerships work and others do not?
- what kind of institutional and contractual arrangements are needed for financially viable partnerships?
- how can successful partnerships be promoted?



PUBLIC-PRIVATE-  
COMMUNITY  
PARTNERSHIPS CAN  
PROVIDE THE FOREST

POLICY INSTRUMENTS AND MECHANISMS  
TO PROMOTE FINANCIALLY VIABLE  
INITIATIVES THAT SUPPORT SUSTAINABLE  
FORESTRY AND RELATED ECOSYSTEM  
FUNCTIONS, ESPECIALLY FROM THE POINT  
OF VIEW OF SMALLHOLDERS.

A partnership is viable only if the parties involved benefit from it. Smallholders and communities seek income, employment, market access, infrastructure, skills, technology and secure tenure/user rights as well as social and ecosystem services. Returns from forestry have to be competitive with gains from alternative land uses. Companies seek access to secure land use, cheap labour, wood supply and social licence to operate. Governments try to halt the disappearance and degradation of forests through sustainable forest management by forest-adjacent communities.

During the last 20 years many pulp and paper companies have established out-grower and tree-farming schemes in Brazil, India and Africa, primarily to safeguard wood availability but also to mitigate social risks. In Africa, Asia and Latin America state-run

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forest departments have engaged in joint forest management (JFM) in cooperation with communities on national and local forest reserves for the last 15 to 20 years.

### Economic aspects

The same basic economic and financial principles apply to smallholders and communities who are forest resource owners or managers, whether they have a subsistence economy or are part of sophisticated market economy. Although in very rare cases the revenue from forests and NTFPs products provides a smallholder's sole income, in most cases it constitutes only a fraction of the gross household income.

The poorer people are and the fewer their livelihood alternatives the more that forests are at risk. This is still very much true in tropical Asia, Africa and Latin America. A poor person's interest rate is very high; he or she cannot wait for trees to mature if there is nothing to eat. It's better to "cash and carry" immediately to make ends meet, particularly if ambiguous tenure and user rights prevent villagers from using their land as collateral for borrowing money. The rapidly expanding agri- and biofuel businesses, as well as illegal logging, also have detrimental effects on tropical environments.

Due to the long-term nature of forest management and tree growth, forests compete poorly with agricultural crops, particularly in tropical and subtropical conditions. In northern boreal forests it takes 70-150 years to grow saw-log-size timber, and even in savanna woodlands many miombo species require 40 to 50 years to mature. Plantations are also relatively long-term ventures, even if their tree species are called "fast growing and high yielding." Cash flows from new plantations are commonly negative during the first ten years. In forest investments the capital is tied to biological assets, the value of which increases, mostly due to the biological growth of trees.

### The effects of poverty

Poverty makes people cut trees too early; prosperity saves trees. A case in point is Zambia, where each year 850 000 to 900 000 ha of savanna woodlands are converted to subsistence agriculture by smallholders. Extreme poverty and open access to woodlands have made them a target for slash-and-burn agriculture and charcoal burning. The situation is greatly aggravated by complicated land tenure and user rights; all lands are vested to the president and traditional chiefs exert strong control over land resources on customary lands. The *Forest Act* of 1998, which supports smallholders/communities, was never officially enacted, although it was passed by Parliament.

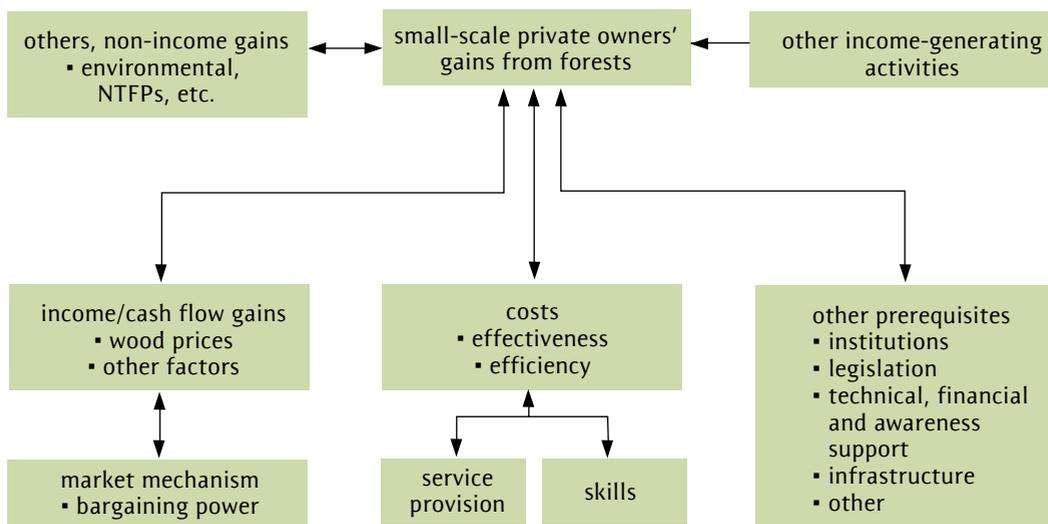
At the other end of the spectrum is Finland, where during the last 50 years great numbers of small-scale non-industrial forest owners (NIPF) have changed from being poor peasants to city dwellers. Although 100 years ago Finnish forests were in a poor state as a result of intensive slash and burn agriculture, today many of the 400 000 forest owners are fairly prosperous urban professionals with a diminishing dependence on forest income. Forest owners are also older; they have no immediate need to cut and convert their forest assets but are saving for the future or for the benefit of their children.

Slowly but surely forest-owning city dwellers have started to value intangible ecosystem services, such as recreational opportunities, landscape beauty and biodiversity. During the last ten years or so a comprehensive payment and contracting system for ecosystem services has been created. The Finnish government, together with key stakeholders, developed a system that compensates small-scale owners for a range of ecosystem services. Today the key question for Finnish forest policy is how to encourage forest owners to sell enough timber to meet the forest industry's demand.



Although the forestry realities in Zambia and Finland are very different, the behaviour of forest-related smallholders and owners can be analyzed under an almost identical framework (Figure 1). The same factors which influence the profitability and timber cutting behavior of Finnish small-scale forest owners (see Simula, 1994, for more details) also affect miombo woodlands' economics (see Sumaila, Angelsen and Kowero 2003 for more details).

**Figure 1. Factors influencing income and profitability from forest management**



Source: Simula and Kaduvage 2006

The Sustainable Livelihoods (SL) Framework as advocated by DFID is built on these basic economic principles, although livelihood assets are defined more broadly (see [www.sustainablelivelihoods](http://www.sustainablelivelihoods)). The SL framework identifies five basic types of capital: natural, physical, financial, human and social.

However the economic behavior of smallholders is assessed, the same key factors make smallholder forestry work (Table 1). Similar success measures for NTFPs are listed by Marshall, Schreckenberg and Newton (2006).

Needless to say, these prerequisites are rarely all in place. Very seldom, if ever, do markets function perfectly. Both companies and governments try to influence smallholders' willingness to invest time and money in forest asset management by means of different forest policy instruments. Usually a combination of incentives and disincentives are used.

**Table 1. Prerequisites for financially viable smallholder/community forestry**

Law and policy prerequisites	<p>Long-term security of the land tenure or user rights is in place and land can be used as collateral.</p> <p>The sustainability principle is enforced (i.e., destruction of forests is prohibited, felled areas have to be regenerated and no premature cutting of stands with a high value growth is permitted).</p>
Prerequisites for building social capital, governance, technical skills and infrastructure	<p>Smallholders have the right to establish lobby organizations, associations, co-operatives and other networks to participate in decision-making and use bargaining power in negotiations with partners.</p> <p>Technical assistance and training in forestry and other income generating businesses are provided to smallholders.</p> <p>Social and physical infrastructure, such as education and roads, are available.</p>
Economic prerequisites	<p>Timber and ecosystem services have markets and information on demand and prices is available.</p> <p>The value of forest products, NTFPs and other services are close to competitive market prices.</p> <p>Smallholders get a fair share of the end product price; i.e., the benefit and risk sharing in the value chain.</p> <p>Smallholders' labour and other inputs for silvicultural operations, fire-fighting, patrolling, etc. are compensated at reasonable rates.</p> <p>Transaction costs are kept at competitive levels by increasing productivity and acquiring the latest feasible technology.</p> <p>Grants or credits are available to make long-term forestry investments attractive, particularly for the reforestation of degraded lands.</p> <p>Taxation encourages investments in sustainable forest management.</p>

Smallholders, particularly in the northern hemisphere, have increased their bargaining power with companies and governments by establishing advocacy and lobby organizations, cooperatives, associations and community enterprises. This has not yet taken place in the southern hemisphere (see Brigg and Satterthwaite 2005).

## Market initiatives

Market-driven schemes are financially viable from the smallholders' point of view. Brazilian and South African pulp and paper companies have established out-grower/tree-farming schemes with smallholders mostly to supplement timber from their own fast-growing plantations. Typically 10 to 25% of their annual wood intake originates from tree farms. Tenure and user rights are in place at these farms, although disputes with landless movements sometimes arise. In most cases the schemes are part of companies' corporate social responsibility programs and aim to mitigate social risks.

The schemes are well organized and based on carefully planned contractual and institutional arrangements. Companies provide technical assistance, environmental licensing, seedlings and other inputs, often without charge. Farmers have to comply with technical procedures and fulfill the agreed production and transportation specifications. Benefit-sharing is in place; the company buys 95 to 100% of the total harvest at prevailing market prices, although no minimum prices are guaranteed. Payments can be made on delivery, as a credit advance or periodically.

In India, company-farmer partnerships have been practised for 20 years or more. Not all schemes have been successful, although they have helped popularize tree growing. The companies focus on tree improvement to make farm forestry more viable financially for farmers. They also try to simplify credit procedures and increase clarity in agreements. The formation of tree farmers' associations is encouraged to improve farmers' bargaining power and provide economies of scale. It is estimated that 50-60% of the timber harvested in India comes from trees grown by farmers outside the forest area. The willingness of smallholders to grow trees on their own plots and benefit financially from tree growing is still a largely unused potential in many tropical countries.

The forests under community-based forest management (CBFM) in Tanzania have features of private forests, which is uncommon in East Africa. Villages can declare and later gazette forest areas on village lands as village land forest reserves (VLFRs). This gives villagers secure long-term tenure rights which entitles them to assume full management responsibility, collect and retain tax revenues from forest products, undertake patrols, levy fines for illegal forest users, issue licences for forest products, and set rules and regulations for forest management. Villages can also decide whether to buy forest management services from the local government, NGOs, or private providers. The VLFR arrangement is a very progressive model, but is not yet fully functional. It still needs to be made financially viable to villagers.

Smallholders' willingness to plant trees on their farms provides a vast potential for Tanzania to increase tree planting and improve natural resource conservation. This can be done by unlocking the smallholders' drive, business skills, enthusiasm and willingness to take risks (Simula and Kaduvage 2006; see also Kokwe 2007 as regards Zambia). Both the VLFR model and the proposed Family Farm Program could greatly benefit from the Finnish experiences and lessons learned from forest owner cooperatives and small-scale forest owners' forest management associations.

Small-scale private forestry in Finland has been very profitable, although yearly fluctuations in cash flows have been considerable due to market volatility. Also, it has taken 80 to 100 years to make small-scale forest owners' institutions and their systems effective and to build the required social capital and bargaining power. Forest owners' efforts have also been helped by supportive forest policy.

### Government-led JFM arrangements

JFM arrangements without proper benefit-sharing mechanisms provide only social protection. JFM is a collaborative approach to forest management, where forest communities work with the local government or forest division in national and/or local government forest reserves. The government continues to own forest land but benefits/rights and costs/responsibilities are shared.

JFM has been piloted extensively during the last two decades in many Asian, Latin American and African countries but the results have not been very encouraging. Some forests have improved, fuelwood, fodder and NTFP production has increased in some cases, and some communities have seen an increase in income and employment. Encroachment of forests has also decreased. Many critical issues continue to plague JFM. In India, for example, these include issues emphasized by Saigal, Mitra and Lal (2005):

- contractual and institutional arrangements lack a firm legal basis;
- benefit sharing in JFM is mostly restricted to degraded forests (often, ten years or more are required to increase stocking);
- costs and benefits are not distributed equitably among different subgroups (class, caste, gender);
- sufficient markets for NTFPs have not been found; and
- effective monitoring systems are lacking.

According to Khare (2005) there is a need to secure full property rights in India, because people's willingness to invest in long-term forestry is based on security of tenure. Market-based approaches are required to increase people's income, initiate payments for environmental services, increase the supply of forest products to the industry, and increase government revenue.

Similar lessons have been learned in Africa. The government regulations which would clearly set out the benefit-sharing mechanisms in case of JFM agreements have not yet been endorsed in Tanzania nor Zambia. This implies that government authorities still resist sharing decision-making powers and benefits with communities (see Reuterswärd and Vihemäki (2007)).

Moss et al. (2005) studied a large number of participatory forest management (PFM) cases in different countries and concluded that "PFM that focused on forest protection



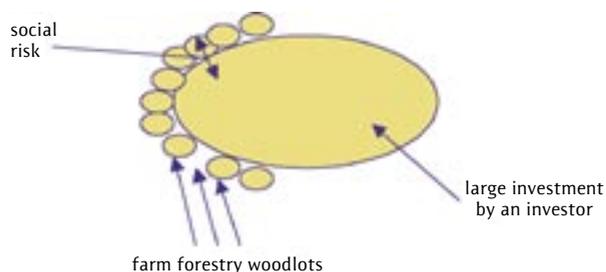
and provision of subsistence products for household use had less potential for reducing chronic poverty, but may function to prevent the worsening of poverty amongst the non-poor and transitory poor.”

## Recommendations

These forest policy instruments and mechanisms can promote financially viable public-private-community partnerships in smallholder/community forestry:

- Government and corporate decision-makers should modify forest policy to include instruments and incentives that promote financially viable smallholder/community forestry in a targeted manner (see Table 1). Providing long-term tenure and user rights through policy and legislation, and assisting in effective land-use planning (surveying, demarcation, titling, etc.) will encourage smallholders to invest in forestry.
- Market-based forest instruments, such as the Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification schemes (PEFC) forest certification systems, could support the sharing of risks and benefits and ensure that smallholders receive a fair share of the end product price. Roundtable on Sustainable Palm Oil (RSPO) certification of palm-oil plantations is one example where smallholders' socio-economic issues have been taken into account in a progressive way.
- Strengthening institutions will support good forest governance, particularly the establishment of forest owners' associations and cooperatives. They can greatly advance smallholders' understanding of forest ownership, forest-based income generation, environmental issues, improvement of local institutional capacity and bargaining power. Personal gain is the best incentive to make non-industrial private small-scale forestry work.
- A new national or international smallholder forestry instrument is needed (see Figure 2). This could support smallholder forestry (capital, skills, seedlings, fertilizer, contractual arrangements, etc.) in the context of a large-scale forest plantation investment. This would have a two-fold impact: it would mitigate the social risk for large scale investors, and would ensure markets for smallholders and support the overall feasibility of smallholder forestry.

**Figure 2. Farm forestry investment instrument**



## Endnote

1. The term “partnership” is used to refer to a wide range of different arrangements, deals and contracts that are entered into by governments and companies with individual smallholders, a group of individuals/villagers or communities. Companies/enterprises can be large, medium or small and they can represent a wide range of legal entities. Communities and groups of people can be informal groups or formal entities, such as an association or cooperative.

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## 3.6 Building capacity for SFM financing strategies

AREND JAN VAN BODEGOM AND MARCO BOSCOLO

Forest management, particularly sustainable forest management (SFM), requires sufficient financial support. Traditional markets and mechanisms (such as investments, credits and tax incentives) are frequently not adequate to make SFM competitive with other types of land use. This is particularly the case for SFM in natural forests. Some Latin American countries (such as Costa Rica, Chile, Brazil, Colombia and Mexico) are in the forefront of developing, testing and applying new financing instruments (such as payment for environmental services and forest-related securities) as well as improving existing mechanisms in order to increase forest financing. The know-how generated in these and other countries is essential and worth sharing.

As part of a “National Forest Programme for all” initiative, Wageningen International (with support from FAO, The Ministry of Agriculture, Nature and Food Quality of the Netherlands and in close collaboration with Tropenbos International and the National Forest Programme Facility) has developed a training module on financing mechanisms for forest conservation and sustainable management. The goal of the module is to build capacity in the development and implementation of national forest financing strategies, in support of national forest programmes.

The module builds on experiences from countries around the world. Through presentations, sharing of case studies and participatory exercises, the module illustrates financing mechanisms, both traditional and innovative. It also provides a framework for systematizing and prioritizing action, and for exploring synergies in and potential obstacles to the elaboration of a financing strategy with broad multi-stakeholder support.

The module offers participants the opportunity to systematically review and assess issues related to environmental values and valuation, traditional (e.g., credit) and innovative (e.g., capital-market) investment mechanisms, the prospects for and



A MODULE HAS BEEN DEVELOPED TO BUILD CAPACITY IN THE DEVELOPMENT AND IMPLEMENTATION OF NATIONAL FOREST FINANCING STRATEGIES, IN SUPPORT OF NATIONAL FOREST PROGRAMMES.

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limitations of markets for products and services, and the components in and importance of supportive conditions — laws, regulations, institutions, governance, and macro-economic circumstances — that are conducive to investments and market development. For foresters, whose strength is largely in the technical aspects of forestry, it is an opportunity to expand their understanding of functions of financial mechanisms. For finance specialists it is a chance to learn about forest values, economics, and the opportunities presented by well managed forests (Box 1).

The module is available on the web in English<sup>1</sup> and Spanish<sup>2</sup> and has three components:

1. a pre-workshop module that briefly deals with the principles of the national forest programmes, forest functions, stakeholder analysis and sources of financing for forests;
2. a complete programme for a three-day workshop, including presentations and exercises (those interested can contact the web editor for full access); and
3. an extensive reference section with descriptions of various financial mechanisms, case studies and material for further reading.

#### **Box 1. Building capacity in forest financing, Guatemala**

In November 2007, FAO, in close cooperation with the NFP Facility, supported the Guatemalan national forest program with a workshop aimed at increasing the local capacity to think and act proactively and strategically on forest financing. As a direct consequence of the workshop, the Guatemalan forest agency (INAB) is undertaking the development of a national strategy for forest financing. That work will capitalize on the synergies identified between the forest sector and the financing sector. These are some of the next steps in Guatemala:

1. incorporate input from other stakeholders (including the agricultural sector) into the draft elements of the strategy being produced as a result of the workshop;
2. finalize a forest financing strategy that has broad support from government and stakeholders;
3. explore the feasibility of developing two or three innovative financing mechanisms in selected areas of Guatemala by supporting a team composed of forest and financing experts and building on longstanding Dutch and German support in these areas; and
4. gather information on potential and actual capital markets. This material will be geared to an audience of forest professionals and is meant to help them more effectively engage finance-sector professionals (both within government and in the private sector).

In 2007, with support from the NFP Facility, the workshop was tested in Namibia (in English) and Guatemala (in Spanish). The workshops brought together representatives from both the forest and financing sector and accomplished several things:

1. provided information to participants about sources of financing, investment and market-based mechanisms, and the requirements for supportive conditions;
2. illustrated concepts with examples and case studies;
3. increased mutual understanding, through sharing of perspectives, views, concerns and hopes, among the financial and forest sectors, which have limited knowledge of each other; and
4. demonstrated joint problem analysis and problem solving, including ways to prioritize, build consensus on strategic elements and create broad-based support (see Box 1).

FAO, the NFP Facility and their partners are planning more workshops for 2008, including a national workshop in El Salvador. Although the workshop has been designed for the national level, it can easily be adapted to the sub-national or regional levels.

### Endnotes

1. See <http://portals.wi.wur.nl/nfp4all/>.
2. See <http://portals.wi.wur.nl/pnfparatodos>.



# Section 4

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## Forest investment and capital markets

Photo credits

p.75 World Bank

p.76 Rice fields and forest, Kerinci Seblat National Park, West Sumatra, Indonesia. Alain Compost, World Bank

p.79 Jeremy Holden, World Bank

p.81 Marieke Wit, FORM International

p.83 Emil Roes (Nieuwland), Tropenbos International Suriname

p.84 Thick liana known locally as the stairway to heaven. Ivan Torres, Tropenbos International Colombia

p.86 Tropenbos International

p.89 Niel Raes, Tropenbos International Indonesia

p.90 Sunset at the Tarapoto lakes, Colombia. Carlos Lema, Tropenbos International Colombia



## 4.1 Forestry and capital markets: friends or foes?

MARK CAMPANALE AND MATTHIAS RHEIN

### Forestry is back on the agenda

The Stern report<sup>1</sup> estimated that deforestation is responsible for around 20% of anthropogenic carbon dioxide emissions. It also calculated that some €6–18 billion per year would be needed to reduce global deforestation by 70%.

### The scale of private investments

A report commissioned by the UNFCCC Secretariat estimated that in 2006 more than €31 billion was invested in the forest sector of developing countries.<sup>2</sup> Only €324 million of this was official development assistance (other sources estimated slightly higher aid amounts); the rest came from private sources and, increasingly, capital markets.

### A troubled history

To better understand the dynamics of capital market investments and tropical forestry, it is helpful to consider the events that took place in South-East Asia in the 1990s. A large number of companies operating in the region's forestry sector were able to secure a listing on a stock exchange. This was promoted by the international banks for two main reasons.

- access to international capital markets through the equity markets provided a source of cheap financing; and
- allowing companies to become public was expected to provide them with some protection from political uncertainties and pressures from NGOs.<sup>3</sup>



SINCE THE STERN REPORT WAS PUBLISHED IN 2006, MANY

PUBLIC FUNDS HAVE BEEN SET UP, AND MORE ARE BEING SET UP, TO CREATE A SYSTEM THAT PROVIDES PAYMENTS AND OTHER INCENTIVES FOR REDUCED DEFORESTATION. THIS ARTICLE LOOKS AT SOME OF THE EFFECTS OF PRIVATE FINANCE ON THE FOREST SECTOR OF DEVELOPING COUNTRIES.

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The views expressed in this paper are those of the authors and may not necessarily reflect the views held by the UK Government.

After being listed, many companies started to mine their concessions so as to maximise the short-term financial returns to shareholders. The substantial valuations given by investors to these logging companies enabled them to grow and, through the use of bank loans, to acquire control over large new areas of forests, from Asia to South America. Once the timber had been harvested, investors shifted their capital into less risky assets, which led to a collapse in the value of the listed forest companies.

### The exception or the rule?

Although the scale and speed of this boom and bust was exceptional, evidence suggests that the forces at work are the rule rather than the exception. Most of the investments by capital markets in forestry sectors in developing countries was “impatient” finance — a wish for high returns over a short period of time. This led to the mining and conversion of forests.

Greed is one cause of this behaviour; perception of risk is another. Ignorance of the complexities and workings of the tropical forestry sector is yet another driver.

### Sustainable forestry requires sustainable finance

Sustainable forestry requires, among several other things, sustainable business models and sustainable finance. Sustainable finance provides “patient” rather than “impatient” financing; that is, up-front and long-

term investments based on appropriate expectations regarding returns. It also provides incentives for forests to be managed sustainably.

