Background Paper on Means of Implementation

(Contribution by PROFOR to discussions at UNFF-7, April, 2007)

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This background paper was commissioned by the Program on Forests (PROFOR) in response to the outcomes of the Sixth Session of the United Nations Forum on Forests (UNFF-6). The paper is intended to inform ongoing discussions within the UNFF by providing expert opinion on the topic and was thus prepared by independent consultants. The findings, interpretations, and conclusions expressed in this paper are those of the authors alone, and not those of PROFOR or its host organization, the World Bank.

Executive Summary

Purpose and Key Conclusions

The paper reviews current and emerging financial resources for sustainable forest management (SFM) and elaborates a range of innovative approaches to mobilize new and additional financial resources for SFM that contribute to the achievement of the Global Objectives of the United Nations Forum on Forests. The paper assesses the various means of implementation identified by the Sixth Session of the UNFF (ECOSOC Resolution 2006/49), in order to inform deliberations on this topic at UNFF-7. The major findings of the review can be summarized as follows:

- A major shift is necessary for SFM to become a mainstream element of national development strategies for countries large and small. The challenge and the opportunity the international community faces is to make the inextricable link between forests, economic development and poverty reduction.
- The increasing importance of private sector investment for SFM is resulting in a shift away from traditional ODA funding with conditionalities to new public-private sector contracts with different obligations and responsibilities for the receiving and investing partners. Governments, both in developing and industrialized countries, have a critical new role to play in helping shape these new markets and investments to increase the resources for SFM.
- There is, therefore, a need for a concerted effort to make effective us of the new financing opportunities for SFM by: establishing financial arrangements of transparency and accountability; building the capacity of local institutions to engage in these new opportunities; and building the intermediary financing and technical support institutions that can ensure linkages to the development agenda. To realize the Global Objectives set forth by UNFF-6, a broader approach to mobilize new and additional resources, such as the portfolio approach described below, is needed.
- The non-legally binding instrument (NLBI), currently under negotiation at the UNFF, will require an implementing agency, possibly like the Forest Financing Mechanism (FFM) described below.

The New Context for Forest Sector Finance

In recent years, official overseas development assistance (ODA) for the forest sector has been flat or declining, while private sector investments have increased significantly. These trends make securing markets for wood, non-wood forest products, and ecosystem services central to the long-term strategy to meet financing requirements for SFM. To harness the potential for responsible private sector finance, the international community should support efforts to overcome investment limiting factors such as poor legislative and policy frameworks, inefficient institutions, excessive regulation, corruption, and unstable macroeconomic regimes. In this way, domestically-generated public sector funds, supported by ODA, can fulfill an important leveraging function to boost *quality* private sector investments for SFM. There are also new opportunities to access private capital for carbon sequestration and avoided deforestation, watershed management, debt-for-nature swaps, bio-prospecting, tradable development rights, conservation concessions, and biodiversity offsets.

Growing awareness of the value of the multiple services forests provide and the societal impacts and costs when these services are degraded or lost is leading to recognition of the financial value of forest ecological services. Payments for ecosystem services are increasingly a reality across the globe, with hundreds of transactions involving substantial amounts of money annually in activities related to forest conservation and management. The next decade will be crucial for establishing basic policy framework and institutional arrangements to ensure that these new market and payment schemes are in line with the Global Objectives on Forests. Furthermore, institutions need to be strengthened or developed that will enable the direct beneficiaries of forest ecosystem services to finance their sustainable management, development, and protection, in efficient ways that minimize transaction costs and provide meaningful incentives to invest in SFM. It is of critical importance that the benefits of these new markets, as far as possible, become accessible to marginalized groups and enhance the contribution of SFM to the internationally agreed development goals.