Millions of acres of virgin and old-growth forests are being traded on international stock exchanges. It is not known how much has been traded, or how much is managed sustainably, because there is no system to track capital market investments in forestry. In addition, it is often difficult to detect the transfer of forests assets in the exchange’s large number of daily transactions.

Brokers promote putting 20% to 60% of a low-carbon economy investment portfolio into the forestry sector.<sup>4</sup> They advertise the pulp-and-paper industry in developing countries as an attractive green investment opportunity.<sup>5</sup> Investment brochures advertise sustainability without actually defining it, and promote gaining control over large areas of natural forests and the need to invest in new logging roads. They do not typically mention the people who live in the forests.

The immense capital flows into agricultural and biofuel expansions provide more reasons for concern. The history of global economies suggests that the dynamics of the boom and bust of the South-East Asian forestry sector tend to repeat themselves. Learning and innovation are also possible, however.



### Creating large-scale sustainable finance

A sustainably managed tropical forest generates yearly cash flows that can be forecast with a reasonable degree of accuracy. Since the growth and harvest of the asset is biological – in other words, it grows naturally — it has investment characteristics different to those of other asset classes: it is not affected by the movements of financial markets, nor is it correlated to other asset classes. These important characteristics have not yet been fully appreciated by investors.

In 2005, legislators, regulators and standard setters responded to concerns about under-financing and the potential impact of pension shortfalls on company balance sheets by launching a number of initiatives to introduce fuller disclosure and tighter valuation rules for pension funds. Pension fund managers wanted to match their long-term pension fund liabilities with assets in response to these new accounting standards.<sup>6</sup> ODDO Securities estimated a global shortfall in long-term bonds of about €1,365 billion.<sup>7</sup>

Pension funds could address their long-term liabilities by holding debt instruments linked to the long-term harvest of sustainably managed forests. Forest-backed investments could be structured similarly to a long-term bond.

At the most basic level pension funds and forests have a common denominator. In the case of pension fund liability, the dispersal of employees' ages and years until retirement will affect the timing of cash flows. Similarly, in a forest the timing of cash flows is affected by the age of trees and the years remaining until they are harvested. A long-dated bond could match the growing value of sustainably managed forests with the growing cash requirements of a pension fund. The long-term yield over 40 to 50 years would produce a modest return — for instance, one to two percent over the base rate — in line with the financial performance of a sustainably managed tropical forest.

In addition to pension funds, hedge funds and insurance companies would also be potential buyers of these bonds. Many of these companies have become interested in forestry as an asset class because it provides a good hedge against currency and inflation risks.

### Incentives for sustainability

A long-term bond would align investors' interests with sustainability: investors and insurers would lose money if forests were not managed sustainably. This reverses the perverse incentive that persists in the short-term equity-type investment model where investors gain from the unsustainable mining of forests. A long-term bond might also be more efficient than proliferating trust funds for avoided deforestation.

A range of approaches is possible. Some debt instruments have been structured to securitize the future revenue streams of forest companies. Another approach, perhaps more sustainable, is to undertake a "whole-forest" securitization, which assesses the net present value of the forest's commercial timber against a long-term harvesting agreement. This enables the forest owners to receive an up-front lump sum for their forest, which is

typically much higher than the value of the logging rights. There are, however, practical challenges in this model, such as unclear tenure.

Bonds can be designed to provide sustainability incentives for forestry operators through due diligence procedures and conditional lending based on sustainability criteria and safeguards, and through monitoring, preferably with the participation of an independent third party.

### Improving impacts on people and forests

Including high-yield industrial plantations in a portfolio allows low- or no-return forests for conservation to be included. This produces a blended return to meet bond coupon payments. Additional income generated from carbon markets and ecosystem service markets would further tip the balance of the portfolio towards conservation.

An investment's impact on local people would largely be determined by the business model. To reduce poverty and stimulate inclusive growth, business models need to recognise the value of enterprises owned by households and communities throughout the forest sector. Loans have to be extended to these forest enterprises. This could be achieved by attaching a microfinance facility to a bond or by lending to existing local microfinance facilities.

### Dealing with uncertainties and risks

More comprehensive information about the potential costs and revenues of sustainable tropical forestry and its abatement potential would help reduce uncertainties which hamper the flow of sustainable finance. Greater information on forests listed on capital markets would improve transparency and contribute to the development of appropriately priced finance and insurance products for sustainable forestry.

Various risk-management techniques can be applied when structuring a bond. They include portfolio diversification and structured finance (in other words, including different forest types with different risk profiles from different countries in the portfolio and developing different products for investors with different risk appetites). Newly developed insurance products for the sector can provide coverage for operational risks such as forest fires.

Because sustainably managed forests are a new asset class and large forests with significant global value are situated in countries with a poor record of governance and political stability, sustainable investment in these areas is beyond the scope of the private sector. Encouraging the flow of sustainable finance into such regions would require some form of public insurance against political risks.

### Recent developments

The International Finance Corporation (IFC) and the UK Department for International Development (DFID) have commissioned research into forest bonds<sup>8</sup> and have worked with the private sector to promote them. Recent encouraging innovations in the finance sector might bring forest bonds to the market.

### Conclusion

The facts suggest that the flow and the nature of private finance have a vastly larger impact than public finance on globally significant forests. To date, the nature of most of these private investments has worked against sustainability. This is a major obstacle to achieving the objectives of sustainable forestry and development.



Northern-based pension funds face the potential long-term risk of future liabilities that are not matched by future assets. Sustainably managed forests could provide a solution to two aspects of this problem:

- matching future liabilities with assets that can produce a modest but sustainable long-term financial return; and,
- more importantly, providing a source of sustainable finance on which southern-based forest owners could draw to conserve globally significant forests.

The public and the private sectors need to work together to develop and promote four things in order to transform the potential risks associated with capital markets investing in forestry into opportunities:

- transparency;
- investment instruments that generate sustainable finance;
- business models that deliver on poverty reduction, growth, climate protection and sustainability; and
- a business climate that is conducive to sustainability.

Setting up a multilateral investment guarantee agency (MIGA) for sustainable forestry in developing countries would be one practical way to catalyse a diversified market and create innovative financing and insurance instruments that support sustainable forestry and wider development goals. This agency would enable donors to use relatively small amounts of public finance to steer large private investments into sustainable forestry. This approach has the potential to create change and generate significant benefits, and may be more efficient than proliferating trust funds for avoided deforestation.

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## 4.2 TIMOs and institutional investments in plantations

MARJO MAIDELL

### Institutional investors

The popularity of forests as an investment has grown in recent decades. Institutional investors in particular — such as pension funds, university endowments and trust funds — have increased the extent of forest investments in their portfolios. Typically these investors are looking for an asset with a steady cash flow that provides diversification, long-term profitability and ongoing earnings that meet an established risk-reward ratio. They see forests as a hard asset that generates real investment-based returns, unlike assets such as company shares, which are subject to market forces (Haltia and Leppämäki 2000).

The main interest in forest investments stems from the diversification potential that forests provide for portfolio holders. And, since many institutional investors have a long-term investment horizon, they also value forests' inflation hedging potential. That potential is based on two factors:

- the biological growth that results in greater timber volume and value; and
- possible increases in timber and forestland prices (Zinkhan et al. 1992).

Empirical evidence seems to support this ability to hedge unexpected inflation (Washburn and Binkley 1993). Unlike the case with many agricultural crops, harvests may be postponed if timber prices stagnate.

Another reason for investment in forestry is the high return; in the U.S., for example, the Timberland Index published by the National Council of Real Estate Investment Fiduciaries (NCREIF) showed nominal returns of 15% (p.a.) for institutional investors between 1987 and 2007. Part of this notable increase was due to the earlier undervaluation of forest estates. As with investing in general, historical returns are not a guarantee of future values. In some cases, however, the earlier — and, to some extent, unrealistically high — returns have been used to advertise the profitability of timberland investments. The



TIMBER INVESTMENT  
MANAGEMENT  
ORGANIZATIONS  
(TIMOs) ARE OFTEN

USED BY INSTITUTIONAL INVESTORS  
SEARCHING FOR A DIVERSIFIED  
TIMBERLAND PORTFOLIO, INCLUDING  
“GREEN” PROJECTS.

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**Marjo Maidell** has been assigned by Indufor Oy to write her Master's thesis on international forest investing for the University of Helsinki.

annual return of NCREIF between 2000 and 2007 has been somewhat lower, at 9% (p.a.), but is still attractive enough to encourage institutional investments.

Institutional investors on average invest only 1–3% of their assets in timberland. The estimated value of timberland investments rose to approximately €19 billion in 2007 (FAO 2007). The size of a typical plantation investment ranges between 20,000 and 100,00 ha. Most timberland assets are located in the U.S. but notable investments have also been made in Europe, Russia and New Zealand. Less developed markets, such as countries in Latin America, Southeast Asia or Africa, are strongly emerging in the plantation investment business. The rising interest in early-stage plantation development in these countries results from the potential for high returns.

### Timber Investment Management Organizations (TIMOs)

TIMOs are often used by institutional investors searching for a diversified timberland portfolio. TIMOs, first used in the 1980s in the U.S., are the most widely used mechanism for forestland investment. They provide timberland funds and management of individual timberland accounts (Table 1). Silvicultural management of the forest may also be the responsibility of TIMOs. TIMOs have seen rapid growth in their asset base in the past two decades in the U.S. and continued growth is expected (Siry and Cabbage 2001).

**Table 1. TIMOs: how they work**

Actors	Responsibilities
Investment managers	Capital raising Financial analysis, due diligence Timberland investment administration Financial reporting
Asset managers	Forest analysis and due diligence Inventory design and planning Timber sale negotiation, management Operations planning and oversight Forest operations reporting
Property managers	Inventory execution and monitoring Harvest set-up and monitoring On-site operations monitoring
Field contractors	Operations execution <ul style="list-style-type: none"> <li>▪ site preparation</li> <li>▪ planting</li> <li>▪ other silviculture treatments</li> <li>▪ roadwork</li> <li>▪ harvest</li> <li>▪ inventories</li> <li>▪ surveying and mapping</li> </ul>

Source: Modified from Hall 2008

### Determinants of plantation investments

The emerging plantation countries, mainly located in the tropics, provide substantial opportunities for timberland investors. Attractive growth rates result in shorter rotations and greater yields, which means that smaller areas of land can be used than in temperate or boreal areas. The number of years between establishment and the first harvesting revenues can also be significantly shorter. In addition, the cost structure is relatively light, a labour force is available, and many of these areas have rapidly developing markets for wood-based products.

The risk profile in emerging markets is different, however. Country risk is one of the criteria of investment. It refers to the factors that influence the business environment and investment climate in a particular country. Four drivers relate to plantation investment and country risk: social, environmental, financial and technical (Table 2; see also Haltia and Keipi 1997).



**Table 2. Risks related to plantation investments**

Social	Environmental	Financial	Technical
land tenure conflicts with stakeholders <ul style="list-style-type: none"> <li>▪ employees</li> <li>▪ local populations</li> <li>▪ NGOs</li> <li>▪ public sector</li> </ul> illegal logging	erosion forest fires pests water biodiversity hotspots conversion of native forests	timber price volatility liquidity withdrawal of subsidies/tax benefits changes in environmental legislation costs higher than expected market demand exchange rate location in relation to markets	operational efficiency management capacity yield lower than expected plantation areas smaller than expected existing infrastructure

Source: modified from Seppänen and Haltia 2007; Lehtonen 2008

Diversification is the key tool for reducing the risks present in plantation forestry. Diversification can be applied to countries, regions, tree species, age classes, grades and management regimes. Effective management planning, operational guidelines and training can also decrease the risk of plantation investment.

Typically, a dedicated team with broad experience and expertise is required to realise the full range of opportunities available from timberland. TIMOs can help institutional investors manage the risks associated with nondiversified forest assets and poor planning and management. By using TIMOs the investor can secure — in addition to diversification benefits — effective forest management.

Forest certification provides another way to mitigate the risks related to inadequate operational quality and environmental planning, inability to comply with national requirements and endangering market reputation. International certification schemes (FSC and PEFC) or national plans aim to guarantee a well-managed production chain by requiring compliance in all aspects of economic, social and environmental sustainability. This is in line with the long-term investment horizons of institutional forest investments.

### Environmental issues

Institutional investors are interested in the diversification benefits and financial performance of their investment. It can be assumed that intensive forest management is in line with these objectives. Siry and Cubbage (2001) state that in the southern U.S., intensive management includes more efficient site preparation, genetically modified seedlings and applications of herbicides and fertilizer.



Financially profitable plantation management does not, however, necessarily mean intensified operations. Many non-timber values of the plantations have been included in the timberland appraisals in recent years, as the land value under multiple uses may be greater than that for industrial forestry. Recreational uses have also proved to produce competitive revenues in the forms of recreational leases, hunting leases or construction of apartments. Conservation agreements also provide a potential source of income for investors, who might be willing to lengthen the rotation period and engage in more sustainable management in order to receive secured lease revenues (as in the Forest Biodiversity Programme for Southern Finland METSO). Permanent conservation, resulting in biodiversity values or water-regulating services, might also prove profitable

in certain circumstances. Carbon trading may also have a significant influence on management. Afforestation or reforestation projects have the potential to contribute to the sale of carbon credits. The value of carbon markets is expected to grow (Killmann et al. 2008) but the effect of this process on plantation establishment and management regimes remains to be seen. Revenues originating from non-wood services are attractive to investors because they increase the diversity of the forest portfolio.

Some institutional investment strategies require a certain percentage of the capital to be allocated to so-called climate-change portfolios or “green” portfolios. The value of forests includes numerous environmental services, such as biodiversity conservation, carbon sequestration and erosion prevention. A sustainably managed forest can be an important

instrument in mitigating the effects of climate change. Therefore, certified forests that produce both timber and ecosystem services have become part of environmentally sustainable portfolios.

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## 4.3 The capital market: a source of SFM financing

JORGE ALEXANDER MUÑOZ SÁNCHEZ

### Introduction

In the last few years the capital market has made structural changes that have allowed it to develop and adapt to international standards. The concept of “sustainability” that had been largely ignored by traditional sources of finance now finds an extensive and more receptive market.

The capital market is a diverse world of active agents, resources, mechanisms, strategies, information, investors and multiple market scenarios, with the versatility to respond to almost every challenge. Its basic goal is to move resources to activities that require financial leverage at a certain moment and in specific conditions. Capital market financing includes debt securities that can be traded, either publicly (on the stock market) or privately (through a trust).

The capital market provides several advantages:

- financial resources at competitive costs;
- direct contact between the investing parties and the activities in need of financial resources, which reduces transaction costs;
- more competitive interest rates and opportunities than traditional banks; and
- the ability to fine-tune investment to the specific characteristics of the activities that require it.

The capital market has no predefined lines of financing or standardized sources or mechanisms. It can respond to the needs of a particular sector and develop a mechanism for investors, providing the necessary funds to leverage a specific activity.

### Limitations

These factors need to be addressed in order to develop successful securitization schemes for forests.



CHANGES IN THE CAPITAL MARKET IN LATIN AMERICA ALLOW NEW FINANCING MECHANISMS AND INVESTMENT ALTERNATIVES TO BE IMPLEMENTED FOR THE SUSTAINABLE PRODUCTION OF FOREST GOODS AND SERVICES.

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##### a) Market and terms of trade

- lack of knowledge of and interest in the investor's world;
- insufficient amounts (less than €3 million) for traditional and new investors;
- unrealistic expectations regarding terms, profit rates and guarantees;
- a bond credit rating of less than AA;
- a range of types of forest assets, with different locations, growth rates and risk;
- lack of a secondary market (i.e., of liquidity);
- lack of compliance with existing norms and legal procedures;
- high transaction costs;
- absence of timely and reliable information about market prices;
- highly volatility market prices; and
- unstable commercial conditions and unsecured markets.

##### b) Operational and technical limitations of the asset

- lack of inventory (standing trees or forest cover);
- lack of quantification and valuation of the asset at market price;
- inadequate conditions for storing and controlling the asset; and
- difficulty in limiting the area of the asset (in the case of futures and warrants).

##### c) Legal limitations

- previous claims by third parties (in terms of land tenure, pledges, mortgages and reserved zones);
- legal inability to acquire debts;
- poor technical, operational, commercial and financial components and lack of information about the agents who propose the securitization scheme;
- lack of authority by supervision and control authorities and by the respective stock market or commodity market; and
- inability to provide the guarantees for supervision and control demanded by the market.

##### Requirements for successful initiatives

- economic valuation of ecosystem services (in this case based on a methodology of assessing opportunity costs, which assigns a value to the maintenance and conservation of the ecosystem services and incorporates an estimate of the eventual replacement costs);
- documentation of the transfer of the ecosystem services by an assignment contract which legally recognizes them;
- a lead organization with a good track record and reputation, and experience in managing historic information and statistics;
- a dynamic capital market that is open to innovative initiatives;
- modern, long-term and wide-ranging legislation;
- the possibilities of tax benefits for the lead organization and investors;
- a sophisticated and visionary business environment;
- a professional investment bank, with knowledge and experience of such initiatives.

## The situation in Latin America

The forest sector of Latin American countries offers good potential for access to and benefit from the capital market. There is a high level of interest in forestry and the environment, although financing proposals need to be presented to the financing sector in a much more convincing way. Institutional and traditional investors see the potential of long-term securities, but these must be solidly structured. Innovative foresters and experts from the financial sector should work together more closely to develop these securities. Two examples, from Mexico and Ecuador, provide more information (Table 1).

**Table 1. Two case studies**

	Mexico: Securitization of ecosystem services	Ecuador: Securitization of future cash flows by forward selling of timber
Client	<i>Bosque Sustentible A.C. and Grupo Ecologico Sierra Gorda, I.A.P.</i>	<i>Empresa Reforestadora Privada</i>
Location	Querétaro, Mexico	Various regions of Ecuador
Need	Diversifying the sources of financing and investment with a sustainability objective	Financing for new reforestation, working capital, growth and implementation of export plans
Mechanism	Phase I: Issue of securities based on a trust  Phase II: Securitization of ecosystem services	Securitization of future cash flows by advance selling of timber
Amount	Multiple issues of €3.2 million each	To be determined
Investors	Local and foreign; public and private	Local and foreign; public and private
Security type	Trust-based stock securities – capital	Debt securities ( <i>Titulos de Contenido Crediticio</i> )
Return	Social, environmental and economic (economic returns are benefits through reduction of taxes due to direct investment in the environment, and by stock market investment)	By capital or interest rate and fixed term

## Mexico

### Limitations

- There is an ongoing need for financial resources to guarantee the generation, sustainability and conservation of ecosystems.

- The ecosystem services themselves do not have the capacity to generate enough income.
- There is a lack of recognition of the economic value of these services, exception for those that already have a recognized market value, such as carbon, timber and non-timber forest products.
- Existing local resources and international cooperation donations are limited.
- There is a lack of traditional credit systems.
- People do not know about the investment opportunities in the capital market.

#### Possibilities

- Capital-market initiatives provide the opportunity to attract new and more diversified investors.
- Successful capital-market initiatives, by generating sustainable income, can help mitigate the extreme poverty in Mexico.
- Local social and environmental benefits can be broadened to a global context.

#### Development

Three types of instruments were considered: credit papers; participation papers; and mixed papers.

Credit papers have a fixed profitability rate and invested capital is repaid at the end. This option was rejected, since there was insufficient capacity to assure adequate economic returns on investment.

Participation papers have no fixed profit rate, nor a guaranteed return of the invested capital. The investor assumes the risk. This type of investment product is geared to environmental and socially responsible investors who bet that in the medium and long term ecosystem services will be recognised on the world market.

Mixed papers comprise a combination of these instruments, with a small fixed profit and a participation percentage in the activity or the business. This was the option chosen.

#### Implementation strategy

After verifying that trust-based stock securities could be participatory and could be offered both in public and private markets, the investment bank introduced and promoted the product to the financial and stock market sector in Mexico. This included control authorities, rating agencies, stock market houses, the national stock market, institutional and private investors and others (Figure 1). Due to the innovative nature of the product, implementation was carried out in two phases:

#### *Phase I*

Securities were issued through a private trust to attract a limited number of local and global investors (not more than 100, as required by law) with a recognized “green” and



social responsible profile. This was considered necessary to create a culture of green investments. Efforts were made to attract new, diversified and sophisticated investors from the capital market.



### *Phase II*

Publicly traded securities were issued with a range of terms (1, 5, 10, 15, 20, 25 and 30 years) and amounts. This can be done through the stock market or — more appropriately — through the “social and environmental stock market” to be established in Mexico in the near future. In this market, these types of papers, which

do not generate short-term economic returns can be combined with securities from the health, education and environmental sectors.

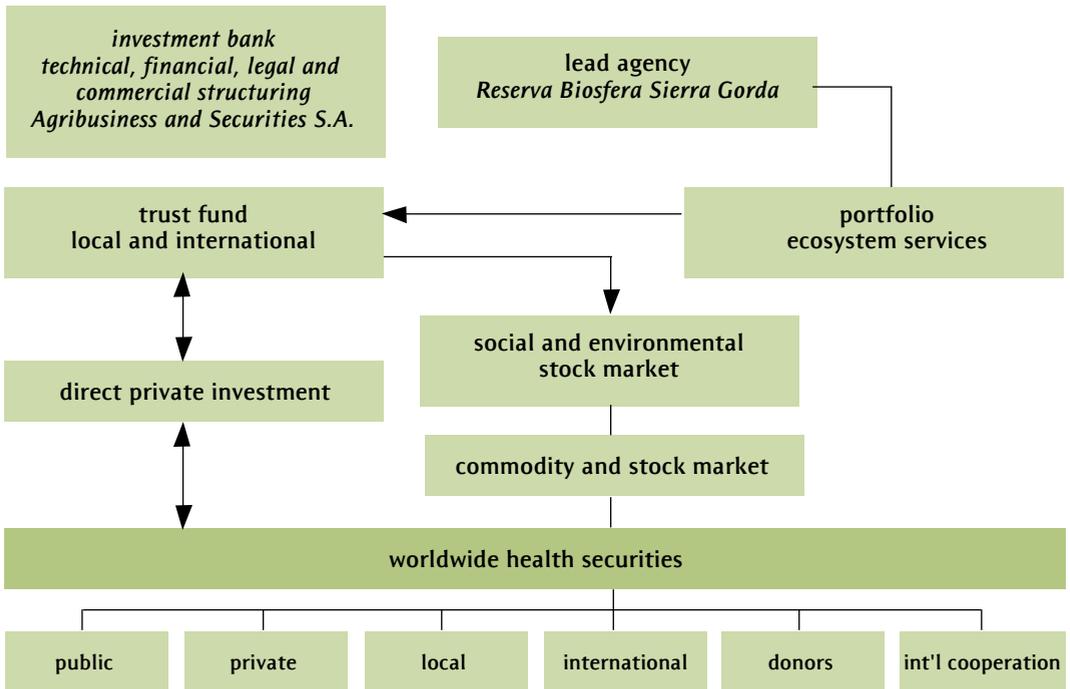
### Next steps

Phase I (private trusts):

- Select the trust agent.
- Structure the trust agreement, describing the specifications of the assets, their definition, value, measure unit and durability, as well as the scope and objectives of the financing and the rights and obligations of the parties.
- Implement promotion activities.
- Expedite and set the trust rights.
- Secure investment resources, subtract the transaction costs and transfer the balance to the maintenance and conservation of ecosystem services.
- Carry out periodic control and monitoring of the quantifiable indicators.
- Identify the right moment for a public offer.

Phase II (public securities):

- Establish the formal relation between the security and the stock market, supported by a jointly developed working plan.
- Structure the prospectus, indicating the specifics of the security assets, their definition, value and measurement unit, durability, the scope and objective of the financing, the rights and obligations of the parties and the specific conditions of the links with the investors.
- List and register the security with the financial market control authorities and the stock market system.
- Implement commercial promotional activities through stock agents.
- Issue the security.
- Secure investment resources. Subtract the transaction costs and transfer the balance to the maintenance and conservation of ecosystem services.
- Carry out periodic control and monitoring of the quantifiable indicators.
- Issue securities in series at different terms and amounts.

**Figure 1. Financing scheme for the Reserva Sierra Gorda, Mexico**

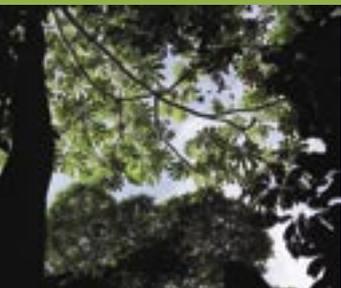
### Ecuador

In Ecuador, illiquid assets (trees or forest cover, without immediate possibilities of harvest) were transformed to liquid assets (immediate cash flow). This was linked to securities offered in the stock market. This approach permits reforestation projects, which are conditioned to large unproductive cycles, to have access to capital resources by generating liquidity against future cash flow.

In the case of forests, there could be several types of underlying assets:

- total forest value and value of planted trees;
- economic rights derived from future selling contracts;
- usufruct or concession rights;
- other investment assets; and
- certificates of stocks of goods.





# Section 5

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Payment for forest  
goods and services

#### Photo credits

- p.95 Rawas River and forest, South Sumatra. Alain Compost, World Bank
- p.96 World Bank
- p.98 Jeremy Holden, World Bank
- p.101 Young forest in Ecuador. Tapani Pahkasalo, Indufor Oy
- p.102 Alain Compost, World Bank
- p.105 Basket with mushrooms. Tran Huu Nghi, Tropenbos International Vietnam
- p.107 Degraded mangrove area at Ngomeni, Kenya
- p.110 A mangrove boardwalk, Kenya
- p.112 Tropenbos International
- p.114 Douglas Sheil
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- p.121 Markku Wiik
- p.122 Markku Wiik
- p.125 Isabella Caro, Tropenbos International Colombia
- p.126 Daan Wensing
- p.128 Daan Wensing
- p.129 *Rhacophorus* sp. Tropenbos International Indonesia
- p.130 Isabella Caro, Tropenbos International Colombia



## 5.1 Payments for environmental services

MEINE VAN NOORDWIJK, BERIA LEIMONA, MINH HA HOANG, GRACE VILLAMOR AND THOMAS YATICH

### Are they sustainable?

The concept behind Payments for Environmental Services (PES)<sup>1</sup> is to provide incentives and benefits for people who now utilise environmentally valuable ecosystems<sup>2</sup> in return for them agreeing to utilise these services in such a way as to protect or enhance their local and external benefits. In certain circumstances individuals or communities can be directly rewarded for providing these services to external stakeholders. PES schemes fill the gap between the payments for environmental goods that markets provide and the unrecognised demand for environmental services.

In other words, PES is intended to create markets for environmental services that have not yet been “commoditised.” Although drinking water can be sold in a bottle, a unit of regulation of river flow is harder to define or sell, as is the existence value of a viable tiger population. There is a lot of enthusiasm for starting PES schemes, but it is unclear whether they are sustainable. The sustainability of a PES initiative likely depends on two factors:

- how stakeholders view its efficiency and fairness; and
- how well contextual factors are integrated.

Both buyers and sellers also have to agree on the level of efficiency and fairness of the PES mechanism. If buyers after a few years wonder what in fact they are paying for, or if the sellers start to see the payments as an entitlement, the scheme is likely to collapse. What started as financing for sustainable forest management may itself become unsustainable. It may even jeopardize the forest management that became dependent on it.

This article discusses a number of lessons and insights that emerged from five years of implementing the “Rewarding Upland Poor for the Environmental Services they provide” project (RUPES Phase 1) in Asia and from discussions to start up pro-poor rewards for



PAYMENTS FOR ENVIRONMENTAL SERVICES (PES) ARE RAPIDLY

GAINING ATTENTION AS A WAY TO PROVIDE BALANCE IN THE TRADE-OFF BETWEEN THE ENVIRONMENTAL SERVICE SUPPLY AND DEMAND.

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Environmental Services in Africa (PRESA). These insights may help others who are in the early phase of enthusiasm for PES to understand more about its potentials and pitfalls.

The best-known global financing mechanism is Reducing Emissions from Deforestation and Degradation in developing countries or REDD. REDD<sup>3</sup> has increased the expectations of international financial sources that back national schemes. These schemes could be designed to support other environmental services as well, with the government (or its agencies) acting as an intermediary between local action and global benefits. Scientists have recognized several pitfalls, however.



### Pitfalls

The first difficulty is defining the thresholds of land-use types and the minimal intensities of such land use that are eligible and still expected to provide environmental service. The word “forest” is a poor delineator, as it often has an institutional rather than ecological interpretation. For example, some officials in the Indonesian Ministry of Forestry claimed last year that there had been no deforestation in recent years, since they did not lose control over any land. The FAO definition of forest includes areas that have been clear-felled but are expected to be replanted, so the absence of trees was indeed not a criterion. Rather than forest versus non-forest, most landscapes include a range of uses, from pure agriculture to natural forest or its remnants, with various forms of agroforestry and tree plantations in between. If eligibility for PES can be directly linked to evidence of the provision of such services, issues of definition can be left for academic discussions. If time-lags, scale effects and difficulties in attribution of a landscape-level service to the constituent land use prevent the use of direct outcome-based incentive mechanisms, however, definition becomes an important issue.

### Flows and stocks

Any form of PES is aimed at maintaining the natural capital from which a future flow of services is expected. The payments are intended to offset the lost opportunity costs due to destruction of the natural capital. The sustainability of such payments may be questionable since the provision of such services depends heavily on the uncertain condition of natural capital.

Economic transactions can apply to current or future environmental service flows as well as stocks, but they require discounting methods to relate future to current benefits. In a world of increasing scarcity of natural capital, it can be argued that the appropriate discount rate is a negative one. Financial flows (payments) to accompany (in reverse direction) the flows of environmental services should build up capital to match the natural capital.

Furthermore, environmental service providers can contribute to sustainable management if they help in forming “other capital” that match the natural capital. There are five types of other capital:

- human capital, such as support for health, education and empowerment;
- social capital, such as trust, respect and reciprocity between different groups;
- political capital, such as having a voice that counts in broader discussions;
- physical capital, such as roads with proper drainage, bridges and local hydro-electric systems; and
- financial capital, such as trust funds.

### Efficiency and fairness

The notions of “efficient” and “fair” are based on a number of principles, criteria and indicators that apply across situations and context. Efficiency generally requires that the mechanisms are realistic, conditional and voluntary; fairness that they be pro-poor.

### Realistic mechanisms

The fact that forests provide environmental services is not enough. The type of environmental services being provided and to whom they will be provided must be clarified before developing any appropriate incentive systems. Appraisal methods can help identify what aspect of watershed services is at stake, how carbon storage can be enhanced, what part of the agro-biodiversity complex can be conserved and the chances for recovery if the services have fallen below thresholds.

A number of trade-offs need to be recognized. For example, fast-growing trees use more water than other vegetation and may reduce stream flow, so their benefits for wood production and carbon sequestration come at a cost. The longer-term evolution of payment systems should be able to accommodate a shift in circumstances — such as long-term improvements in water quality or soil condition — that take time to emerge.

### Conditional mechanisms

Conditionality of rewards is the primary difference between PES and simple subsidies. In PES schemes, the service providers have to be bound by a contract that will evaluate their eligibility for payment. Service stewards will be rewarded only when they provide a service and the user is satisfied that the service has been provided. PES schemes have to have reasonable and realistic targets, however. If the targets are too high, disappointment will follow when they are not achieved; if they are too lax, the scheme’s sustainability is likely to be affected. In current initiatives both of these failings have in fact materialized. In the case of watershed service schemes, performance criteria need to incorporate climate variability and trends, as well as unexpected events.

## Voluntary mechanisms

Unlike realistic and conditional criteria, the voluntary aspect of PES initiatives refers to a relative rather than an absolute attribute. Generally, stakeholders' involvement is at least partially based on community-scale efforts rather than individual decisions. A range of incentives and disincentives, including — local enforcement of rules, material inducements and compliance with social norms — can ensure participation at the individual scale. The PES provides the incentives, but without the disincentives of rule enforcement and internalizing standards of behaviour, the positive effect will be small.

Over time it is feasible that the norms of acceptable behaviour (and/or the regulated/mandatory framework) will shift upwards, so that conditional rewards are replaced by baseline expectations. In other circumstances the rewards may, after a time, be perceived as entitlements rather than as conditional incentives. In both cases the PES may not be sustainable, but it will still be part of shifting the roles of the different stakeholders, in the first case by enhancing environmental services, in the second by improving livelihoods.

## Pro-poor

Exclusion of socially marginalized people can undermine the effectiveness and sustainability of PES schemes. If the poor are ignored, PES systems will not be sustainable. The rural poor may report to burning and destroying assets if they feel

seriously neglected. On a more positive note, care for environmental services can have substantial benefits for poverty reduction. Even more importantly, seriously listening to local people about how conservation efforts should be carried out can increase the effectiveness of any PES schemes. In order for a PES scheme to be pro-poor, it has to be constructed to meet one of three criteria:

- it does not harm the poor;
- it fairly includes the interests of the poor; and
- it differentially benefits the poor.

Poverty has many dimensions, with which PES can interact in different ways. Respect — or social capital — for marginalized people may be one of the first and most important consequences of analyzing the stewards of environmental services, reversing a long tradition of looking down on them. The rural poor must have a voice in the development of PES mechanisms. Enhancing local access to clean water and ensuring local

control over a grab of local resources by outsiders (legal or illegal, formally or informally sanctioned by those in power) may be more important than financial payments. When asked, rural poor people (especially women) may prefer financial flows to be invested in local health and education services rather than providing small sums of money over many households, with the risk of the majority of revenue being captured by the elite.



From a global viewpoint, the pragmatic perspective on making incentive mechanisms pro-poor comes in addition to a moral imperative and a worldwide commitment to the Millennium Development Goals. If the goal of ending absolute poverty is achieved by 2015 — which is unlikely — the pro-poor approach might be more valued than it is currently. Realistically, however, relative and absolute poverty will persist.

Enforcing strict conditionality in the face of rural poverty may be problematic, since health and education services are in fact social entitlements that were due anyway. Creating a spirit of shared responsibility and interdependence is important, but it needs to be balanced by the requirements of transparency, joint monitoring of actual achievements in reducing poverty and enhancement of environmental services.

In exploring the question of sustainability of PES, it is important to monitor current cases<sup>4</sup> over a sufficiently long period of time. Only then will it be possible to describe and analyze the changes in relationships between stakeholders that will undoubtedly emerge.

### Endnotes

1. The terms “environmental services” and “ecosystem services” are both used globally. Both are commonly defined as comprising four aspects: (i) watershed function; (ii) biodiversity protection; (iii) landscape beauty; and (iv) carbon sequestration.
2. Ecosystem services are the benefits that people obtain from ecosystems, as described by the Millennium Ecosystem Assessment in 2003. They include provision functions (supply of goods) and regulating, cultural and supportive functions (or environmental services). The *Conservation Finance Guide*, 2002, defines ecosystem services as “the provision of natural resources and healthy functioning ecological systems that produce environmentally and economically valuable goods and services.”
3. The Clean Development Mechanism of the Kyoto Protocol supports some forms of afforestation and reforestation but excludes activities that protect existing carbon stocks and forms of “avoided deforestation.” The 13th Conference of Parties (COP) of the UNFCCC (UN Framework Convention on Climate Change) in Bali affirmed the importance of Reducing Emissions from Deforestation in Developing countries (REDD). Greenhouse gas emissions from forest conversion/deforestation makes up roughly 20% of total anthropogenic emissions.
4. The initiation of PES schemes in Asia (and Africa) had just started at the beginning of this millennium. On average, the implementation of such schemes has lasted less than five years. Almost no PES scheme has been implemented over a long period of time.

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## 5.2 PES in Ecuador: experiences and lessons

DORIS CORDERO

Most forest owners, forest dwellers and rural communities do not get any revenue from the full range of goods and services provided by the forest. Payments for ecosystem services (PES) schemes are intended to change that. A payment or direct compensation is made by the users of the service for the maintenance of an ecosystem service. Healthy forest ecosystems provide these services.

Despite Ecuador's great biological diversity, sustainable forest management (natural and semi-natural ecosystems, planted forests and agro-forestry systems) has not yet been achieved. PES schemes have been demonstrated to be a bridge between forest owners and outsiders aiming for forest protection and sustainable management. Nevertheless, there is a movement against PES based mainly on property rights issues (Isch and Gentes 2006).

According to the PES definition in Wunder (2005),<sup>1</sup> Izko (2007) and Cordero (in press) identified a dozen PES experiences that have been implemented in Ecuador. Not all of them complied with Wunder's definition. Most of them are in their initial stages and are related to watershed protection. Schemes related to carbon sequestration, reducing emissions from deforestation and degradation (REDD), landscape beauty/recreation and biodiversity also exist. The country does not have any public policy or legislation regarding PES.

### Watershed protection

Payments for watershed services have been used as an innovative and cost-effective way of providing clean and safe drinking water to local users. They have been promoted by local governments (municipalities) and/or water enterprises with technical assistance from local NGOs. Some have received financial and/or technical assistance from international agencies.



INCREASING  
PRESSURES ON  
ECUADOR'S  
REMAINING  
NATURAL FORESTS MEAN THAT  
FASTER AND MORE COST-EFFECTIVE  
ACTION IS NEEDED FROM THE PUBLIC  
AND PRIVATE SECTORS TO SUPPORT  
PES AND OTHER MECHANISMS.

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Users of drinking water pay for the protection and maintenance of healthy watersheds, and in most cases the watershed service fee is highlighted in their bills. Between 1 and 20% of the total water bill is used for watershed protection (Izko and Cordero 2007); the percentage depends mainly on the number of water users and the specific watershed management costs. Table 1 provides details of a watershed scheme.

Most initiatives have an internal regulation that guides investments at the watershed level. Some of the resources are used for the maintenance and recovery of small forests and highlands (páramos)<sup>2</sup> areas. In some cases direct payments to forest owners are made. Due to the lack of hydrological data regarding the affect of forests on watershed services, decision-makers work under the precautionary principle, aiming to maintain water quality among other services. In Pimampiro and Cuenca municipalities, forest conservation not only maintained water quality but was important in diminishing sediments and erosion.

In Cuenca, protected forest is also used as a recreational site by local, national and international visitors. Some schemes also invest in environmental education campaigns.

### Carbon sequestration and REDD

The Bilsa and PROFAFOR projects aim to plant and maintain trees for carbon sequestration. The Bilsa project reforested 275 ha on degraded lands in the Bilsa Reserve on the Ecuadorian coast. It was carried out by the Jatun Sacha foundation, which owns the reserve. It was supported by Conservation International (CI) and funded by the U.S. organization, Climate Trust.

Between 1994 and 2002 PROFAFOR reforested more than 22 000 ha on degraded lands in partnership with native communities and private land-owners. The reforested areas are located in the Ecuadorian Andean highlands. The project was carried out by PROFAFOR, an Ecuadorian non-profit enterprise owned by the Face Foundation in the Netherlands. PROFAFOR is no longer planting but still provides technical assistance and capacity-building for its partners. The project's forest management is certified by GFA and the carbon sequestration is certified by SGS. PROFAFOR owns the carbon offsets. Land-owners harvest the timber, forest products and non-forest products; they have to replant to maintain the carbon stock.

A REDD project has been developed by the *Fundación Bosques para la Conservación*, also owned by the Face Foundation. It aims to maintain forest carbon storage and avoid deforestation. It has been developed in partnership with the Ecuadorian Environmental Ministry (*Ministerio del Ambiente del Ecuador* or MAE) and private land-owners at two pilot sites, one in the Amazon region and one in the Ecuadorian highlands. The project protects around 5 800 ha and is intended to expand.



**Table 1. Main characteristics of watershed services schemes in Ecuador**

PES scheme	Payments by water users	Other funding sources	Type of payments/main activities related to forest management
ETAPA – Cuenca	€0.03/m <sup>3</sup>		ETAPA owns around 8 700 ha and manages the Cajas National Park (around 28 500 ha), invests in forest conservation and recovery
Cajas National Park – Cuenca	Around €0.003/m <sup>3</sup> or 1% of total ETAPA water consumption	National park entrance fees	
El Chaco municipality	€0.035/m <sup>3</sup> * (around €8,900 collected during 2007)	International cooperation (KFW)**	Direct payments between municipality and forest owner
Pimampiro municipality	Around €0.05/m <sup>3</sup> or 20% of each user water bill (around €3,800 yearly)	International cooperation**	Direct payments between municipality and forest owner, around 550 ha of forest conserved under PES
Celica municipality	€0.03/m <sup>3</sup> * (around €12,700 collected during 2006)	Voluntary income tax donation (according to specific national law)	Direct payments between municipality and forest owner
FONAG – Quito (endowment fund)	1% of each EMAAP-Q user water bill	Public electric enterprise, private sector and international cooperation **	Forest programme with land owners, around 300 ha planted per year (around 65% funded by partnerships)

\* Yearly adjusted. \*\* Occasional funding (not a sustainable source of funding).

Source: Adapted from Izco and Cordero 2007.

### Biodiversity

CI and the German organization GTZ have a conservation project with Chachi native communities on the Ecuadorian coast. The conservation agreement aims to conserve biodiversity on more than 7 000 ha of tropical rain forest located in a biodiversity hotspot. Chachi communities invest the conservation agreement income in activities aimed at improving the quality of life, such as cocoa and agro-forestry systems, drinking-water systems and public infrastructure. GTZ provides technical assistance and capacity building in forest sustainable management and general administrative issues. The scheme depends

completely on international cooperation funding. It also received a donation from the rock band, Cold Play.

### Landscape beauty/recreational

During 2003, around 31% of the total amount invested in the Ecuadorian continental protected area system (*Sistema Nacional de Areas Protegidas* or SNAP) was generated by the PAs themselves. Self-generated resources came almost exclusively from tourism operation licenses and visitor fees. Around 88% of that income was generated in five protected areas (MAE 2005). These licenses and fees could be considered payment for landscape beauty and/or the recreational and cultural values within the PAs.

An illustrative example is the *Corporación Vida para Quito*, developed by the Quito municipality. *Vida para Quito* works on improving the metropolitan district's environmental conditions, including afforestation, reforestation and urban tree planting. It is funded by 25% of the income tax paid by city residents' voluntary donations, as set out in national law. The people who benefit from landscape beauty provide the resources for its conservation and improvement.

### Lessons learned

- The diversity of situations and local conditions regarding land tenure, community forest-related rights, socio economic conditions, traditional forest and land-use practices, requires flexibility and specific solutions in terms of mechanisms (regulatory, market-based and/or other arrangements) and institutional arrangements.
- The need to clarify property rights and land-tenure issues before enter developing a PES scheme contributed to communities and individuals having more secure rights to their land. This encourages the public and private sectors to recognize the advantages of clarifying and securing property and forest-related rights, especially for the rural poor.
- A key factor to secure the financial sustainability of PES schemes is the existence of a group of users that will demand and pay for certain ecosystem services at the local or global level. Some of the projects cited here received funding from international cooperation agencies. Although that support can be positive, especially in the early stages, it could generate dependency and vulnerability in the long term, since funding is not sustainable and is affected by international policies.
- Transaction costs, including environmental valuation, legal procedures and monitoring, could restrict the financial sustainability of PES schemes in the long term. A strong institutionalism, local stakeholder participation and coordination are key in securing long life for a PES initiative.

## Conclusions

- Because of the increasing pressures on the remaining natural forests, faster and more cost-effective action is needed from the public and private sectors to support PES and other mechanisms. Institutional, policy and legal initiatives are also needed to improve forest governance and manage the many functions of forest ecosystems.
- PES schemes need to be based on better socio-economic and environmental practices, in order to become more widespread. In some cases there is widespread concern regarding the impact of PES on sustainable forest management, which should be responded to in the short term.
- A better understanding is needed on the part of the private sector and civil society of the full range of goods and services provided by forest ecosystems. People also need to be aware of the results of forest projects based on non-traditional goods and services.
- Stakeholders feel that PES has a positive impact on the providers' welfare and the ecosystem's health. In case of watershed service schemes, however, the data available is not sufficient to allow for an accurate measurement of the impact of payments or compensation, either in terms of hydrological services or the service providers' well-being. There is an increasing need to develop cost-effective methodologies to eliminate the uncertainties regarding land-use changes in watershed services.
- Carbon projects have resulted in a lot of lessons and experience regarding long-term contracts with community and individual owners, monitoring methodologies for carbon sequestration, capacity building among forest owners and rural communities, institutional arrangements, SFM and other factors, that should be taken into consideration when designing new projects.
- Biodiversity projects could merge with other ecosystem service initiatives for watershed protection, REDD and ecotourism and could generate additional income for forest dwellers.
- The experiences generated by SNAP and *Vida para Quito* are an important initial step of the user-pays principle in landscape beauty at the local level. They could provide valuable information for future initiatives.



## Endnotes

1. Wunder (2005) defines PES as a voluntary transaction where a well-defined ecosystem service (or a land use likely to secure that service) is “bought” by a (minimum of one) ecosystem service buyer from a (minimum of one) ecosystem service provider if, and only if, the provider secures the ecosystem service provision (conditionality).
2. These are highlands above 3 000 or 3 500 msl depending on the latitude, according to Ortiz (2003).

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## 5.3 Experiences with PES in Kenya

JAMES G. KAIRO

### Introduction

There is growing interest in market-based approaches worldwide. Equitable payments for ecosystem services (PES) — such as carbon sequestration, watershed protection, landscape beauty and biodiversity conservation — are emerging as a viable tool to protect and restore ecosystems by rewarding resource managers and land-owners for good land management practices. These instruments can also provide significant incentives to restore degraded lands, shift to sustainable agriculture, and reward small-scale holders for good land management practices (WWF 2006). For instance, emerging markets for carbon sequestration credits through the Kyoto Protocol and the Clean Development Mechanism constitute an important international programme. According to World Bank estimates, the carbon market was worth more than €22 billion by 2007 (Wunder 2007).

Equitable PES schemes, with a focus on watershed services and biodiversity conservation, are a valuable financing mechanism for conservation programs in Australia, Asia, Latin America and Europe (WWF 2006). In Africa, however, very few organizations are working on ways in which emerging carbon markets may benefit the continent. Only 23 out of the 850 projects registered under the UN's Clean Development Mechanism are on the African continent; six of them are in South Africa (Wunder 2007). There are also limited programs designed for rewarding upstream land users for adopting land management practices that improve water quantity and/or quality for people living downstream. Without effectively designed PES schemes it will be challenging to finance and sustain development programs in Africa.



CURRENT ATTEMPTS TO PROMOTE PES IN KENYA ARE FACED WITH AN INADEQUATE POLICY FRAMEWORK AND WEAK OR NONEXISTENT MARKETS FOR ECOSYSTEM SERVICES ASSOCIATED WITH CARBON, WATER AND BIODIVERSITY.

## PES programs in Kenya

Kenya has a population of 32 million people, 90% of which depend on natural resources for their livelihoods. Resource-based industries such as agriculture and tourism contribute over 80% of Kenya's GDP. There is thus a growing interest in using market-based instruments such as PES to conserve ecosystem services and achieve sustainable development. Although these tools have enormous potential for encouraging sustainable land management, biodiversity conservation and rural livelihoods, they have not been adequately exploited in Kenya.

A review of cases of actual and proposed PES programs in Kenya identified 15 projects on carbon sequestration, biodiversity conservation, watershed protection and a bundled combination of these services (Waage et al. 2006). Most of the biodiversity projects — such as those in Shompole and Il Ngwesi community ranches — fall under ecotourism and have received support from the EU through the Community Development Trust Fund.

Africa accounts for less than 3% of global CDM projects. Some of the CDM projects in Kenya include the Mumias Sugar Company's Bagasse co-generation project and geothermal and hydro-electric energy projects (Table 1). When fully operational these projects will earn the country a huge amount of money through the sale of more than 600,000 tonnes of carbon to the World Bank per year.

**Table 1: CDM projects in Kenya**

Project	Reductions*
Bagasse-based co-generation project, Mumias Sugar Company	95,521
Sondu Miriu hydro-electric project	211,068
Olkaria II geothermal expansion project	171,026
Conversion of the Kipevu open-cycle gas turbine to a combined-cycle operation project	44,808
Redevelopment of Tana hydro-electric station	42,258
Optimisation of Kiambere hydro-electric project	38,376
Bagasse-based co-generation project, Muhoroni Sugar Company	16,758
Total	619,815

\*Emission reductions in metric tonnes of CO<sub>2</sub> equivalent per annum.

## Carbon sequestration through afforestation and reforestation

Forests store carbon and thereby are important in regulating the global climate (Brown et al. 1996). There are two main approaches to increasing carbon sequestration by plants (WWF 2006):

- replanting new trees (afforestation, reforestation and agroforestry); and
- reducing emissions through avoided deforestation.

Several small-scale forestry projects have been initiated in different parts of Kenya with an objective of meeting community needs for wood products and environmental services. Local and international NGOs support these initiatives in collaboration with government institutions and local communities. In the Coast, Western and Eastern provinces of Kenya, the Bureau of Economic Analysis International (BEA) has initiated community forests to sequester carbon (Waage et al. 2006). The World Agroforestry Centre (WAC) – formerly the International Center for Research in Agro-Forestry (ICRAF) – is undertaking agroforestry projects in the entire western part of Kenya, including the Nyando Basin and Yala Swamp. WAC’s initiative, Rewarding Upland Poor for Environmental Services (RUPES), is helping to address many of the complexities associated with PES in watershed management. Other small-scale carbon forests include mangrove reforestation initiatives by the Kenya Marine and Fisheries Research Institute (KMFRI) along the coast (Kairo, Wanjiru and Ochiwo, In press, Table 2). Unfortunately, UNFCCC certification has not been sought for any of the carbon value sequestered through these initiatives.

The World Bank, through the Carbon Facility Fund, has earmarked €57 million for land use, land-use change and forestry (LULUCF) projects worldwide. In Kenya, the Green Belt Movement has signed a LULUCF project with the bank to promote SFM in central highlands of Kenya. The project proposes to reforest 1,876 ha of degraded public land and private land with community access in the Aberdare Range and Mount Kenya watersheds. Lands in the pilot area have been deforested by charcoal production or conversion to illegal agriculture and cattle grazing. The forests are also threatened by illegal logging activities. The project pays local communities and provides them with the technology and knowledge to reforest these lands and manage the new forest. The project is expected to sequester around 0.1 Mt CO<sub>2</sub>e by 2012 and 0.38 Mt CO<sub>2</sub>e by 2017. The reforestation will bring important environmental benefits by reducing erosion, protecting water sources, regulating water flows and enhancing biodiversity.

**Table 2. Stand data for a 12-year-old mangrove plantation in Kenya**

	Stem Diameter at Breast Height (DBH)				
	<4	4.1–6.0	6.1–9.0	9.1–13	Total
Density (stems/ha)	559	1586	2391	327	4864
Marketable volume (m <sup>3</sup> /ha)	1.56	11.63	37.81	9.7	60.7 ± 13.8
Non-marketable volume (m <sup>3</sup> /ha)					43.4 ± 10.0
Standing biomass (t/ha)	2.35	18.55	66.36	19.39	106.7 ± 24.0
Below-ground biomass (t/ha)					24.9 ± 11.4

Source: Kairo, Wanjiru and Ochiwo, In press

### Paying for biodiversity

Community payments for biodiversity conservation in Kenya have been achieved through community-based ecotourism enterprises where visitors pay an entry fee. Such initiatives are already in operation in the Mwaluganje Elephant Sanctuary in Kwale district, Amboseli and the Maasai Mara Game Reserve. The money generated is used to finance community development projects in education, infrastructure and health.

A different arrangement for biodiversity conservation exists in Watamu and Malindi Marine Protected Areas on the north coast of Kenya. Watamu and Malindi reserves are important nesting and feeding grounds for endangered sea turtles and have



been designated as a biosphere reserve of international importance under UNESCO's Man and Biosphere programme. As in other parts along the coast, turtles in Watamu and Malindi reserve continue to face intense pressure from the local communities who hunt them for food, traditional medicines and shell crafts. Growing coastal tourism development and marine pollution has exacerbated sea turtle loss in Kenya (GOK 2008).

In response to these problems, Watamu Turtle Watch (WTW), a local NGO, launched an incentive programme to encourage fishermen to release turtles that are accidentally caught in fishing nets. The fishermen are paid about €2 for reporting each released turtle to the WTW and to compensate them for any damage to their nets. Through this programme, the number of caught-and-released turtles has risen from 16 in 1998 to 544 in 2003. Funding for the incentive programme has come largely from the WTW's Adopt-A-Turtle programme. For just €19, the adopter is allowed to name the turtle, is given a certificate of adoption, receives updates if the turtle is later recaptured, and is sent small, locally produced crafts that help support the local economy.

### Payment for watershed protection

Apart from biodiversity and carbon storage, forests contribute to protecting water quality, regulating water flows, preventing floods, controlling soil salinization, and maintaining aquatic habitats (WWF 2006). Watershed services generally benefit downstream activities. One example of a PES scheme playing a useful role in a catchment project is the Sasumua Water Treatment Plant in Kenya. The Sasumua plant, located in the southern part of the Aberdares Mountains, is managed by the Nairobi Water Company and supplies about 20% of Nairobi's potable water. Currently, the plant is threatened by sedimentation (which hinders water intakes and impedes water supply to the plant) and by contamination. This increases treatment costs (Pagiola 2006). WAC, through the World Bank, is working to develop a PES scheme for the watersheds serving Sasumua Plant.

Another programme involving protection of water catchments in Kenya is the World Bank's Natural Resources Management Project for the Upper Tana Catchment. The objectives of the project are to enhance the institutional capacity to manage water and

forest resources, reduce the incidence and severity of water shocks in river catchments, and improve the livelihoods of communities participating in the co-management of water and forests. Further, the project aims at initiating schemes to reward upland communities involved in the conservation of upper Tana Catchments.

## Conclusion

Kenya lacks the adequate legal or regulatory framework for PES. PES schemes operating in the country are rudimentary and do not provide actual cash payments. The government has been slow to implement PES and to develop focused policy frameworks targeted to the promotion of PES. This is despite the great opportunities in the country for the government to participate as either a buyer or seller of ecosystem services. For example, there are 336 designated PAs; five of them are designated as biosphere reserves. These PAs have international quality, harbouring biodiverse flora and fauna as well as providing environmental services. With properly instituted PES, the government of Kenya stands to benefit from the ecosystem services provided by these conservation areas, including carbon sequestration, biodiversity conservation and protection of water catchments. The current policy framework is broad enough to accommodate a flexible spectrum of PES proposals in Kenya. Promotion and development of knowledge and interest in PES would easily finance conservation programs and contribute to sustainable development in the country.

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## 5.4 Equitable payments for watershed services

JULIO C. TRESIERRA

Conservation agencies such as WWF are developing and implementing innovative finance mechanisms as a response to the need for sustainable ecosystem management. In this context WWF-Netherlands, in partnership with CARE International and with the support of the Dutch and Danish development organizations (DGIS and DANIDA), is coordinating a global programme on equitable payments for watershed services (EPWS).

Payments for Ecosystem Services (PES) are flexible, direct and promising compensation mechanisms by which service providers are paid by service users. The WWF programme focuses on restoring upstream ecosystem integrity through changing subsistence agricultural practices in poor rural communities to sustainable land use. Landscapes are restored and/or protected, poor upland communities improve their livelihoods and domestic, industrial and commercial water users downstream receive a reliable and continuous supply of high-quality water.

### Business basis

Unlike other PES schemes, the EPWS programme establishes business agreements between poor rural upland communities (service providers or sellers) and downstream public and/or public corporations (service users or buyers). The approach brings the public and private sector to the negotiating table as equal partners in a mutually beneficial business proposition. Farmer and indigenous upland communities negotiate memoranda of understanding (MOUs) with downstream water users such as beverage companies, hydro-electric companies, private associations of water users and government-run water utilities.

The result enhances social capital (livelihoods of upland communities), restores natural capital (ecosystems) and enhances long-term return on financial capital (providing a business case to companies). This balance of capital assets is the most efficient way to assure sustainability.



UNLIKE OTHER PES SCHEMES, THE EPWS PROGRAMME ESTABLISHES

BUSINESS AGREEMENTS BETWEEN POOR RURAL UPLAND COMMUNITIES (SERVICE PROVIDERS OR SELLERS) AND DOWNSTREAM PUBLIC AND/OR PUBLIC CORPORATIONS (SERVICE USERS OR BUYERS).

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The EPWS programme operates in the field as a blend of public-private partnership. Systematic business contracts are part of a mechanism for restoring biodiversity in degraded landscapes. The private sector invests in land-use change so as to assure the continuity of water services crucial for its enterprises' profitability. At the same time enabling conditions are created to improve rural poor livelihoods, reversing the decades-old conflict between conservation and development.

### A phased strategy

The EPWS programme — currently being implemented in Tanzania, Indonesia, Peru and Guatemala — aims to strengthen the organizational, negotiating and sustainable-productive capacities of national organizations. It involves both public (local-regional governments) and private (community-based organizations and corporate businesses) in improving and guaranteeing a supply of high-quality water.

In dialogue with stakeholders, the WWF-CARE consortium has designed a phased strategy. During the first 18 months, baseline studies in hydrology and community livelihoods were carried out as well as legal, institutional and economic analyses. Potential buyers (downstream commercial, industrial and domestic users) and sellers (upland communities) were identified. By the end of Phase One, buyers and sellers signed MOUs.

A four-year Phase Two is currently underway. Land-use changes are being implemented in selected communities and a thorough process of monitoring and evaluation will measure the impact of these changes on livelihoods and water use. The programme should be fully functional by the end of December 2011.

Phase Three will start with buyers and sellers of watershed services and establish legally binding agreements. At that time, local capacity will be in place to develop and manage the programme, allowing external agents (donors and managers) to leave.

### Relationship between EPWS and SFM

EPWS is an innovative finance mechanism designed to increase the efficiency of forest management through the restoration of a balanced relationship between service providers and service users. Social, financial and natural capital all contribute to sustainability.

Increasingly, conservation initiatives are including — with varying degrees of success — development variables hitherto regarded as being counter to the principles of conservation. It was at least 50 years ago that SFM was conceived of as an attempt to protect biodiversity by isolating large sections of forests from people and investments. Now it is seen as contributing to restoring and maintaining sustainable, harmonious and balanced relationships. These principles guide WWF-CARE's EPWS programme.



## 5.5 Financing forest conservation in Uganda

MIRIAM VAN HEIST, DOUGLAS SHEIL, ROBERT BITARIHO AND AVENTINO KASANGAKI

### Perspectives from the Institute of Tropical Forest Conservation

The Institute of Tropical Forest Conservation (ITFC) is a small but dynamic research station of Mbarara University of Science and Technology and is located on the edge of Bwindi Impenetrable National Park (BINP or Bwindi), a World Heritage site in southwest Uganda. The area has numerous endemic species and half the world's mountain gorillas (*Gorilla berengei berengei*), which have attracted a valuable tourist trade. The wider region is poor and densely populated (about 600 people per km<sup>2</sup>); people mainly depend on subsistence agriculture. Forest cover stops abruptly at the park boundary — most forest outside the park has been lost.

Bwindi was gazetted as a national park in 1991.

Inadequate consultation with local people led to protest and resentment about diminished access to resources (Hamilton et al. 2000). To reconcile conservation and community needs, a range of often costly Integrated Conservation and Development (ICD) strategies were implemented, with support from international NGOs.

Programs for sustainable agriculture and on-farm substitution were intended to reduce the demand for park resources while providing limited and controlled access to the forest (for bee-keeping and non-timber forest products); revenues from tourism would provide communities with direct benefits from the park. How successful these strategies have been in reducing threats to the forest or in improving local livelihoods is not yet clear.

ITFC was established in the early 1990s as a centre of research and guidance for park management. Since its inception, 40 master's and 15 doctoral projects have been completed (four by foreign students) on a wide range of subjects. Some have estimated the specific costs and benefits of PAs accruing to local, regional and global stakeholders, but few have examined financing directly.



USEFUL EXPERIENCE  
HAS BEEN GAINED  
IN THE SEARCH  
FOR SUSTAINABLE

FINANCING OF CONSERVATION AND  
DEVELOPMENT ACTIVITIES IN Bwindi  
IMPENETRABLE NATIONAL PARK,  
UGANDA.

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## Financing

### *The cost of conservation*

Park management, along with various other ICD activities, costs money. For a long time, park conservation in Uganda has been unprofitable and was subsidised by foreign aid. For example, the World Bank supported the restructuring and institutional strengthening of Uganda's Wildlife Authority (UWA) through the Protected Areas Management and Sustainable Use Project (1997–2007). In the case of BINP, various integrated conservation and development activities managed by CARE (an international NGO) helped UWA in managing local concerns and expectations.

### *Gorilla tourism*

Local profitability has been realised with increased tourism revenues. A single gorilla-viewing permit now costs €317, excluding park fees. Four gorilla groups in Bwindi have been habituated so far and each may be visited by eight tourists daily. This contributes a potential additional €3 million per year to the income of UWA. Two more gorilla groups are being prepared for tourism, which increases UWA's potential annual revenues to more than €4.4 million by 2009. Unfortunately, these funds are needed for other Ugandan national parks as well, which cannot generate sufficient revenues on their own. In addition, "financially viable" tourism can be seen differently by different stakeholders; although UWA may be making profits from Bwindi the benefits for many other local actors who influence the park remain limited.

### *Bwindi and Mgahinga Conservation Trust*

Sustainable financing remains a crucial aspect of ensuring viable conservation. In 1994, the innovative Bwindi and Mgahinga Conservation Trust (BMCT) was established, with a capital endowment of €2.7 million from the Global Environment Facility (GEF), administered by the World Bank. The aim of the trust fund was to use its annual interest to sustainably fund local community projects, park management and research and monitoring activities. BMCT is controlled by a board consisting of stakeholders such as UWA, the Ministries of Tourism, Finance and Justice, community representatives, ITFC and several NGOs active in the region.

In 1997, BMCT received €1.6 million from a group of donors led by the Netherlands to kick-start trust activities while allowing the fund to grow; 40% of money disbursed by the trust was used for community projects, another 40% for a five-year Ecological Monitoring Programme (EMP) for the parks, implemented by ITFC, and 20% for improving park management (operating expenses were around a third of all expenditures in 2001). From 2004, when the Dutch funding ended, BMCT started using the annual interest from the fund for community projects (60%), research (20%) and park management (20%). Though intended to be a sustainable source of finance, the fund has been affected by severe market fluctuations. Because of these instabilities, the board has been cautious and has limited expenditures. For the year ending June 2006 the fund reached a high of €4.4 million, but only €71,000 was made available to support the trust's costs and activities. Earlier this year, 14 years after its initiation, the fund stood at about €3.4 million.

### *Revenue sharing*

The UWA revenue-sharing programme is another source of local finance, used specifically for community development projects; 20% of gate collections (excluding gorilla fees) for the Bwindi and Mgahinga national parks is earmarked for revenue sharing and is used to fund schools, dispensaries and income generating projects such as agro-forestry.

Before the Uganda Wildlife Statute of 1996, each park shared 12% of its total revenue. In 1996 this changed to 20% of gate fees only. While this increased local benefits from some Ugandan parks, it caused a sharp decline in BINP's income, since most tourist payments are not gate fees but gorilla-viewing permits. Various local stakeholders resent this change in regulations and feel that they have been excluded from the successes of increased tourism.

In any case, these revenues are not wholly reliable. Income fluctuates with tourist numbers and these are vulnerable to political factors and associated perceptions, such as the recent troubles in Kenya. In 2007, the proportion of revenues from Bwindi that was shared with communities amounted to about €26,000; in 2006 it was €44,000. Additional benefits from tourism for the local economy include income from accommodation, restaurants and sale of handicrafts, although many of these are effectively captured by businesses run by immigrants or owned by outsiders. A study into total benefits (direct and indirect) from gorilla tourism in Uganda suggested that only 3% were realised locally. Most benefits (55%) occur at the national level, and 42% of benefits were at the international level (Hatfield 2004).

### *Multiple-use zones*

One of UWA's early attempts to compensate local people for their loss of access to BINP and reduce conflict was the development of multiple-use zones (MUZs) in the park. MUZs are delineated areas where specific collectors from a limited number of villages are allowed to harvest given amounts of selected species from the forest, or are allowed to keep beehives. This approach was presented as a conservation strategy, but its sustainability has been hard to prove (although long-running research by ITFC provides valuable data — Bitariho et al. 2006). There are ongoing discussions about increased access to more resources in more areas (Byarugaba, Ndemere and Midgley 2007). Arguably the MUZ programme has generated good will, and allows for some cultural links to be maintained between people and the forest. Monetary gains for local people are very limited, however, and while the need for financial compensation has been reduced, there are high long-term costs in the commitment to manage these arrangements and perhaps in the consequences for the forest.

### *Other funds*

A number of government and non-government programs have targeted the area with projects that seek to support conservation by improving local people's livelihoods. Examples include the provision of improved health care services, gravity water schemes, and special support for the Batwa, a local indigenous group. Financing for these projects derives from various sources, usually international aid donations that are not inherently sustainable.

Clearly the best model for sustainable finance depends on finding a means to match needs with opportunities. With limited resources available, the choices can be difficult. For example, protection against fires could be provided by trained and equipped staff, or by voluntary local support. The first option requires significant long-term financing to be effective; the second is less financially demanding but may prove to be less successful in the long term. Current budgets to combat fire directly are low and appear to be insufficient to allow UWA alone to deal with the multiple fire events that may occur in a prolonged dry season. The (2008–09) annual budget for fire control in BINP was only €654 for equipment and allowances and €1,900 for boundary patrols. These sums seem inadequate to protect such an important and vulnerable national park encompassing 330 km<sup>2</sup> of rugged terrain.

Other activities to gain local support for the park have born fruit; at BINP the incidence of fires has decreased over the last decade, while the willingness of local people to help has increased. Indeed, on several occasions community members have helped park management locate and extinguish fires within the park (Kasangaki et al. 2001).

### Goods and services

Recently, the Wildlife Conservation Society (WCS) carried out a quantitative assessment of individual forests' values to the local, national and global economy (Bush et al. 2004). The forests were located in four areas representing different ecological zones. The study concluded that forests still provide an important backstop of resources in times of low food availability and that average household incomes from forests varied between forests but ranged from 8–35% of total household income. Bwindi was not one of the forests studied, but a similar approach could be followed to assess its value.

The same WCS study looked into assessing the value of the four forests as watersheds, for soil erosion protection, biodiversity conservation and carbon sequestration. Extrapolation of the total of these values for all Uganda's forests amounted to 5% of GDP.

There is considerable interest in recognising and compensating the role of Bwindi and other forests in the maintenance of environmental services such as carbon, water and biodiversity. Payments for ecosystem services (PES) from tropical forests have a high potential for SFM and conservation, through giving incentives for keeping forests and ensuring good agricultural practices on surrounding slopes. For example, Bwindi is an important water catchment. Indeed, some estimates suggest that access to clean fresh water for more than a million people may be affected by the park, including park neighbouring communities and people living close to the many river systems that drain the region. These people have a limited ability to pay for water, potential buyers might include business interests dependent on water from the park such as local tea processing factories, and, perhaps in the future, a proposed hydro-electric dam on the Ishasha River.



PES schemes are new in Uganda and are just beginning to be explored. Basic questions need to be answered, such as “who can guarantee the water flow and quality required?” and “who will be paid?”. There is still considerable theoretical discussion about the merits and limitations of a PES approach (Ferraro and Kiss, 2002; Wunder 2005), and there are few clear examples of positive outcomes in tropical conservation. Fair property rights, good governance and supportive policies from outside the forestry sector seem to be crucial conditions for success. Bwindi may offer the potential for developing these concepts further.

### Institutional context

The management and allocation of financing for conservation remains a major challenge, especially if management is conceived of as collaborative and national parks are recognized as part of the nation’s and the world’s heritage. There is no one right way to define and implement suitable institutional roles and responsibilities to allocate funds.

Competition for funds is inevitable.



Adams and Infield (2003) examined revenue-sharing in Mgahinga National Park and found many local, national and international stakeholders who could ethically claim some rights over tourist revenues and how they should be used (see Table 1). But they also noted that the high costs of park creation might surpass the revenues available. So what can be done? Who should be in control of what and how should priorities be set?

As Adams and Infield (2003) concluded, “If institutions cannot be devised such that the mountain gorilla in Uganda can pay its way to the satisfaction of all parties, then the argument that conservation more widely can be based on this approach, let alone that it provides a ‘win–win’ solution of ‘development-with-conservation’ must be weak. This is especially true for the many species without the global interest that gorillas attract, and for countries or environments less suitable for tourism than Uganda’s Mgahinga volcanoes.” More work is needed before any financial system can be considered truly sustainable.

### Looking ahead

ITFC would like to start exploring other important financial questions. For example, can markets for carbon, water or biodiversity be viable options for conservation financing in the region? How are local land prices, land markets and population movements affected by current policies? How will changes in climate, population dynamics and global markets influence the balance of costs and benefits from tropical forests like BINP? The authors welcome ideas for collaboration on research and capacity building that will help to develop these topics further.

**Table 1. Stakeholders with interest in revenues from gorilla tourism, Uganda**

Selection criteria	Groups with potential claims on revenue from gorilla-viewing fees
<b>Local</b>	
Proximity	People residing in villages, parishes, sub-counties or districts immediately adjoining the park
Historical rights	Everybody within villages, parishes, sub-counties or districts from which evacuees came and to which they went
Need	Destitute and landless Batwa people around the park Poor Bufumbira land-holders farming around the park Any poor or needy local people Village or parish councils representing poor people of the district
Regional mandate for socio-economic development	The Kisoro District Council, on behalf of villages, parishes or sub-counties bordering the park The Kisoro District Council, on behalf of the whole district
<b>National</b>	
National mandate for biodiversity preservation	UWA centrally on behalf of their national mandate for conservation UWA for redistribution to other national parks with less tourist earning potential UWA on behalf of the people living around other national parks Other Ugandan conservation organizations
National mandate for socioeconomic development	The Ugandan government, for the welfare of its citizens The Ugandan Government to meet the costs of the Uganda Wildlife Authority Ugandan development organizations on behalf of local people
Mandate to promote understanding of conservation	Ugandan scientific or educational organizations
<b>International</b>	
Mandate for socio-economic development	People living around those parks in Rwanda and Democratic Republic of Congo (DRC) providing contiguous gorilla habitat
Intrinsic values of gorillas	Park managers or national governments in Rwanda and DRC which share the range of the Mgahinga gorilla groups International organizations working to support the conservation of contiguous gorilla habitat in Uganda and elsewhere

Source: Adams and Infield (2003)

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## 5.6 Recreational Value Trading

ERNO JÄRVINEN

This article<sup>1</sup> describes Recreational Value Trading (RVT), which was launched by MTK Finland (The Central Union of Farmers and Forest Owners). As a part of a sustainable family forestry programme, MTK developed an operating approach suitable for Finnish circumstances; in other words, for boreal forests and a large number of private forest owners with small holdings. The RVT model could be used by all parties interested in buying and selling recreational value. It could also be used in countries with tropical forests or different forest-ownership structures.

Under an RVT approach, a municipality, recreational area association or even state would be able to purchase the recreational value of a specified piece of land for a fixed period. Forests suitable for recreation in the vicinity of densely populated areas are an example. The land-owner would commit himself or herself, for an agreed period of time, to manage the selected forest areas so that they would meet the needs of recreation. These needs include senior citizens' recreation, docking places for boats along waterways and riding parks.

### Background

Countryside and forests offer many products and services to the society around them. Open fields and groves, waterways and well-maintained housing stock are all part of the rural landscape. The diverse rural landscape is also an attractive environment for tourism and leisure activities. Agriculture and active farming not only produce food products, but are a prerequisite for preserving a living rural landscape.

Owners of land and forests not only produce raw materials; they also maintain biodiversity and other ecosystem services. Land and forest management provide jobs as well as opportunities for recreation and enjoying nature. Recreational value trading offers land-owners a new source of income.



RECREATIONAL  
VALUE TRADING  
PROVIDES AN  
ALTERNATIVE WAY  
TO OBTAIN INCOME

FROM MULTIFUNCTIONAL FORESTRY  
AND TO RESPOND TO THE DIVERSE  
NEEDS OF SOCIETY.

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## Protecting land-owners' rights

Secure property and land tenure rights are the first steps towards sustainable resource use, and should be defined in and protected by legislation. Protection of property also means that no one may restrict legal uses or prevent a person from using property he or she owns or controls. If seeking to limit the right to private ownership or land usage, legal channels must be employed. Usually there are varying degrees of limitations and permit requirements for forest management activities, and a general requirement to give notice of planned felling operations. In Finland, private ownership of land is protected by the Constitution. Forest and environmental laws guide forest management and emphasise sustainable management and multi-functionality.

"Everyman's rights," which are common in Nordic countries, mean that everyone is entitled to enjoy the bounties of nature; for instance, picking wild berries and wild mushrooms, irrespective of whose land they happen to grow on. Land-owners should

provide this opportunity free of charge. There are two fundamental preconditions for these rights of access: they need to be occasional or temporary and must not cause nuisance or damage.



Everyman's rights are yielding rights; in other words, a person cannot ask a land-owner to restrict legal operations — such as felling operations and forest regeneration — in his or her forests for the sake of everyman's rights. If a land-owner decides to dedicate part of his land to a special use, everyman's rights have to yield. The term "special use" in connection with forested areas can, for example, mean

felling or planting a new stand. In addition, no commercial activity can be practised by virtue of everyman's rights on land belonging to another person without the land-owner's consent.

## Recreational use

People all over the world are more and more active in outdoor recreation. Nature tourism is increasing. Programme-based tourist services and products, such as motorized travel, dog-sled trips and horse trekking are generally forbidden or restricted in protected areas in order to protect fragile environments. Thus, more and more income in nature tourism is being earned in commercial forests.

Land-use legislation should not contain specific stipulations related to recreational use of land or forests. It should, however, provide the opportunity to manage land or forests in such a way that they are well suited to recreational use. Major parts of tropical forests belong to the state, not to individuals; therefore, governments should be encouraged to create sustainable recreational use of their forests.

Landscape and recreational use in land or forest management should also be provided for in management guidelines and recommendations. For instance, the destruction of marked or noticeable pathways is to be avoided in land or forestry work. Culturally and traditionally valuable sites and landscapes might need special considerations. Overgrown traditional environments should be restored where possible by clearance, after which they can be maintained by mowing or grazing.

### Recreational Value Trading

Recreational Value Trading is an approach which reconciles the needs and interests of the land-owner and of people who want to enjoy the recreational value of the area. Many recreational uses of the forests, such as hunting, will not restrict forest-based income and will in fact provide additional income. In recreational value trading the land-owner has several responsibilities:

- surrendering certain rights relating to the use of the property;
- maintaining the land in such a way that its recreational values (e.g., landscape values) are kept to an agreed standard; and
- granting specific agreed rights for the recreational use of the land to the purchaser of the recreational value for a predetermined period in return for an agreed amount (a park entry fee and a hunting permit are examples of a recreational yield contract).

Compensation will be determined according to the market agreed to by the vendor (the land-owner) and the purchaser of the recreational value. If there are groups of users, fee collection can be administered on a group basis.

Either the vendor or the purchaser may initiate a recreational value trade and contact the other party. Land-owners' organizations can assist with this (see section on land-owners' organizations).

The vendor of the recreational value is always the land-owner/holder of the right to use. The purchaser may be a private individual (possibly a neighbour), village association, recreational area association, outdoor activity or sport association, municipality, foundation, business/entrepreneur or tourism centre interested in the recreational and landscape values of the area. A written contract is required.

### Defining recreational value

The object of the trade must be defined as concretely as possible when drafting the contract. The scope of the tasks and management activities should be defined as unambiguously as possible. The contract will apply to an area of land delineated on a map or marked on the terrain. Defining the size and shape of the area is carried out by the parties to the contract. These aspects will vary greatly in different contracts, depending on the value being traded.

A range of values can be traded:

- delaying the final felling of a forest stand for an agreed number of years;
- maintaining a certain species or mixed forest in a particular area of a forest;
- keeping a certain area open or, for example, maintaining it as a meadow;
- maintaining the view from a hill to a waterway;
- maintaining the forest around a hiking or horse-riding route; and
- establishing docks and campfire locations and maintaining their immediate environment.

The contract does not confer any ownership or tenant's rights on the area to which it applies or on its soil or flora (including trees). The area's land-use type will not change. Generally the contract will not limit any other possibility to hike or enjoy nature in the area. Nevertheless the freedom to roam will be yielded when an area is put to special use; for instance, if a land-owner and a nature tourism entrepreneur agree a trade of recreational value on a small island, the entrepreneur who has paid the recompense would have the first right to use the area. The contract is always for a fixed term. The vendor and purchaser determine the period of the contract according to the circumstances.

### Determining the price

Recreational Value Trading is a market activity and the price will be determined by the market. There is no general pricing system for RVT; instead, the price will be calculated through discussions between the parties. Any loss of income to the vendor will be incorporated when assessing recreational value. In addition, the contract must specify the existence of any customary rights and indicate that the contract specifies services in excess of them.

Several factors influence price: the length of the contract; the area's land use; the measures to be undertaken; the landscape; costs to the land-owner; the location of the area; its proximity to other similar areas; and the risk of damage to or destruction of the area's trees (e.g., root-rot fungus).

The following estimates can be used when determining the price:

- loss or gain of income to the land-owner;
- losses or gains due to a reduction in the value of the area or to its trees;
- cost of labour and materials;
- recreational value benefits to the purchaser; and
- additional value derived from the area's specific recreational value.

It is essential to emphasize balance. There is competition between the forest owner's willingness to sell and the buyer's willingness to pay.

If ownership of the object of the RVT is transferred in exchange for payment, the contract is not binding for the new owner. The recreational value trade contract may contain a condition in the deed of ownership transfer, requiring the new owner to undertake to fulfil the duties of the contract for the remainder of its term.

If ownership is transferred by means other than an exchange for payment (inheritance, legacy, gift or division) then the recipient party will be bound by the contract unless otherwise determined by law. In these cases the land-owner must clarify as a term of the title deed that the new owner is bound by the contract.

### Dissolution and disputes

The contract may be dissolved if the recreational values of the object of the contract have changed — for example, as a result of storm or other naturally occurring damage — in such a way that there are no longer grounds for the contract. If the contract is dissolved for this reason, the land-owner returns the remaining share of the price paid to the purchaser.

The land-owner may be released immediately from the contract if the purchaser fails to pay the agreed sum or breaks other conditions of the contract. Compensation already paid is not returned to the purchaser.

The purchaser of the recreational value may be released immediately from the contract if the owner of the object of the contract has knowingly reduced or destroyed the recreational value of the area or has broken other conditions of the contract. The land-owner will repay the full price of the contract. Cases of dispute are heard in the lower court with jurisdiction over the location of the land in question.



### Land-owners' organizations

On a local level, land-owners' organizations are a natural source of information and assistance for people interested in RVT. They can provide contact information about prospective purchasers to land-owners. They will not, however, give private details or other information about the land-owner to the purchaser. These organizations will also assist the land-owner in matters relating to securing a contract and assessing the factors relating to price. They charge a fee for this service.

In meetings between the land-owner and the association's advisor, the parties discuss the specific circumstances as well as the land-owner's objectives for the area. The advisor will assess the objectives of the RVT, the land use of the area and the possible tasks to be carried out in the forest. At the land-owner's request the advisor will also pay a field visit to the site. After determining the delineation of the area the advisor will estimate any potential loss of income and costs for the land-owner and assess other factors affecting the trade. The land-owner will make a decision on the tender price based on this information and on cost estimates from the forestry association.

### Endnote

1. The author wishes to thank Lea Jylhä and Jarmo Ylinen for their valuable comments to the content of this article. Ms. Jylhä is the Forestry Specialist of MTK (The Central Union of Agricultural Producers and Forest Owners) in Finland and has extensive experience in international forest policy. Mr. Ylinen has more than 30 years' experience of forestry assignments in 56 countries. He is currently the Managing Director of Porini Log Oy.



## 5.7 Landscape auctions: an investment tool

DAAN WENSING AND LIESKE VAN SANTEN

In 2007 a new financing tool for nature conservation and landscape preservation was developed and put into practice by Triple E: landscape auctions. More than €250,000 was raised during three different auctions in The Netherlands, securing the maintenance of those particular nature areas and re-establishing the bond between people who take care of the landscape and those who care for their landscape.

Companies, financial institutions, industry and individual citizens participated in this new initiative. A market value was assigned to the landscape, which was then auctioned off. The landscape gained an economic value. This tool will now also be used for tropical forests, starting later in 2008.

### Introduction

Farmers in The Netherlands are a key part of maintaining nature and landscape, as they are everywhere in the world. Their land forms an integral part of important biodiversity corridors, protected areas and regional conservation areas. Central government has acknowledged this role by providing financial incentives for conservation to farmers in the form of subsidies. European Union regulations over subsidies now make this approach more difficult in some countries, however.

The nature area of the *Ooijpolder*, which is mostly farmland, attracts more than a million visitors a year, making it one of the top attractions in the country. This, however, has not translated into the payments needed for biodiversity conservation to the land-owners. As with most nature areas in The Netherlands, there are no entrance fees and parking is free. In addition, the neighbouring towns were unwilling to pay for its conservation even though most of their inhabitants use the area for recreational purposes. A new financing tool was needed.



LANDSCAPE  
AUCTIONS HAVE  
THE POTENTIAL TO  
CHANGE THE WAY

THAT COMMUNITIES TAKE CARE OF  
THEIR LANDS AND FORESTS.

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### How does it work?

Farmers in the *Ooijpolder* nature area asked Triple E to create a conservation financing tool which would be compatible with EU policies. This resulted in the concept of landscape auctions. An area is divided into “landscape elements,” for instance, a hedge, pond or group of trees. The farmer then determines the minimum price for each element by calculating how much it would cost to maintain its ecological functions for ten years.

The first landscape auction was held in September 2007. Companies and citizens bid more than €140,000, securing the preservation of the area for the upcoming ten years. The landscape elements that were “sold” through the auction did not actually change hands; they remained the property of the farmers. Participants “buy” only the maintenance costs of the element, not the element itself. The money raised through the auction is managed by ViaNatura, a regional trust fund, which also monitors compliance. Contracts are thus between farmers and the trust fund, and between winning bidders and the fund.

All bids are clearly labelled, ensuring that the money paid for a particular landscape element is spent only on that element. A direct link between payments and product is key to the concept of landscape auctions. This ensures transparent, tangible and direct influence. Successful bidders can go and “enjoy” the elements they bought.

### Benefits

The auctions help to showcase the value of landscape and to remove barriers between people who can take care of a landscape and those who value it. Companies can show their commitment to the landscape in a tangible way and corporate social responsibility can be turned into something real. A funeral home, for example, bought an area with an ancient funeral mound in a PA; they saw it as their responsibility to take care of a heritage which was intimately linked to their business.

Auctions have been carried out at three different locations in The Netherlands: the *Ooijpolder*, the *Heuvellandschap* and the *Gooij*. The *Gooij* area is located in the most populous part of the country, showing that landscape conservation is possible even in densely populated regions.

Citizens can and do participate. A school adopted a frog pond and its pupils now help the managers with inventory studies. A group of people who did not know each other joined forces and bid on a landscape element they all felt connected to but could not afford alone. This clearly shows the power of this new tool: a direct link between what you pay and what you get.

## Forests

By the end of 2008 an auction of voluntary avoided deforestation carbon credits will be organized in cooperation with IUCN's National Committee of The Netherlands and local partners. All projects are executed by local NGOs and no foreign ownership is involved. The auctions will provide organizations with the means to manage protected forest areas in tropical countries, and even expand them. Financing and tropical forest conservation have been linked: investing in biodiversity by buying carbon credits.

Other options include involving people from all over the world via the auctioning of landscape elements at [www.yourgoodnature.com](http://www.yourgoodnature.com). This global conservation tool was launched during the Biodiversity and Ecosystem Finance conference in New York in March 2008, and in The Netherlands by the Minister of Agriculture, Nature and Food Quality. The website features not only trees but also parcels of land, carbon credits, rhinos, a reduction in forest fires by supporting fire-fighting squads and educational tours for schools.

Conservation organizations with proven track records can put their landscape elements online to market them at this online market place. Interested parties can buy the landscape elements and provide revenue for conservation organizations.



## Future initiatives

In The Netherlands more than five auctions will be held in 2008. Nature conservation organizations from all over the country are auctioning the areas they manage in order to re-establish the link between people and their surroundings.

Landscape auctions have now been applied in an international context. During the Conference of the Parties of the Convention on Biological Diversity (COP-9) in Bonn, Germany, Triple E and the Global Nature

Fund organized an auction of landscape elements from all over the world. The event demonstrated how this new conservation finance tool can help in the struggle to conserve global biodiversity.



## 5.8 BioTrade in the Amazon

ADRIANA RIVIERA AND CLAUDIA MAYER

### Sustainable use of non-timber forest products

Biodiversity is the source of many products and services. Millions of rural people depend on biodiversity for food, medicine, income, ecosystem services and cultural and spiritual needs (CBD 2000). Biodiversity provides essential inputs for diverse industries such as agriculture, cosmetics, pharmaceuticals, pulp and paper, and waste treatment.

The Amazon region is the largest tropical rainforest on earth, with the world's richest biodiversity and a significant percentage of its endemic species. These resources are threatened by the extensive conversion of land use, unsustainable exploitation of minerals and oil, and logging. Conserving this reservoir of biological wealth is vitally important for the benefit of present and future generations and to ensure the sustainability of existing natural resources. The preservation of biodiversity, particularly non-timber forest products (NTFPs), is fundamental to long-term sustainable development, not only regionally but worldwide. The region's biological richness helps it face the great challenge of combining poverty alleviation and economic growth with sustainable use and conservation of biodiversity.

NTFPs such as mushrooms, nuts, essential oils, medicinal plants and natural colourants are used by more than 75 percent of the local population. Many local people rely on these products for their high potential to provide income.

Shifts in consumer behaviour in industrialized countries have created new trade opportunities for developing countries (UNCTAD 1998). The ability to market these Amazonian products successfully, taking into account consumer preferences for sustainable production, can make a big difference in improving the livelihoods of rural communities. Voluntary measures developed by the private sector — codes of conduct, certification and other social and ecological labelling schemes — aim for both biodiversity conservation and the equitable distribution of benefits to communities whose livelihoods depend on such trade.



BIOTRADE OFFERS AN OPPORTUNITY TO FINANCE THE SUSTAINABLE USE OF BIODIVERSITY BY ASSIGNING AN ECONOMIC VALUE TO THE PRODUCTS AND SERVICES DERIVED FROM IT.

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## BioTrade

Market interest in biodiversity products and services is growing, which gives a comparative advantage to biodiversity-rich countries. BioTrade is a relatively new concept. It offers an opportunity to finance the sustainable use of biodiversity by assigning an economic value to the products and services derived from it. BioTrade considers the social, environmental and economic dimensions of trade.



In 1996, during the third Conference of the Parties to the Convention on Biological Diversity (CBD), the United Nations Conference on Trade and Development (UNCTAD) launched the BioTrade Initiative as a mechanism to encourage economic development and biodiversity conservation within the framework of the three goals of the CBD: 1) biodiversity conservation; 2) sustainable use of its components; and 3) fair and equitable sharing of the benefits derived from the use of genetic resources.

The term “BioTrade” refers to the collection or production, transformation, and commercialization of goods and services derived from native biodiversity (genetic resources, species and ecosystems), under the criteria of environmental, social and economic sustainability. It includes Fair Trade, Rainforest Alliance and the Forest Stewardship Council, among other environmentally and socially responsible labels and certification frameworks.

These seven principles are taken into account when deciding whether to support potential BioTrade initiatives:

- Principle 1: conservation of biodiversity;
- Principle 2: sustainable use of biodiversity;
- Principle 3: equitable sharing of benefits derived from the use of biodiversity;
- Principle 4: socio-economic sustainability (management, production and markets);
- Principle 5: compliance with national and international legislation and agreements;
- Principle 6: respect for the rights of actors involved in BioTrade activities; and
- Principle 7: clarity about land tenure, use and access to natural resources and knowledge (UNCTAD 2007).

BioTrade activities are generally oriented to the whole value chain of products derived from the sustainable use of biological resources, or to the provision of services derived from such resources. This means that all stakeholders along the value chain need a joint vision and the will to share the associated risks and benefits in order to develop intervention strategies (UNCTAD 2008). This approach facilitates communication; encourages good practices related to sustainable use and conservation; and promotes the equitable sharing of environmental, social and economic benefits among participants. All actors have to agree to the BioTrade principles and criteria.

### Linking the national and international level

Through the BioTrade initiative, UNCTAD promotes sustainable development by encouraging trade and investment in biological resources. It focuses its efforts on practical application of the concept of sustainable use of biodiversity and its conservation according to development goals of local communities located in biodiversity-rich areas in developing countries (UNCTAD 2005). The BioTrade initiative works alongside governments and businesses, providing support and guidance on implementing BioTrade principles and criteria. As a platform for dialogue among stakeholders and decision-makers, the initiative accomplishes several things:

- it helps identify business needs and facilitates the emergence of viable solutions;
- it provides technical assistance to businesses to improve the quality of their products in the supply chain by developing company-specific management plans for species;
- it facilitates communication along the links of the chain; and
- it brings company representatives to international events and trade fairs.

In Latin America UNCTAD has helped create and strengthen national BioTrade programs in Bolivia, Colombia, Ecuador and Peru.

### Regional cooperation

The Amazon Cooperation Treaty Organization (ACTO) is a regional cooperation BioTrade mechanism signed by Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela. It was created to develop synergies and harmonize regional policies to foster conservation and sustainable use of biological diversity in the Amazon Region, among other goals. Its strategic plan includes a BioTrade programme component and the development of mechanisms to encourage investment and trade in biodiversity products and services to achieve the goals of the CBD. Its goal is to support the sustainable development of the Amazon (ACTO 2008). The programme responds to the need to create enabling conditions for BioTrade at the political level and to create and consolidate markets for BioTrade products and supporting research and technological development (ACTO 2007).

### Market differentiation

A BioTrade verification system was developed in order to differentiate BioTrade products in target markets and support companies' policies on sustainable sourcing and corporate social responsibility. The verification can be used in business-to-business relations and can provide third-party support for companies in their reporting to shareholders and social and ecological accounting initiatives. The creation of a Union for Ethical BioTrade would improve international recognition and provide a range of services to companies involved in BioTrade activities. Membership would require gradual adherence to the BioTrade principles and criteria and a move towards the verification of products and practices (UEBT 2008).

### Using Brazil nuts for cosmetics

The Brazil nut is linked to the livelihoods of the traditional populations in the Amazon forests of Brazil. This native species is one of the largest trees, with major longevity and food wealth. The extraction of Brazil nuts is a sustainable economic and environmental activity and provides income for local communities. Millions of people depend on the extraction of the nut, which is collected in its natural environment. The latest estimated production of the major *castañeros* is about 20,000 metric tonnes (unshelled) from Brazil, Bolivia and Peru. The bulk of production is exported; less than 3% is used for domestic consumption (UNCTAD 2005). The oil is famous for its odorlessness and transparency and is used for cosmetic products. One important buyer of the oil is NATURA, the market leader for natural cosmetics in Brazil. By developing personal hygiene products and perfumes derived from Brazil's native biodiversity, NATURA has become an important participant in the conservation and sustainable use of the country's biological diversity.

COMARU, a cooperative of Brazil-nut collectors, undertook the adoption of Forest Stewardship Certification as a shared initiative with NATURA. The certification gives the nut collectors of the Iratapuru River more business opportunities and ends the old, unfair production system. Under the old system export companies offered basic support for nut collectors but in compensation demanded the entire harvest. The price of staples was high and nut prices were kept as low as possible. Since the certification initiative, which adheres to BioTrade criteria and principles, the collectors sell nuts for a fair price. Workers who are able to prosper are fundamental to the maintenance of the forest.

### Cocoa for sweet chocolate

The cocoa *fino de aroma* has been known since ancient times for providing energy. Today it is considered the best cocoa in the world and is in high demand. The Amazon region has great potential for the cultivation of this cocoa since the climate and environmental conditions are ideal for its growth. This makes sustainable management of the species possible. Ecuadorian Amazon cocoa has a floral aroma and unique flavour that is valued at the international level.

The Chankuap Foundation works with 970 families from indigenous communities in the Ecuadorian Amazon. The foundation supports them in several ways:

- the use of local plant species to increase production;
- traditional practices to improve use of the land;
- species diversification;
- renewal of organic certification; and
- equitable redistribution of sale income.

Production activities of the indigenous communities relate to both personal use and commercial sale. Special focus is given to cocoa, Amazonian peanuts and achiote (*Bixa arellana*). Local people also revive species which were traditionally cultivated by families in their house gardens (*chacras*) in order to improve food security. All production is organic, which helps to conserve the land and the fragile ecosystem of the Amazon (Chankuap 2008).

## Conclusion

The Amazon Region is endowed with rich and diverse biological resources. New markets provide opportunities to increase the participation of local and indigenous communities in production and in value-added processing.

The region still faces constraints, however, which hinder the development of BioTrade. The main handicap for both indigenous associations and private-sector enterprises is a lack of market information and market access. It is also difficult to obtain information on appropriate processing technologies. Organizations working with BioTrade can help improve access to national and/or international markets for the NTFP producers of Amazon region and at the same time provide guidance on adding value to their agricultural and forest products. In addition, these organizations can help governments develop and update legal and policy instruments that regulate and encourage BioTrade at the national level. This will provide a financial instrument for sustainable management of biodiversity in the Amazon region.

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# Section 6

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Forests, climate change  
and energy

#### Photo credits

- p.137 Tropenbos International Indonesia
- p.138 Emil Roes (Nieuwland), Tropenbos International Suriname
- p.141 Jeremy Holden, World Bank
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- p.145 View in the forest in Witagron, Suriname. Rutger de Wif (ESS), Tropenbos International Suriname
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- p.155 RIL training. FORM International
- p.156 Illegal logging, Sumatra. Balai TNKS, World Bank
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- p.164 Keiteur Falls in the Iwokrama Reserve, Guyana. Samantha James
- p.165 River valley in the Iwokrama Reserve in Guyana. Samantha James
- p.167 Emil Roes (Nieuwland), Tropenbos International Suriname
- p.169 Jeremy Holden, World Bank



## 6.1 REDD: a steep learning curve

BEN VICKERS

To some NGOs it is a threat to indigenous rights and community forestry programmes. To some governments it is an opportunity to significantly magnify the monetary value of their forest estates. From any perspective, the new concept of reducing emissions from deforestation and forest degradation (REDD) has renewed foresters' interest in the carbon market.

A side event at the Asia Pacific Forestry Week (APFW), held in Hanoi from April 21-26, 2008, attempted to shed light on the current status of REDD-related issues in Asia.

Jointly organised by the Hanoi offices of Dutch and German development organizations (SNV and GTZ), the meeting brought together stakeholders to discuss REDD-related issues under the leadership of the World Bank, IUCN and Fauna and Flora International (FFI).<sup>1</sup>



REDUCED  
DEGRADATION  
WILL REQUIRE  
MORE COMPLEX  
CALCULATIONS

AND A SIGNIFICANTLY GREATER  
EMPHASIS ON GROUND-TRUTHING OF  
DATA GENERATED BY REMOTE SENSING.

### What will the mechanism look like in 2012?

The UN Framework Convention on Climate Change (UNFCCC) achieved consensus in Bali that REDD will be part of a post-2012 protocol. There will be vigorous debate, however, over the elements to be included in REDD under UNFCCC. The most likely outcome is that the mechanism will include reduced forest degradation — the second “D” in REDD — as well as avoided deforestation. Reduced degradation will require more complex calculations and a significantly greater emphasis on ground-truthing of data generated by remote sensing. Nevertheless, REDD spreads the benefits more widely than a deforestation-only mechanism. Not only nations at risk of large reductions in forest area, but also those in which the threat is chiefly to forest quality, stand to generate revenue under such a system.

The long-term shape of REDD will not become clear until UNFCCC negotiations are much further advanced. Meanwhile, markets are developing independently of the negotiations and tropical forest nations are preparing to implement their own REDD strategies in a number of ways.

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## The World Bank

The World Bank is intricately involved in the development of REDD through its Forest Carbon Partnership Facility (FCPF), which has generated some controversy. The bank intends the FCPF to be essentially a pilot scheme, not a fixed template for REDD. It is designed to identify the range of positive incentives for target countries that will ensure the economically effective and socially just implementation of REDD.

The Readiness Fund, one of two funding sources under FCPF, covers preparatory measures for target countries. Determining baselines and reference scenarios for deforestation and degradation is critically important for a REDD mechanism to be economically effective. Ideally, this would be done following UNFCCC guidance, but could be carried out independently if negotiations do not produce guidelines within the necessary timeframe.

Delegates at APFW saw an important role for the World Bank in using the FCPF to build market credibility for REDD. Recipient countries should therefore be those that are most likely to achieve success. If fast, positive results follow the disbursement of FCPF funds, however, it is likely that bilateral aid will take the same approach and bypass those countries perceived as laggards in SFM.



### Private-sector contributions

Mark Infield of FFI presented an outline of a project in Aceh, Indonesia, which demonstrates that private investment is already creating a market for REDD credits independent of both UNFCCC negotiations and the FCPF. Aceh's war-torn recent past prevented the large-scale exploitation of natural forests but the peace agreement reached in 2005 raised

fears that forest clearance would accelerate. The baseline for REDD will therefore not be calculated against past activity, but on assumptions of increased exploitation of forests.

The project is financed by Merrill Lynch investment bank, which has exposed itself to both the risks and the potential high benefits common to all untested new markets. This investment will serve to build confidence within carbon markets that in the future REDD will be a significant element in "green" portfolios.

Prior to 2012, REDD credits can be traded only in voluntary markets. The development of these markets will certainly affect, and be affected by, the progress of UNFCCC negotiations. The voluntary market will provide the clearest indication of the likely price of credits under the UN-sanctioned compliance mechanism after 2012. The current forestry-based methodology under the Clean Development Mechanism (CDM) does not have much relevance to the emerging REDD market. Indeed, an important message for many APFW delegates was that REDD is not, nor is it likely to become, a part of CDM.

### Can REDD be pro-poor?

Many of the discussions among APFW delegates in the REDD session centred on this question. The impact, both positive and negative, that local people can have on achieving targets for reduced degradation makes them potentially important partners. It was widely acknowledged that local participation is a precondition for the effectiveness of national REDD strategies.

David Huberman of IUCN represented the Poverty and Environment Partnership (PEP), an informal network of development agencies and partners committed to exploring the social implications of REDD. He warned that REDD risks being seen solely as a technological fix to what is essentially a political problem. It is meaningless to establish market mechanisms for REDD unless governments reform forest governance.

Ultimately, carbon markets will play a key role in determining whether benefit-sharing systems in REDD are equitable. If local communities are not motivated to participate in REDD measures, market confidence in the ability of projects to deliver results will be undermined. A number of standards have emerged over the past few years to evaluate afforestation projects for carbon markets, several of which could also be used as a basis for evaluating the social and environmental credibility of REDD projects.

One of the most common fears concerning REDD is that it will act as a disincentive for governments to press forward with formal decentralisation. REDD increases the potential value of natural forest areas, irrespective of timber quality or accessibility, and thus tempts the public and private sector to appropriate areas previously considered uneconomic. This will disadvantage forest-dependent peoples.

Conversely, the active participation of rural communities may be essential to build market confidence in REDD. It is therefore possible to see REDD as a driver both for and against forest decentralisation and social equity. It is not yet clear which it will be, but the importance of answering this question is now accepted by the most influential stakeholders in the development of the process.

### Potential economic and political limitations

REDD can essentially be seen as an attempt to engender SFM. Like forest certification, it works through financial markets to provide economic incentives to stakeholders in natural tropical forests. The difference is in the direct link between incentives and measurable results, in the form of forest carbon stocks. The success of REDD in promoting SFM will be determined to a considerable extent by the market value of REDD credits relative to the opportunity cost of other land uses or forest management systems.

The calculation method for REDD baseline scenarios and targets is likely to be influenced by political considerations more than by technical issues. Host countries will be tempted to exaggerate baseline trends and thus set low targets to maximise the potential output of carbon credits. Giving in to this temptation carries the risk of fatally undermining the market.

The existence and unrestricted availability of high-quality satellite data means that non-government agencies are perfectly capable of monitoring global forest trends; exaggerated claims will be easily uncovered. Even so, the surrender of such a politically sensitive task to an external body will be resisted by nation states. It bears repeating, however, that REDD, like climate change in general, is a global issue and will inevitably involve some dilution of national sovereignty to ensure effective results.

### Endnote

1. The full report of the APFW REDD session and the key presentations can be downloaded from the website of the NGO Climate Change Working Group ([www.ngocentre.org.vn](http://www.ngocentre.org.vn)).



## 6.2 REDD: opportunities for SFM

IMME SCHOLZ AND LARS SCHMIDT

### Introduction

Deforestation accounts for approximately 20% of global greenhouse gas emissions (IPCC 2007), making it a major driver for anthropogenic climate change. Reducing emissions from deforestation and forest degradation (REDD) is a possible mechanism under UNFCCC to financially reward developing countries that slow their deforestation rates, thus reducing carbon emissions. While the importance of emissions from deforestation was acknowledged early on in climate negotiations, it has not been integrated into the Clean Development Mechanism (CDM) for several reasons:

- the project-based approach of the CDM was seen as unable to guarantee reduced net deforestation at the country-level. Instead it was suspected that avoiding deforestation in one place would simply lead to deforestation in another place (within or outside the country), a process commonly referred to as “leakage”;
- the technical means to monitor deforestation or even forest degradation were not deemed sufficiently mature to provide accurate data on changes in forest carbon stock;
- countries with high deforestation rates were not willing to support the issue of avoided deforestation; and
- Annex I countries<sup>1</sup> did not accept a cap for the emissions which could be deducted from their national quotas through CDM. This nourished suspicions that a forest CDM would lead to a shift of emission reduction activities from the fossil-fuel sector to the forest sector, because the latter offered less expensive opportunities.



REDD COULD  
MAKE AN  
IMPORTANT  
CONTRIBUTION BY

VALUING THE MAINTAINED CARBON STOCKS OF A SUSTAINABLY MANAGED FOREST, THUS INCREASING THE OPPORTUNITY COSTS OF CONVERTING FORESTED LAND INTO AGRICULTURAL LAND.

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At the UNFCCC COP 11 in Montreal in 2005, the Coalition for Rainforest Nations (CfRN) submitted a proposal to integrate avoided deforestation into the Kyoto Protocol or the post-2012 climate regime. Since then, the debate about REDD has continuously gained momentum, taken forward by a broad range of actors, including NGOs, GOs and research institutions across various scientific fields. At COP 13 in Bali, it was decided to broaden work on a wide range of methodological questions related to REDD in developing countries. This is interpreted as the first step in including REDD in the post-2012 regime. With less than two years until COP 15 in Copenhagen, where the design of the new climate regime will be decided upon, many questions about REDD remain.

### REDD activities at DIE

Acknowledging the high potential of REDD to contribute to the conservation and sustainable use of the world's tropical forests (that is, to both climate and biodiversity protection objectives), the German Development Institute (DIE) is conducting an advisory study on REDD and opportunities for local development for the German Federal Ministry of Economic Cooperation and Development. SFM, which includes the extraction of timber and non-timber forest products (NTFPs), biodiversity conservation and watershed protection, makes an important contribution to the sustainable development of rural forested regions. The steady decline in international finance for SFM in the tropics can in part be attributed to the low success rate of SFM in preventing tropical deforestation (Wunder 2006). One crucial reason that SFM has not succeeded in the tropics is an economic system that largely fails to internalize the costs and benefits of ecosystem services. In other words, SFM restricted to profits from the production of timber is economically less attractive than other land uses, such as soy bean cultivation or palm oil production. REDD could make an important contribution by valuing the maintained carbon stocks of a sustainably managed forest, thus increasing the opportunity costs of converting forested land into agricultural land. Although this sounds like a promising idea, many obstacles must be overcome.



### Which countries are likely to benefit from REDD?

As a UNFCCC mechanism, REDD is intended to achieve substantive emission reductions from deforestation and forest degradation. As a result, REDD will likely target countries with large forest areas such as Indonesia and Brazil, as well as countries with high deforestation rates. The latter group would include smaller countries such as Honduras, Togo and Burundi. Countries with low deforestation rates or no deforestation would hence receive few if any benefits from REDD. In consequence, this would mean that countries which have already taken measures to slow or stop deforestation — for example, by introducing SFM — would not necessarily benefit from REDD. ICFRE (2007), an Indian research organization, has proposed a compensated-conservation approach for REDD, meaning that countries would be rewarded for conservation of forests instead of reducing deforestation. While this could be an additional incentive to countries for good forest governance and could ensure broad political support for REDD, it is not likely to

replace the compensated-reductions approach, since it does not lead to serious emission reductions from deforestation.

### Which stakeholders are likely to benefit from REDD?

According to Wunder (2007), a REDD mechanism aiming at real emission reductions, “[...] mainly needs to pay people that are seriously planning to deforest [...]. However, to ensure the viability of a national REDD scheme, it is necessary, just as on the international level, to have broad support from all forest stakeholder groups.”

From the perspective of development policy, it is important to include poverty considerations when deciding which types of forest owners should have access to these new funds. One objective could be to reward sustainable economic forest uses that also have a positive effect on poverty reduction.

### A sub-national transfer system for REDD funds

The distribution of REDD funds within the recipient country is a key issue. Should funds go to the federal government or district governments or directly to communities, enterprises and other forest owners? Should the funds be directed towards efforts to further slow or stop deforestation, or are countries free to use them however they see fit?

There is no “one size fits all” approach and the distribution of REDD funds is a matter of national sovereignty. REDD donor countries expect, however, that at least some of the funds will go to further avoided deforestation efforts, which may include SFM practices and biodiversity conservation. Generally, if a country succeeds in slowing its deforestation rate and is rewarded with REDD funds, it sounds fair to let the country decide what to do with the funds. It is important, however, to look at how deforestation was reduced and whether it is a long-lasting solution. From a carbon perspective, even a short-term reduction of emissions from deforestation is acceptable (Ebeling and Yasué 2007).

To slow or even stop deforestation in the long run, many underlying causes need to be addressed and structural changes in economic and political systems must be made. This requires time and effort. If, for example, a country slows deforestation by creating natural protection parks but restricts access to forests only temporarily by strict enforcement, this may reduce carbon emissions in the short run but will create new problems rather than slowing deforestation in the long run.

Raising sufficient funds for REDD will be difficult enough; sound concepts for lasting emission reductions from deforestation might prove to be an even bigger challenge. Channelling a proportion of each country's REDD funds towards the establishment of SFM activities could be a way to slow or even stop deforestation in the long run. To clearly show the benefits of SFM, pilot activities as encouraged by the COP decision on REDD in Bali should be undertaken.

Both recipient and donor countries may learn lessons from the evaluation of past and ongoing development cooperation projects which aim at reducing deforestation (Lele

2002) and should consider ideas provided from research organizations and NGOs. The Woods Hole Research Center, for example, has proposed a sub-national transfer of REDD funds for Brazil (Nepstad et al. 2007). Donor countries should coordinate their efforts and funds to achieve maximum impact.

### Upfront funding

The establishment of SFM systems will require upfront investment for land reform, law enforcement, administration and management, since payments for REDD will most likely not be made until after a certain crediting period (possibly five years). A national baseline scenario and monitoring system is also needed to account for emission reductions. Development cooperation can help by providing the upfront funding to realize SFM projects. Although it has been criticized for its lack of stakeholder participation, the World Bank has launched the Forest Carbon Partnership Facility (FCPF), which aims to provide funds for both enabling activities and carbon finance (World Bank 2007). The so-called readiness mechanism, with a target size of €63 million, will assist countries in creating a national REDD strategy and a baseline and monitoring system. The second part of the FCPF — the carbon finance mechanism with a target size of €126 million — will provide payment for reduced emissions from deforestation. While this is an important first step, more money needs to be allocated for upfront investment into sound REDD strategies, which should include SFM. Again, donor countries should work together and coordinate their actions to enhance effectiveness.

### Will conservation be more profitable than SFM?

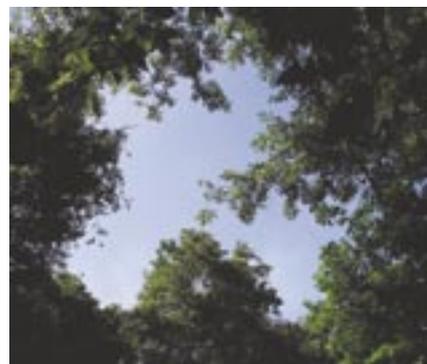
Assuming that a REDD mechanism is established, the opportunity costs of one hectare of forested land will then be determined, based on the price of carbon, timber and other potential land-uses, such as cattle ranching or agricultural production of soy beans and palm oil. Provided that carbon prices reach a level that makes it more profitable to leave forests standing, the question still remains whether to use the forest for sustainable timber production (i.e., removing some carbon stocks) or leave it “unused” for biodiversity conservation. In other words, will forest conservation be more profitable than SFM, and in consequence restrict even sustainable timber production?

This will of course depend on carbon and timber prices. Moreover, it will probably be much less complicated to produce and sell timber than to account for carbon stocks, especially considering transaction costs. In addition, the methodological guidelines for REDD accounting have not yet been determined, so it is not clear whether sustainable timber removal will count as an act of degradation in terms of carbon removal, as it does under land use, land-use change and forestry (LULUCF). If sustainable timber removal does not count as degradation, this may boost SFM practices since forest owners could profit from both timber sales and carbon storage. Even though this might actually create carbon emissions, it could help to broadly establish SFM, thus guaranteeing a long-term reduction of emissions from deforestation.

## Recommendations

REDD should be a facilitator of an international system of payment for ecosystem services (PES). Valuating carbon in standing forests acknowledges their importance as a carbon sink and can be seen as a payment for an ecosystem service on a global scale. This creates an opportunity for SFM, though the definition of SFM may have to be changed or expanded. Even though forests are managed for a variety of purposes today, sustainability in SFM too often refers to the amount of wood harvested rather than considering the social and ecological functions of the forest as a whole.

Timber production is only one of many services that a forest ecosystem provides, and not necessarily the most important one. Using REDD to establish a PES system, whether global, regional or national, that includes biodiversity, erosion control, groundwater recharge and flood protection, would allow SFM to be given credit for the supply of these functions and gain in economical importance.



## Endnote

1. These signatories to the UNFCCC include the industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States.

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## 6.3 SFM and avoided-deforestation credits

PAUL LEACH

### A critical review

There is an expectation on the part of some observers — including some members of the conservation community — that including avoided-deforestation credits into Kyoto II mechanisms would generate sufficient funds to provide strong incentives for halting tropical forest destruction. Data suggests, however, that the absorption of substantial volumes of these credits within carbon markets is likely to be highly problematic unless there is a major increase in the markets due to negotiated commitments to very deep emission reductions by Annex 1 countries. Including forest-based carbon credits in anything like the existing size of carbon markets might at best produce too little funding for avoidance of deforestation, too late. At worst, it has the potential to do more harm than good by depressing the price of carbon below a level at which real emission reductions projects are financially viable.<sup>1</sup>

### Realities of supply and demand

A theoretical maximum volume of potential additional carbon credits can be roughly calculated if the following take place: i) avoided deforestation (AD) is part of the successor to the Kyoto protocol; ii) AD credits are permitted within the carbon market at parity with other forms of credits; and iii) all tropical deforestation is stopped. Assuming that tropical forests contain roughly 150 tonnes of carbon per hectare, and that forest carbon enters the market at parity with other forms of carbon, then 13 million ha of AD would generate around 7.2 billion credits (7,200 MtCO<sub>2</sub>e). An additional — but as yet unquantifiable — supply of forest related credits could be generated through schemes to reduce forest degradation.

Under current projections, supply and demand for carbon credits will remain very finely balanced within the first Kyoto Commitment Period, but this is heavily dependent on huge volumes of eastern European Annual Allowance Units remaining dormant and being



ASIDE FROM  
REAL CONCERNS  
SURROUNDING  
MARKET

ABSORPTION CAPACITIES, OTHER  
ISSUES, SUCH AS THE HIGH RISK  
OF CATASTROPHIC FAILURE, RAISE  
SERIOUS DOUBTS ABOUT THE ABILITY  
OF CARBON MARKETS TO EFFECTIVELY  
AVERT DEFORESTATION.

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rolled into the second Commitment Period. These so-called “hot air” units will remain as a potential supply of cheap emission allowances which might be available to satisfy much of demand in the second commitment period.

Furthermore, UNFCCC predicts that, providing the current trend is maintained for a few months to a few years, existing categories of CDM project types could cope with a 20–200% increase in demand. If true, this would be sufficient to meet a low-demand scenario without diversification into other credit-generating activities such as AD. Either way it seems quite plausible that a high proportion of future demand for offset credits could be met by currently accredited project types, especially if carbon-capture-and-storage schemes were included.

The size of the current market is not necessarily an indicator of future markets, but it is worth noting the size of the existing markets — demand for around 400 million credits per year — relative to a potential cumulative supply of around 7.2 billion AD credits (plus any credits generated for reduced forest degradation). This begins to indicate the expansion of the carbon markets that would be required for any significant number of AD credits to be absorbable. It is worth recalling that, in Phase One of the EU Emission Trading Scheme (ETS), an oversupply of only 173 Mts of credits prompted a carbon price crash in 2006, with the value of EU allowances (EUAs) declining from €30 to €10 per tonne in five days.

As an indication of the volume of potential AD credits in relation to possible future markets, the theoretical maximum supply of such credits (7.2 billion) could only be exceeded by demand if these circumstances are in place:

- Annex 1 countries commit to 80% GHG reductions during the same period of time in which the extra AD credits come into the market;
- 50% of reductions are allowable in the form of offsets; and
- all of these offsets consist of AD credits.

It is quite likely that none, let alone all, of these conditions will be met in the Kyoto II agreement. Adding the potential number of AD credits to the volume of other non-Annex 1 mitigation credits projected by the UNFCCC, (around 5,700 MtCO<sub>2e</sub> by 2030), the total volume of non-Annex 1 credits could be equivalent to 71% of the total 1991 Annex 1 country emissions. Although this is a very unlikely scenario, it indicates that, with AD included in the markets, mitigation credits could substantially reduce incentives for actual emission reductions in Annex 1 countries.

### Avoided-deforestation credits

Aside from real concerns surrounding market absorption capacities, other issues, such as the high risk of catastrophic failure, raise serious doubts about the ability of carbon markets to effectively avert deforestation. Unlike most other forms of carbon credits, those generated through AD would be subject to the risk of catastrophic failure and loss of value, such as through major forest fires. This could promote serious volatility in the market, especially if traders try to replace lost credits. AD credits would likely involve very high transaction costs associated with reliable forest carbon flux measurement and

monitoring and administration costs, all of which would drain resources away from actual investment in avoided deforestation measures. Moreover, uncertainties exist about how governments will put forest conservation into practice, how funding mechanisms would work (i.e., who would actually receive payments) and the impact such activities might have on the land rights of hundreds of millions of people who depend on forests.

Discounting the above and assuming that the inclusion of AD credits within a post-Kyoto agreement can be so as not to drastically reduce carbon prices, and that it succeeds in reducing current levels of deforestation by around 5% every year, around 188 million ha of tropical forest would still be destroyed until the rate of tropical deforestation finally drops to zero in about 25 years time (based on FAO figures for current levels of deforestation). This will release in the order of 100 billion tonnes of carbon dioxide to the atmosphere, which is equivalent to roughly six years of total Annex 1 country emissions.



### The political challenge

The concept of forest-based carbon trading should not be completely discarded, although the potential problems might indicate that it is likely to be an extremely uncertain route to mitigating the problems of tropical deforestation. It is clear that harnessing the potential of carbon trading to prevent deforestation on any scale will require some very specific and hugely challenging preconditions, not least that all Annex I countries agree to deep emission reductions. Global attention should probably be focused on ensuring that these conditions are in

fact achieved — an unprecedented political challenge in itself — rather than becoming overly absorbed with trading AD credits, which will likely be only marginally effective. To avoid unnecessary risks and maximise GHG reductions, deforestation abatement should be funded by additional emission-cap targets, and then only if Annex 1 countries agree to deep emission reductions. This would ensure that AD would both have sufficient demand for credits but also add to emission reductions and not just replace other mitigation activities.

In the meantime, there are many possible approaches to the prevention of deforestation:

- increases in official development assistance;
- fund-based mechanisms, with the funds possibly derived through some form of international taxation or a levy of, say, €0.3 per barrel on global oil sales as has been suggested by Indonesia and other OPEC countries (a scheme which could also easily be extended to coal sales);
- assigning a percentage of revenue from auctioning ETS allowances in the third phase of the ETS to a fund such as the one being considered by the EU;
- forest-backed bonds, or eco-securitisation; and
- private or philanthropic financing.

Given the continuing rapid depletion of tropical forests, financing —whatever its source — should be targeted to projects and strategies that have been shown to be cost-effective and sustainable in providing long-term forest protection. In particular, this should include securing the tenure and resource rights of indigenous and local forest-dependent communities. Development assistance and micro-finance needs to be mobilized to ensure that these communities are able to establish enterprises that support livelihoods and help strengthen their incentive to participate in long-term sustainable forest management.

### Endnote

1. This article is summary of Leach, Paul B. (2008): *Carbon Sunk*, available at [www.rainforestfoundationuk.org/Carbon\\_Sunk](http://www.rainforestfoundationuk.org/Carbon_Sunk).



## 6.4 REDD and investment

MARIO BOCCUCCI, RIZALDI BOER, ARNOLDO CONTRERAS-HERMOSILLA, JOSEFF LEITMANN, NUR MASRIPATIN AND JOHN SPEARS

### Introduction<sup>1</sup>

Modest levels of financial returns handicap the sustainable management of tropical forests. Although sustainable forest management (SFM) is profitable in many cases, seldom is it as profitable as other land uses. This results in accelerated and unsustainable harvest of forests, wasteful deforestation and forest degradation. It is not surprising that, despite efforts by many countries and the international community, financial flows to sustainable tropical forest management are no more than a slow trickle.

The fact that many of the benefits of forests, such as their environmental services, are not traded in markets and for all practical purposes have no price, clearly does not help to increase the financial attractiveness of investments in the long-term management of tropical forest resources. One of the most valuable, yet unpriced and unmarketed, services of forests is their capacity to store CO<sub>2</sub>. Not only can forests store a great deal of CO<sub>2</sub> (and other greenhouse gases) but they can do so in a relatively cost-effective way (Stern 2006). Conversely, deforestation releases great amounts of GHGs into the atmosphere: as much as 18-20 percent of all global carbon emissions, or more than all emissions from the global transport sector. Most emissions from land-use changes and forestry take place in developing tropical countries, where they are the largest source of GHGs.



PRELIMINARY ESTIMATES INDICATE THAT THE INCREASED PROFITABILITY FROM CARBON CREDITS RESULTING FROM KEEPING FOREST LANDS UNDER SUSTAINABLE MANAGEMENT WOULD BE ENOUGH TO MAKE THESE USES COMPETITIVE WITH AND EVEN FINANCIALLY SUPERIOR TO THE BEST INVESTMENT ALTERNATIVES.

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Reducing deforestation could therefore be an effective and economically efficient way to reducing carbon and other GHG emissions if forest services could be valued and forest land-owners — public, private and community entities — could be adequately compensated for them.

The UNFCCC 13th Convention of the Parties (COP 13) meeting in Bali in December 2007 worked to determine options for reducing GHGs emissions for the post Kyoto period after 2012. Reducing emissions from deforestation and forest degradation (REDD) has been proposed. From a forest management and development perspective, REDD would have major implications. REDD would offer a way to value the carbon stored in tropical forests. This would create a way to mobilize substantial financing that could allow countries now affected by high rates of forest loss to adopt effective strategies to limit deforestation and forest degradation.

Would this financing source be large enough to tip the balance in favour of avoiding forest land-use changes that lead to deforestation and forest degradation, and make SFM a financially attractive proposition? In mid-2007 Indonesia started a process of analysis and consultations to explore the benefits of a REDD scheme, determine how REDD could be put into operation as a practical mechanism for emission reductions, and be fully operational by 2012.

### The magnitude of the carbon values involved

The potential size of the global carbon market is very large. Assuming that carbon prices are in the range of €2 to 12 per tonne (current prices in voluntary markets are around €6-11 per ton) and that global emissions from deforestation could be halved, the size of the world carbon market for REDD could be in the order of €6-30 billion per year. As a comparison, the annual flow of Official Development Assistance to forestry in developing countries is around €0.9 billion per year.

Since deforestation and forest degradation result in significant CO<sub>2</sub> emissions, Indonesia has the potential to significantly benefit from REDD. If Indonesia decides to reduce its annual loss of the natural forest by, for example, half a million ha and in the process avoid emissions of CO<sub>2</sub>, the value of carbon not released into the atmosphere could be between €1,848 and €9,239 per ha. This would have an aggregate value of between €504 and €1,575 million annually.<sup>2</sup> These are considerable amounts that could be important in funding the implementation of land-uses that would reduce deforestation and forest degradation. Preliminary estimates indicate that the increased profitability from carbon credits resulting from keeping forest-lands under sustainable management would be enough to make these uses competitive with and even financially superior to the best investment alternatives.

## Access to carbon markets: key elements

Over the next couple of years the international community will have to agree on the details of the precise mechanisms that will make REDD function as an effective scheme to reduce deforestation. In preparation for COP 13 Indonesia formed the Indonesian Forest Climate Alliance to analyze how a REDD scheme could operate in practice.

These are the elements of a value chain required to produce carbon credits from REDD-related activities in Indonesia:

- a. a baseline for future levels of deforestation, forest degradation and associated emissions that would occur in the absence of REDD (under a business-as-usual scenario);
- b. the development of strategic actions to reduce deforestation and forest degradation below the baseline;
- c. monitoring actual changes of forest cover with sufficient precision to ensure confidence in the extent of the resulting carbon emission reduction;
- d. developing a structure to manage the sale of carbon credits; and
- e. developing a structure to distribute revenues from the sale of carbon credits to those responsible for achieving emission reductions.

## Setting a baseline

A baseline produces estimates of deforestation and forest degradation that would have taken place in the future in absence of REDD activities. An agreement on the operational definitions of deforestation and forest degradation is required to allow these elements to be quantified.<sup>3</sup> These changes then need to be translated into total emissions using emission factors, e.g., tonnes of CO<sub>2</sub> emitted per ha of converted land. There are at least five types of in-forest carbon pools: above-ground biomass, below-ground biomass, dead wood, litter and soil, with a sixth (harvested wood products) under discussion. There is a need to define in detail which carbon types will be included in REDD. In Indonesia, for example, carbon emissions from deforestation of peat soils can be substantial.

Although various models to project future deforestation in absence of REDD actions have been tested, there is still a need to agree on which methodology should be employed in projecting future deforestation and degradation.

## Development of strategic actions

Clearly, initiatives for the reduction of future deforestation and forest degradation will vary from country to country and between regions and localities within a country. It is useful to differentiate between planned deforestation (which serves the needs of industry, farming communities, etc. and will therefore continue to be sanctioned by government) and unplanned deforestation (which takes place because of encroachment and various other illegal uses of forest lands). Both types of deforestation and forest degradation have different underlying drivers and require different control strategies.

### Monitoring changes in the forest resource base

Under a REDD mechanism, countries will need to show credible reductions in emissions from deforestation and degradation measured against a baseline at specific intervals. The IPCC has provided guidelines for measuring these changes at various levels of precision and developing a balance sheet of the various types of carbon. The critical demand here is for the country to develop a sufficiently accurate method and corresponding institutions to measure these changes over time.

### Developing a structure to manage transactions of carbon credits

There is considerable uncertainty about how a carbon credit market for reduced emissions from deforestation will be established. Many of the possible structures for a REDD carbon market depend on the type of international agreement that is reached. Fundamental questions in this respect are yet to be answered:

- whether the agreement is at the international level or whether, in its absence, a voluntary market would spontaneously develop;
- if an international agreement is reached, whether the financial mechanism will be based on a fund or the creation of a regulated international market for trading carbon credits;
- whether REDD credits will be interchangeable with other types of credits in carbon markets, or whether they will be governed by an exclusive protocol; and
- which scenario will be used for computing credits and releasing payments.



### Mechanisms to distribute revenues

An effective REDD mechanism will require appropriate rewards for those who undertake initiatives to reduce deforestation. This in turn will demand institutional arrangements. In the case of Indonesia this will require, among other things:

- a clear understanding of whether the sellers are the central government or subnational governments;
- how funds will flow to recipients (for example, through regular budget allocations or the creation of an independent institution);
- the criteria to follow in financial allocations (whether they will be strictly determined on the basis of carbon credits produced by those who avoid deforestation or whether other criteria such as poverty alleviation will enter into the equation);
- forms of payments and timing (for example, whether they should be a lump sum or paid in intervals, whether they are paid to individuals or groups, and whether they are paid on a cash or non-cash basis);
- the legal and institutional structures that will be needed to efficiently manage the scheme; and
- how to manage the various risks involved in governance, permanence, leakage and project structure, especially issues related to unclear land ownership and associated conflicts, an important aspect in Indonesia.

Resolving the question of which mechanisms are preferred will need to take into account the effectiveness and efficiency levels that can be achieved in each case and the likely transaction costs.

## Conclusion

The creation of a global REDD mechanism would offer an unprecedented opportunity to substantially expand the financing provided to forest management initiatives in countries now affected by substantial levels of deforestation and forest degradation. It provides the additional advantage that financing would be given only to successful cases rather than to merely hopeful cases which may or may not produce concrete results (which characterizes much of ODA today). At the same time REDD would impose new demands on forest governance in these countries.

## Endnotes

1. Disclaimer: The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colours, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

The findings, interpretations, and conclusions expressed herein are those of the authors and do not necessarily reflect the views of the Executive Directors of the World Bank or the governments they represent, or those of the other organizers of the conference.

2. This assumes a carbon retention of 200 tonnes per ha and the previously mentioned potential price range between €2 and €12 per tonne of CO<sub>2</sub> and 1 tonne of carbon equivalent to about 3.6 tonnes of CO<sub>2</sub>.
3. The 2006 IPCC Guidelines for National Greenhouse Gas inventories for Agriculture, Forestry and Other Land Uses (AFOLU) and the 2003 IPCC Good Practice Guidance for Land Use, Land Use Change and Forestry (GPG-LULUCF) define methods for the various land-use categories and conversions.

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## 6.5 REDD and reduced-impact logging

FRANCIS E. PUTZ AND PIETER A. ZUIDEMA

The biggest news in tropical forestry is that tropical forestry is hardly in the news; forest destruction: yes, forest management: no. Biodiversity also seems to have lost its audience. Although there are ongoing campaigns to curtail illegal logging, certification does seem to be influencing forest management practices in an ever-increasing area, and efforts to limit the trade in endangered species are having some effect. Unfortunately, despite the many environmental and social benefits of switching from log mining to rational management for timber and ecosystem services, the importance of tropical forestry is being downplayed during negotiations on a new international climate-change agreement.

In contrast to the Kyoto Protocol — in which the only role of forestry is in plantation creation by reforestation and afforestation — the new United Nations Framework Convention on Climate Change (UNFCCC) being designed to replace the Kyoto Protocol in 2012 may recognize the climate benefits of reducing emissions from deforestation and forest degradation (REDD). Unfortunately, in too many UNFCCC-related documents and discussions, the second “D” (for degradation) is downplayed or dropped. Admittedly, deforestation is a looming and seemingly obvious threat whereas degradation comes in many guises. Carbon losses from forest degradation are also a bit trickier to measure than those from deforestation, at least from satellites (but see Gibbs et al. 2007). Nevertheless, more forests are degraded by poor logging, poaching and low-intensity wildfires than are cleared outright (e.g., Nepstad et al. 1999; Asner et al. 2005; Oliviera et al. 2005; Broadbent et al. in press). Foresters know how to rectify this situation, but few of them have places at the climate change convention negotiating table and their voices are not being heard.



IN SELECTIVELY  
LOGGED TROPICAL  
FORESTS, HARVEST  
OPERATION

PLANNING, WORKER TRAINING,  
CREW SUPERVISION AND OTHER  
RIL PRACTICES SAVE WORKERS'  
LIVES, MAINTAIN BIODIVERSITY  
AND ECOSYSTEM FUNCTIONS, AND  
AUGMENT FUTURE TIMBER YIELDS.

To a certain extent, degradation is in the eye of the beholder: well-intentioned silviculture interventions are sometimes looked on as forms of degradation by ardent old growth forest defenders. That being said, most everyone agrees that destructive logging is a major cause of tropical forest degradation. While forest management should be one component in a diverse portfolio of conservation options, the controlled harvesting of 100- to 200-year-old trees from natural forests as conservation may be difficult to accept. But a reality check is in order: logging of much of the remaining natural forests in the tropics is simply not stoppable, at least not everywhere. Forest-rich tropical countries, forest-owning but otherwise impoverished rural communities, private non-industrial forest owners, and concessionaires have too much to gain to stop harvesting. So, if logging is going to continue in huge areas of tropical forests, what will it take to make loggers adopt reduced-impact logging (RIL) practices?



RIL encompasses well-established practices such as directional felling and log yarding along pre-planned trails (for a review see Putz et al. in press). Unfortunately, even though such practices substantially reduce damage to soils and residual stands, and save the lives and limbs of forest workers, they are rarely used in the tropics (ITTO 2005). The persistence of poor

logging practices has many explanations, but the scarcity of logging academies, the lack of incentives and the excessive profits from conventional practices top the list.

There is reason to hope when REDD is on the UNFCCC bargaining table. Given forests' ability to sequester carbon, funding should become available to change the way that tropical forests are treated. Positive developments would include expanded opportunities for training in sound logging practices, the professionalization of tropical forest workers, and REDD incentives for improved forest management that are real, additional and verified. Unfortunately, too many climate change convention negotiators seem to think that preservation or "fortress conservation" is the only way to maintain biodiversity and the many other benefits of tropical forests. Well-protected forests in national parks and other inviolate reserves do indeed retain a great deal of carbon, which is the currency in these negotiations. But substantial amounts of carbon can also be retained in living and growing trees where RIL practices are applied in the huge areas destined for logging.

Based on data from large experimental plots in which forest carbon stocks were monitored after RIL and conventional logging (Pinard and Cropper 2000; Keller et al. 2004), it can be conservatively estimated that 0.16 billion metric tonnes of carbon would be kept out of the atmosphere each year if RIL were practised in the 350 million hectares of tropical forest officially designated for forest management (Putz et al. in press). This mass of carbon is equivalent to about 10% of what would be saved from halting deforestation but comes at a much lower price.

In selectively logged tropical forests, harvest operation planning, worker training, crew supervision and other RIL practices save workers' lives (ILO 1990), maintain biodiversity and ecosystem functions, and augment future timber yields. Whether it also saves loggers' money depends on site conditions and perspectives. In the short-term and strictly financial sense, RIL is generally more profitable than conventional logging if logging is carried out on fairly level and otherwise accessible land (Holmes et al. 2002). Given rising diesel costs, the financial benefits of efficient deployment of skidders and adoption of other RIL practices will only increase. In contrast, where the layout of extraction paths is constrained by steep or otherwise adverse terrain, the financial benefits of RIL are lower, at least from the perspective of loggers (Healy et al. 2000). Where forest workers and beneficiaries of forest ecosystem services (such as carbon sequestration and maintenance of hydrological functions) are concerned, RIL is always economically preferable to conventional logging (Applegate, Putz and Snook 2004). The financial variation related to RIL is one reason why so few loggers have spontaneously adopted it. The scarcity of training facilities and trained workers is also an impediment to changing the culture of logging.

When the majority of tropical forests are managed and not ruthlessly exploited for timber, voluntary adoption of RIL practices might be widespread but, in the meantime, financial incentives for making the switch are needed. One source of this funding is through REDD: compensation for the additional carbon retained by logging the same volumes of timber but in a responsible way. Given the price of carbon on the Chicago Climate Exchange, those 0.16 billion tonnes are worth about €27 million per year, more than enough to train and supervise a professionalized corps of tropical forest managers. Furthermore, the benefits of RIL-carbon are unlikely to "leak" away because the loggers continue logging and enjoying profits at least as high as when their crews worked unsustainably. In contrast, there are reasons to be concerned about what halted foresters will do with their carbon compensation money.

When well-planned selective logging operations are carried out by trained crews, residual forests retain more biodiversity, ecosystem services are maintained, future timber yields are enhanced, and fewer workers are injured or killed (Meijaard et al. 2005). Unfortunately, RIL is a hard sell in negotiations dominated by international conservation groups with portfolios of conservation strategies that include only a "fortress" preservation option. As the world urbanizes and fewer people have experience working in the woods, it will undoubtedly get harder to convince even well-meaning environmentalists that chainsaws can also be conservation tools. Admittedly, with their ranks swollen by illegal and fly-by-night operations, tropical loggers are justifiably vilified. That said, logging will continue and a great deal will be lost if the working forests of the tropics and the people who work them continue to be disregarded in climate change negotiations. The concerted voices of tropical foresters need to be heard during each and every negotiating session leading up to the UNFCCC COP 15 in Copenhagen in December 2009.

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## 6.6 Financing CFM through REDD

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The Technology and Sustainable Development section of the Clean Technology and Environmental Policy Group, University of Twente, is working on a project financed by Netherlands Development Cooperation entitled “Kyoto: Think Global, Act Local” which will run from 2003 to 2009. The project is investigating the potential for carbon finance to support community forest management.

### REDD policy

Reducing emissions from deforestation and degradation (REDD) would provide financial support to countries that are able to bring down their rates of deforestation, in respect to the carbon emissions avoided. REDD also includes reduced degradation; if degradation is ignored, there is a significant risk that countries will stabilise their loss of forest area (deforestation) but switch to unsustainable extraction forest products in the remaining forest, lowering biomass densities and carbon stocks there instead.<sup>1</sup>

There are still many uncertainties about what form REDD policy will take, not least whether the funds will be derived from selling credits in a market system (as with today’s CDM) or will be voluntary contributions from the industrialised countries, administered as a multi-lateral fund. A more fundamental issue has not yet been subject to much discussion: whether community forest management (CFM) could be a recipient of any such funds. CFM can reduce emissions from forest degradation in a cost-effective manner, at least in forests which have a relatively low commercial value such as savanna woodlands and temperate mountain forests in the tropics. This being so, then carbon funds should in principle be available, and could provide a valuable support and incentive to such activity in the future.



THE UNDERLYING  
GOAL OF THE  
PROJECT IS INCOME  
GENERATION

AND BROADENED LIVELIHOOD  
OPPORTUNITIES FOR PEOPLE WHO  
DEPEND ON FORESTS, WHILE  
ENCOURAGING SUSTAINABLE FOREST  
MANAGEMENT.

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## Degradation and carbon emissions

Degradation in rainforests is associated largely with commercial exploitation of timber (selective logging) — legal or otherwise — although it is often followed by deforestation as a result of agriculturalists moving in along timber access roads. It may be partially visible in satellite images and some statistics may be available, at least to the extent that the logging is legal. To reduce degradation requires instruments directed to the relatively small number of actors involved; this includes incentives to the companies for more sustainable logging practices, and better enforcement of regulations. The opportunity costs may be high, however, given the value of the timber.

In savanna forests and the temperate mountain forests of the tropics, on the other hand, degradation is most commonly associated with poverty. It results from the subsistence activities of local populations:

- shifting cultivation in cycles too short to allow the forest to recuperate naturally;
- firewood and charcoal extraction;
- grazing;
- collection of fodder; and
- burning for hunting.

These activities are not concentrated in specific areas and are difficult to detect in satellite images. In addition, they are spread out over large areas and long-time periods, and, being in the informal sector, are not recorded anywhere. Large-scale timber extraction is limited in these ecosystems by the fact that valuable logging species are thinly spread. Generally the opportunity costs in such forests are much lower than in rainforests.



Emissions from degradation of dry forests as a result of these activities have not been included in global estimates of emissions due to deforestation. As noted, this kind of degradation is not easily visible in satellite images; also, very few developing countries have detailed forest inventory data on changing carbon stocks over time (FAO 2006). The degradation losses for seven largely-dry-forest countries in sub-Saharan Africa was roughly estimated, based on observed off-take rates and secondary data on mean annual increments (Skutsch et al. in press). Although CO<sub>2</sub> loss due to this degradation is only 0.9–2.3 tonnes/ha/year, it totals 178 million tonnes for the seven countries, which is more than the official estimate of emissions resulting from

deforestation (154 million tonnes). Although the figures are very approximate, the point is clear: in dry forest areas, degradation may be at least as important as deforestation in carbon terms. Clearly, REDD policy will have to address this problem.

## Community forest management

Community forest management (CFM) was introduced in the 1980s in a number of countries (e.g., India, Nepal) and in the 1990s in many others (e.g., Mali, Tanzania) as a means of combating deterioration of state forests by giving the local populations both rights to and responsibilities for their management. In most cases CFM does not involve much silviculture work other than fire control; instead, bylaws limit and ensure fair distribution of off-take of forest products such as firewood and fodder. It has been quite successful in many places, particularly in areas where the timber value of forest is relatively low. In Nepal, for example, it has been much more successful in the hills than in the *terai* (plains), where the potential profits from illegal timber sales make local control difficult. Large areas of dry tropical forest have low opportunity values and are thus good candidates for CFM. In principle it is more suited to combating degradation than deforestation, since returns are relatively low and may not be able to compete with other land uses, such as full-scale clearance for commercial agriculture.

The “Kyoto: Think Global Act Local” project<sup>2</sup> has investigated the feasibility and cost-effectiveness of training local people already engaged in CFM to map their forests and measure annual carbon stocks. The project encompasses approximately 20 sites in six countries, including mountain forests in India and Nepal and savanna forests in Africa. Annual increases in carbon stocks due to CFM at these sites are in the range of 1–3.5 tonnes/ha for mountain forests and 0.5–1.5 tonnes/ha for savanna forests, equivalent to around 3.5–12.5 and 1.5–5.5 tonnes/ha/year CO<sub>2</sub> respectively. Emissions avoided should also be included (because the forest has not been allowed to degrade) and could conservatively be estimated at 3.5 tonnes CO<sub>2</sub> per ha/year.

It is not yet clear how much this carbon would be worth on the world market (currently CO<sub>2</sub> from CDM projects is valued at €5–20 per tonne), and there would of course be overhead costs involved in independent verification and trading, but costs of the forest inventory as undertaken by local people are estimated to be around only €2–3 per ha/year. Even at the forest-gate price of €2 per tonne CO<sub>2</sub>, CFM would make economic sense. It could bring a new source of income to the communities involved and encourage others to start.

## Policy requirements

For this kind of finance to become a reality, a number of conditions must be in place:

1. Forest degradation must be explicitly recognised in REDD policy as a major contributor to emissions, and accounted for separately from deforestation. Ground-level measurement of carbon stocks should be a requirement for any claims for avoided degradation.
2. Degradation as well as any increases in carbon stocks that result from improved management of the forest should be credited.
3. The ownership of the carbon credits should be clarified in law and vested in the stakeholders responsible for forest management. Carbon “tenure” must be secure.

4. Communities living in the vicinity of forest areas who do not yet practise CFM should be encouraged to do so; the carbon premium may be used as an incentive. Forest-dependent peoples' access rights to the forest need to be explicitly recognised and protected.
5. If REDD funds will be paid by a central international agency to governments on the basis of average national reductions in emissions from deforestation and degradation, countries must be required to develop transparent systems of monitoring and for administration of payments under REDD to stakeholders such as communities.

These issues need to be taken into account in the ongoing discussions which are taking place in preparation for a decision on REDD at COP 15 in December 2009.

### Endnotes

1. Under UNFCCC definitions deforestation occurs only if canopy cover falls below a given cut-off point (e.g., 20%); thus clearance down to 21% would not be included.
2. See [www.communitycarbonforestry.org](http://www.communitycarbonforestry.org).

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## 6.7 The utility value of rainforests

MANDAR TRIVEDI, ANDREW MITCHELL AND NIKI MARDAS

### A case study in Iwokrama, Guyana

Growing evidence suggests that deforestation will have a significant impact on the global hydrological cycle (Pielke et al. 2002) and the carbon cycle. Although the latter is the focus of most international policy concern, the former also provides a rationale for remedial action to curb deforestation and promote the conservation of the world's tropical forests. The future security of the world's forests rests on accounting for the immense climatic and hydrological value of tropical forests in global markets, rather than on simple carbon arithmetic.

Economic development in the Amazon Basin is underpinned by the production and export of commodities such as soy and beef, entailing the destruction of the rainforest and savanna. Climate models suggest that these expanding agribusinesses could eventually damage more established agribusinesses in the bread baskets of both North and South America by curtailing the rainfall exported from the Amazon on air currents (Werth and Avissar 2002; Da Silva et al. 2008). Since rainfall is a global public good, nations such as Brazil have no right to charge foreign downwind beneficiaries for this service. Recent political and financial events may, however, eventually change this situation.



THE CANOPY  
CAPITAL/  
IWOKRAMA DEAL  
OPENS THE WAY

FOR FINANCIAL MARKETS TO PRICE THE  
“UTILITY VALUE” OF RAINFORESTS. IN  
ORDER FOR SUCH MARKETS TO WORK,  
HOWEVER, GOVERNMENTS MUST STEP  
IN TO DESIGN THE RULES BY WHICH  
THEY OPERATE.

### Potential market-based solutions to biodiversity loss

The Biodiversity and Ecosystem Finance conference in New York in March 2008 brought together biodiversity experts and bankers in a bid to correct the market failures that are leading to extinctions, habitat conversion and climate change. The conference represented a milestone in discussions on the funding to tackle global environmental change. Years of research by environmental and ecological economists, leading up to the landmark Millennium Ecosystem Assessment (2005), have established the importance of biodiversity

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Mandar Trivedi, Andrew Mitchell and Niki Mardas are with the Global Canopy Programme.<sup>1</sup>

and associated environmental or ecosystem services (ES) to human well-being. ES continue to be degraded, however, often due to failures of information and of markets, or to perverse incentives (Balmford et al. 2002). Conference delegates provided many examples of how these problems are being overcome, often through partnerships between rural communities, governments, NGOs and the private sector.

Efforts to quantify and economically evaluate services such as watershed protection, water filtration and sediment control have enabled them to be priced through markets, donor programmes and government instruments. Regulation and corporate social responsibility have generated markets for biodiversity and wetland offsets, which permit developers to damage certain habitats in return for conserving similar ones elsewhere.<sup>2</sup> The need to mitigate climate change across all sectors has given rise to the possibility that a regulated market or fund will be created for avoided deforestation, known as Reducing emissions from deforestation and degradation (REDD). Forest-owning nations, sub-national governments, NGOs and private investors are already planning in anticipation of this new market. Research and development has calculated the carbon footprints of commodities such as soy and palm oil grown on former rainforest land (Righelato and Spracklen 2007) and designed more sustainable alternatives, while assessing the costs of protecting forests with carbon finance (Stern 2006). While these trends give cause for optimism, many obstacles related to tropical forest conservation still need to be overcome.



### A new system to value and price standing forests

One of the main sticking points during the REDD negotiations in Bali was that some countries, such as Costa Rica and India, might not be compensated for past conservation of their forests, while others with low historical deforestation rates such as Guyana would not qualify for REDD payments. Unless REDD is carefully negotiated and constructed, therefore, it could create perverse incentives for countries to deforest. Fonseca and colleagues (2007) have proposed a system of preventive carbon payments for countries with high forest cover and low deforestation rates (HFLD) as a potential remedy. This would be a form of large-scale Payments for Environmental Services (PES) for the carbon stored in standing forests. The long-term aim of REDD should be to reduce deforestation to zero, at which point all payments will be for the maintenance of carbon stocks in standing forests.

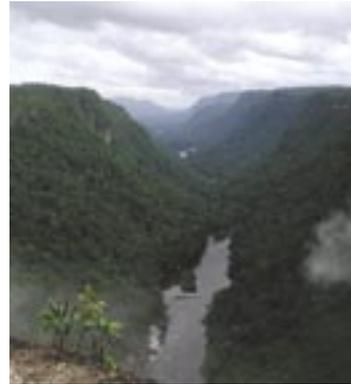
If a large-scale PES for ecosystem services such as rainfall and conserved carbon were to emerge and eventually succeed REDD, then early investors could stand to make profit – having bought low and sold high. This is the bet made by a group of wealthy individuals in a bid to help protect the Iwokrama Reserve in Guyana, an HFLD country with low potential for REDD and afforestation/reforestation.

### Driving capital to the rainforest canopy

In a deal announced at the New York conference, these investors have bought into a private-equity company called Canopy Capital, which in turn has paid for the rights to market the ecosystem services produced by the 371,000-ha Iwokrama rainforest. According to the deal, these services include rainfall generation, climate regulation, biodiversity maintenance and water storage. Given to the Commonwealth for research into sustainable forest management, the reserve lies at the heart of the Guiana Shield, one of the four intact rainforest systems left in the world.

Funds already secured from Canopy Capital will be used to continue the management of the Iwokrama forest in accordance with its philosophy of conservation through sustainable best practice. This provides livelihoods and business partnerships for the 7,000 Makushi people who live in the forest and the surrounding area. Income from the deal will help to make Iwokrama financially independent of institutional donors by 2010 in accordance with the reserve's business and research plans. In the longer term, 90% of any investment gains will go to Iwokrama.

Canopy Capital is exploring various approaches to securing substantial investment in ES. In particular, it is looking at marketing ES through an Ecosystem Service Certificate, which is attached to a ten-year tradable bond. The interest from the bond will pay for the maintenance of the Iwokrama forest.



### Future potential and needs

The Canopy Capital/Iwokrama deal opens the way for financial markets to price the “utility value” of rainforests. However, in order for such markets to work, governments must step in to design the rules by which they operate. The discussions over whether and how to include avoided tropical deforestation within the UN Framework Convention on Climate Change (UNFCCC) have been lengthy and tortuous, which does not bode well for the creation of a separate mechanism for the trading of global ES. However, the Convention on Biological Diversity (CBD) could provide the right platform for countries like Guyana to place their natural capital on the global accounting book.

The key scientific issues to overcome are to demonstrate the value of ES, both regional and global, and to create methods to monitor them. Politically, nations must be convinced to create a mechanism for proactive investment in the ecosystem services delivered by standing forests. That will be cheaper than dealing with the costs once these services are lost.

## Endnotes

1. The authors thank Hylton Murray-Philipson of Canopy Capital and Edward Glover of the Commonwealth Foundation/Iwokrama. The Global Canopy Programme, a UK charity dedicated to the research and preservation of tropical forests, has a stake in Canopy Capital.
2. See [www.ecosystemmarketplace.com](http://www.ecosystemmarketplace.com).

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## 6.8 The energy sector and SFM finance

PETER READ

### Introduction

The energy sector must invest in sustainable forest management for reasons of equity and necessity. Sustainability means that, in the face of threats of climatic catastrophe, a very-large-scale expansion of commercial forestry is crucial to the prospect of global climatic sustainability. It also means that the forestry activity must be conducted in a sustainable way. No other activity besides forestry can deliver such climatic sustainability while providing a commercial product. In addition, no other source besides the energy sector can generate finance on the scale that is necessary for climatic sustainability. It is, in fact, the historic activity of the energy sector that has given rise to the present threat of climatic catastrophe (Rignot and Kanagaratnam 2006; Hansen 2007), and its business-as-usual activity continues to exacerbate the problem.

### Carbon removals

An effective climate strategy must respond to the threat of passing a tipping point in climate change. This involves going beyond emission reductions to global, large-scale carbon removals through enhanced photosynthesis and improved land-use practices that siphon off a proportion of the carbon and store it safely. The potential of this strategy has been assessed by an experiment (Read and Parshotam 2007) that simulated the deployment of three changes in land-use technology over 25 years on very large areas of land, totalling 2.38 billion hectares (GHa). This area was reported by the FAO (Bot, Nachtergaele and Young 2000) to be potentially arable land not currently in commercial use. Land-use technology refers to the choice of plant, the management of its growth and harvest, the transport and processing of the crop, and the disposal of residual biomass. The three selected crops were eucalypt plantation forestry throughout the world, sugarcane plantations in tropical latitudes, and switchgrass plantations in temperate



THE PROPOSED  
INVESTMENT  
DEVELOPS A  
STRATEGIC STOCK

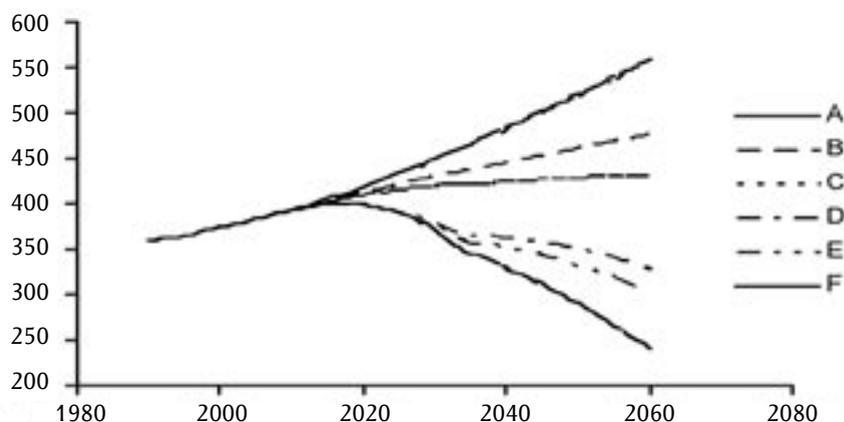
OF BIOMASS RAW MATERIAL THAT WILL  
ENABLE THE ENERGY SECTOR TO ESCAPE  
ITS FOSSIL FUEL DEPENDENCY.

latitudes. These all involved the supply of food or (in the case of forestry) fibre, along with liquid fuels and electricity produced respectively from the residual biomass.

In the experiment, terrestrial safe storage – safer at least than a continued excess stock of atmospheric CO<sub>2</sub> – involved the capture of CO<sub>2</sub> and its storage in deep strata, such as saline aquifers (CCS) with both CO<sub>2</sub> emissions from fermentation (low cost) and from power generation flue gas (high cost), as well as some solid-state carbon in the form of bio-char soil amendment. Linking bio-energy with CCS (BECCS) or with bio-char, results in negative emissions energy system providing the carbon balance of the bio-energy system is sufficiently positive (i.e. it displaces sufficient fossil-fuel use in the energy sector to offset any fossil fuel used in production). Alternative storage might also be achieved by simply storing biomass anaerobically in pits in the soil,<sup>1</sup> from increased use of timber in construction, or other possibilities.

By far the most immediate impact on the CO<sub>2</sub> level comes from creating new forestry plantations on previously unforested or deforested land (see Figure 1).<sup>2</sup> With the exception of forestry, all of the crops are taken annually from perennial plant species and thus provide an immediate supply of food and/or fibre plus bio-energy raw material. Because of their year-by-year cropping and use, the CO<sub>2</sub> absorbed by photosynthesis is partly re-emitted in the same year, which limits their effectiveness in carbon removal. With forestry, however, no crop is taken until the first planted stands mature (with an assumed rotation of 25 years). Therefore, for this initial period, all of the photosynthesized carbon is locked up in growing forest biomass. This illustrates the great effectiveness of forestry in removing carbon from the the atmosphere.<sup>3</sup>

**Figure 1. Simulated carbon removal (in tonnes per ha), 1980–2080**



- A SRES-A2
- B SRES-A2 with sugarcane land-use change
- C SRES-A2 with sugarcane and switch-grass land-use change
- D SRES-A2 with sugarcane, switch-grass and forestry land-use change
- E SRES-A2 with three land-use changes and low-cost CCS
- F SRES-A2 with three land-use changes, high-cost CCS of fermentation and flue gas CO<sub>2</sub>

## Energy-sector financing

For this reason a global carbon removal strategy must focus on stimulating the worldwide development of the vast forestation programme in Figure 1. The ways in which such global cooperation might be brought into being (in parallel with the continuation of a Kyoto-style cap and trade to reduce emissions) is discussed elsewhere (Read 2008). A policy instrument is needed that can bring about the financing of this initiative with funds derived ultimately from the energy consumer.

Such an instrument will not be a tax on carbon because that instrument is already being used to drive emission reductions, and for reasons of effectiveness. The prices that matter, for an investment in forestry related to carbon removals, are the prices on carbon in each year of growth. This yields a cash flow related to the growth pattern of the planted trees, together with the prices at maturity for carbon and for timber and residual woody biomass. Today's prices for carbon, timber and biomass are a poor guide to future prices, creating risk and leading to under-investment. As is becoming increasingly recognized in climate policy, mandates or obligations on fuel suppliers, such as renewable portfolio standards, are needed to create investment certainty. Examples include the biofuel mandates adopted in a number of countries in the face of risky oil-supply prospects, which are increasingly relevant to climate objectives as the need increases for sustainability criteria to be applied to mandated biofuels.



Planting 40 million ha on a 25-year rotation that reaches 400 tonnes of biomass per ha ( $\sim 200\text{tC}$ )<sup>4</sup> at maturity would absorb 0.32 Gt C annually, with an eventual gain of 8 Gt C. Repeating the planting each year for 25 years would lead to 1 GHa of plantations in total and 8 Gt C being absorbed annually by the time the 25th plantation is established, roughly equivalent to global fossil-fuel extraction. A simple mandate for extractors of fossil fuels to invest in projects that, over 25 years, absorb the fossil carbon they extract could lead to forestation on the scale suggested in Figure 1; it could also lead to a carbon neutral energy-forestry system by 2035. Alternatively, extractors may opt to bury forest wastes (see endnote 2) or amend biochar soil using, for instance, biotic urban wastes as feedstock. For efficiency, the mandate would both be tradable (so it could be contracted to the most cost-effective forest operator) and technology free. If burying dead and rotten wood from forest floors at  $\text{€}8/\text{tCO}_2$  with no saleable product had a lower net cost than forestry options with prospective sales of timber and biomass, then plantation forestry would wait until all options for burying forest wastes had been taken up.

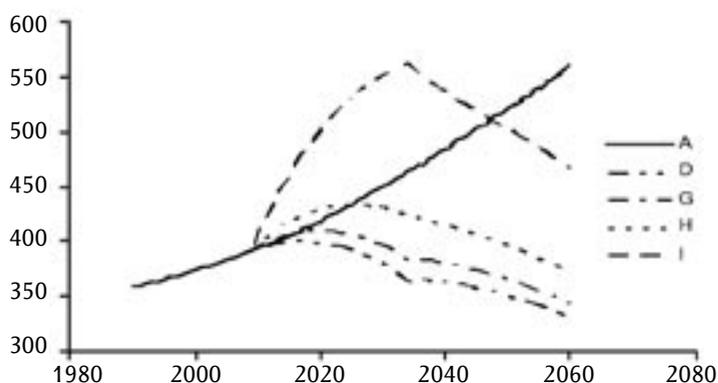
Of course, forestry investment on this scale would swamp any expansion of plantation forestry in the traditional course of forest industry operations. The question of whether a particular plantation investment financed by energy sector funds would have taken place anyway, as a conventional forest industry investment, becomes moot and the issue of additionality does not arise.<sup>5</sup>

## Sustainability

Projects could include agro-forestry activities with multiple values (such as bio-diversity conservation and countering desertification). Such initiatives would need to demonstrate synergies between food and biofuel production to counter the food-versus-fuel concern that has been raised. Consistent with the scale of carbon removals implicit in Figure 1, however, the bulk of forestry plantations would include fast-growing species, including nitrogen fixers such as acacia, varied to achieve resilience through resistance to diseases and infestations (such as the pine beetle that has infested the forests of British Columbia) and at a range of scales to suit local circumstances. Soil requirements for successful forestry are less demanding than those for arable land and much of the proposed eventual ~1GHa of new plantation land would come from degraded former forest land logged over in past decades, or from savannahs unsuitable for food production and fenced off to exclude browsing animals.

An additional concern relates to the “carbon debt” created by soil disturbance and other activities during land-use change (Fargione et al. 2008). This has arisen most strikingly in Indonesia with the conversion of mature tropical rainforest to palm oil plantations for bio-diesel. The conversion has led to a result similar to line A of Figure 2. Clearly, this would be highly counterproductive in terms of responding to the threat of catastrophic climate change. Thus the sustainability criteria for initial land-use improvements must include specific best-practice guidelines. These should include requirements to bury all cleared woody vegetation, provide for anaerobic digestion of soft vegetation (returning residual digested material to the land to restore the level of soil organic matter), and provide for no-till or minimum till where planting is required. Figure 2 indicates that the carbon-debt problem is minor if release can be kept below 30 tC per Ha.

**Figure 2: Bio-energy with CO<sub>2</sub> release (in tonnes per ha), 1980–2080**



- A SRES-A2
- D SRES-A2 with sugarcane, switch-grass and forestry land-use changes
- G SRES-A2 with three land-use changes and 30 tC per ha released
- H SRES-A2 with three land-use changes and 90 tC per ha released
- I SRES-A2 with three land-use changes and 300 tC per ha released

## Conclusion

In the event that the international community begins to address the threat of catastrophic climate change seriously, the forestry sector needs to be prepared to gear up its scale of operations in an order of magnitude increase in the finance provided to new plantation forestry. Placing obligations on fossil-fuel suppliers which lead them to invest in forestry plantations will not necessarily result in success, however. Social and cultural resistance to changing the landscape may be greater than the benefits of sustainable rural development and improved living standards available through revenues from carbon removal. In such cases, other ways of discharging the obligation would be sought, such as BECCS or biochar soil amendment using non-forest-related biomass. What is clear is that to the extent that a forestry-based carbon removals programme is possible, the sooner it is begun the sooner will it have an impact on the threat of catastrophic climate change.

## Endnotes

1. Recent papers (Zeng 2008; Scholz and Hasse 2008) suggest that dead and rotting wood in forests worldwide that would otherwise be oxidized to CO<sub>2</sub> within a decade or so could be buried at low cost, safely storing carbon that would otherwise be emitted to the atmosphere.
2. Figure 1 shows the major early impact in the difference between line D and C. The top line (A) is a business-as-usual scenario; this, as has become apparent since the scenario was published, substantially underestimated the rate at which emissions would grow after 2000 (Raupach et al. 2007). Line B and line C show the impact of first introducing sugarcane and switchgrass, while lines E and F show the additional impact of low-cost CCS related to fermentation CO<sub>2</sub>, and high-cost CCS. Both these processes are initiated some years into the simulation, by which time it is assumed that increased policy urgency will have arisen.
3. At the time of the first harvest of the oldest stand, the area occupied is replanted, and so on in successive years to create a “normal” forest with equal areas of all ages in the rotation and an average age of half the rotation length. This provides a permanent storage equal to half the potential storage were the whole forest grown to maturity and conserved in that state (as permanent, that is, as the policy that drives the carbon removals programme). During the Kyoto Protocol negotiations, the opponents of forestry offsets advanced the specious argument that fossil fuel emissions avoided were in some way more permanent than carbon removals into managed forest. In reality both are equally impermanent since the fossil fuel will be extracted, just as the forest will be harvested without replacement, in the event that policy drivers are removed. (Of course, forest fire hazard needs to be guarded against by planting an additional area as insurance).
4. At 500 m on moderate soil ~40° South in New Zealand, *Pinus radiata* yields 156.1 above ground live biomass, 34.1 below ground live biomass, 7.3 dead woody litter, 11.9 fine litter = 209.3 tC/Ha total after 20 years. Faster growth rates are achieved with eucalypts and other fast growing species in tropical and sub-tropical conditions.
5. Under the Kyoto Protocol emission reductions projects only receive credit if they are “additional” to a baseline; i.e., if they would not have been undertaken without a carbon credit for the additional emissions reduction they generate. Apart from disadvantaging the good behaviour of those who would have acted in an emission-reducing manner under the baseline, this arrangement introduces incentives for parties involved in a project to falsely claim additionality, e.g., through deceptive baseline definitions, leading to the need for burdensome project documentation and monitoring, with high transaction costs and very limited take-up of forestry opportunities.

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Established in 1991, the European Tropical Forest Research Network (ETFRN) on forests and development aims to ensure that European research contributes to conservation and sustainable use of forest and tree resources in tropical and subtropical countries.

ETFRN promotes a dialogue between researchers, policy-makers and forest users, the increased coherence of European tropical forest research, and the increased collaboration with researchers in developing countries through partnerships and other forms of capacity building.

ETFRN provides a range of services, including ETFRN News, which comprises theme-based issues on research relevant to the international development agenda. This issue of ETFRN News provides information on current research and policy relevant to financing mechanisms for sustainable forest management.

The mission of Tropenbos International (TBI) is to contribute to the better use and governance of tropical forests for the benefit of people, conservation and sustainable development. By making knowledge work for policy and practice TBI contributes to well-informed decision making for improved management and governance of tropical forests. TBI's longstanding local presence and ability to bring together local, national and international partners make it a trusted partner in sustainable development. TBI is ETFRN's coordinating member and national focal point in the Netherlands.

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