A Portfolio Approach – A Potential Way Forward

Past experience has shown that individually, the public sector, the private sector and civil society cannot mobilize considerable resources for SFM. However, a combination of products and services in a "portfolio approach" may provide the win-win, mutual gains solution the UNFF is striving to create. Instead of selecting a single (or small) set of fundraising instruments (e.g., state-based contributions), a portfolio of products and services should be created for raising financial resources from a variety of actors aimed to meet diverse SFM objectives. Such an approach would mix the following major financial product and service 'types':

- Public funding from domestic national and sub-national budgetary allocations
- ODA (bilateral and multilateral, grants and loans)
- Payment for ecosystem services
- Private sector investment in SFM
- New financial resources from philanthropic leaders, political figures and celebrities

Towards Implementation - a Forest Financing Mechanism (FFM)
In order to accelerate and implement this portfolio approach, the UNFF could possibly establish a "Forest Financing Mechanism" (FFM). While such a mechanism would build on existing instruments such as the NFP Facility, PROFOR, The Bali Partnership Fund, and the Global Environment Facility (GEF), it would be a fundamentally new kind of arrangement, reflecting the need to engage a diversity of existing financing sources, and cultivate new ones.

Specifically, the proposed FFM would encompass a varied portfolio of products and services and would have the capacity to engage the differential roles and competencies of governments, civil society and the private sector at different geographic scales and be flexible enough to address diverse and evolving needs world wide. It might play a varied and evolving set of roles, including:

- convenor of SFM ODA providers;
- bridge-builder between those ODA sources, recipient countries, and non-ODA sources of finance and investment;
- "middleman" to assist countries and communities in preparing investment projects and programs;
- mobilizer of financial support and technical advice for efforts to pilot innovative SFM financing approaches and test their practicality, cost-effectiveness and replicability; and
- provider of technical and policy advice, on request, to countries working to develop an enabling policy environment for private sector investment, ODA effectiveness, and strengthened governance related to SFM.

Options for the institutional, governance and management setup of the proposed FFM are numerous, and would require considerable further discussion if agreed that such a mechanism should be established. Three principles for its effectiveness, however, seem clear: First, developing countries that would be the recipients of support and assistance from the FFM, and would have to see its utility in meeting their SFM objectives. Second, donors would have to be convinced that the FFM is not just another call for establishment of a "Global Forest Fund" – something which they have made clear that they oppose and will accordingly not fund. Third, the FFM's structure, governance and operational strategies would have to be designed, and adapted over time, to facilitate an approach to SFM investment and financing that is innovative and flexible. The Summary Section 4 of this report discusses examples of some of the most promising current products and services that the proposed FFM might provide.

Acronyms

AHEG	Ad-Hoc Expert Group
BPF	Bali Partnership Fund
CLI	Country-Led Initiative
CPF	Collaborative Partnership on Forests
DAC	Development Assistance Committee
EU-ETS	European Union Emissions Trading Scheme
EIT	Economy in Transition
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FFM	Forest Financing Mechanism
FSC	Forest Stewardship Council
GEF	Global Environment Facility
GFA	Global Forest Alliance
GNI	Gross National Income
IAF	International Arrangement on Forests
IFC	International Finance Corporation
IFF	Intergovernmental Forum on Forests
IPCC	Intergovernmental Panel on Climate Change
IPF	Intergovernmental Panel on Forests
ITTA	International Tropical Timber Agreement
ITTO	International Tropical Timber Organization
LFCC	Low Forest Cover Countries
MIGA	Multilateral Investment Guarantee Agency
nfp	national forest programme
NFP Facility	National Forest Programme Facility
NLBI	Non-legally binding instrument
NTFP	Non-Timber Forest Product
ODA	Overseas Development Assistance
PES	Payment for Environmental Services
PPP	Public-Private Partnership
PROFOR	Program on Forests
PRSP	Poverty Reduction Strategy Paper
SFM	Sustainable Forest Management
SMFE	Small and Medium Forest Enterprises
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests

Table of Contents

1. Introduction

1.1 The Challenge

The late 20th century saw a dramatic change in the world's forests resources, their use and management and people's perception of their value. Since 1961 tropical countries lost over 500 million hectares of forest cover (FAO 2000) while consumption of wood products rose by 50% (Gardner, Outlaw, and Engleman 1999). Demand for wood products and services provided by forests is increasing and expected to keep growing, driven by population increase and economic development. This trajectory clearly cannot last: at current rates of loss only a tiny remnant of original native forests will remain intact by the middle of the next century. The continual destruction and degradation of our global forest estate will have far reaching effects on the sustainability of the Earth's 'natural infrastructure', with the most direct negative effects on the poorest and most marginalized people among us. Humid tropical forests, for example, alone harbor at least half of the world's terrestrial species; provide plant-derived pharmaceuticals that are worth more than $40 billion per year and represent a huge carbon sink, a critical piece of any successful strategy to combat climate change. A sustainable estate of the world's remaining natural forests, complemented by a growing area of sustainably managed tree plantations, will together be a critical response to the three major environmental challenges for the next century: climate change, loss of biodiversity, and degradation of our water and soil resources

The fundamental role of forests in providing the livelihoods of the poor, in forest-rich as well as low forest countries, has also become more widely recognized. Over 90% of the world's poorest people depend on forests for their livelihoods (World Bank 2001). Rural poverty is concentrated in many areas of the world's most threatened forest biodiversity (McNeely and Scherr 2003), More than a billion people live within the world's 19 forest biodiversity "hotspots" and population growth in the world's tropical wilderness areas is 3.1%, over twice the world's average rate of growth (Cincotta and Engleman 2000). For some, the forest is their home, a source of culture, knowledge, and livelihood; others receive aesthetic and recreational benefits from forests. For all of us, the forest provides a wide range of wood and non-wood forest products as well as local and global ecosystem services, such as climate regulation, clean water, and protection from erosion and floods.

1.2 Background: The Evolving Perspectives on Forests

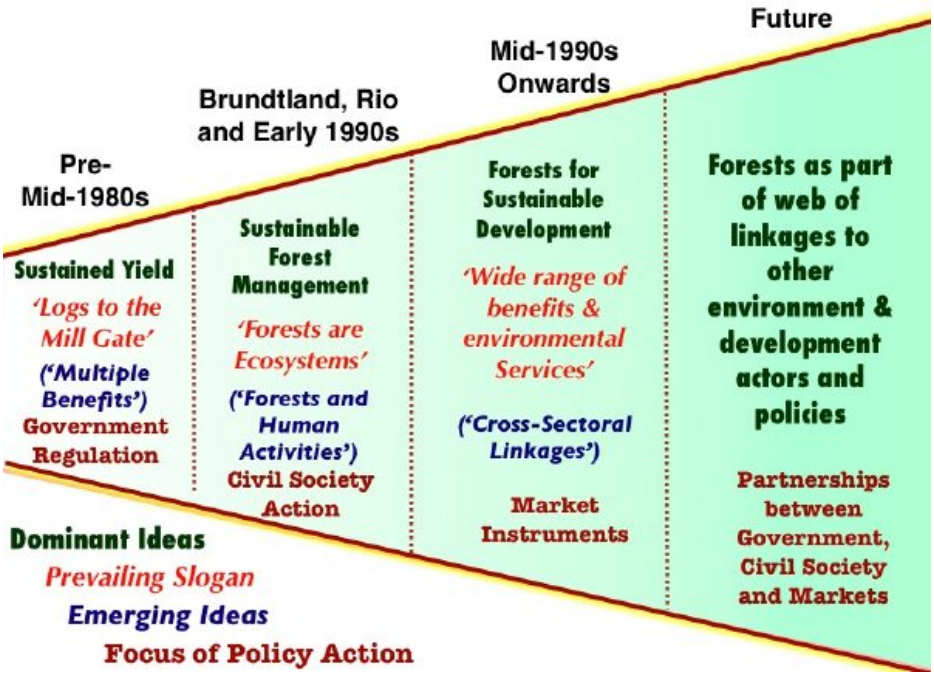
The time-honored approaches to forest management, which developed in simpler times, assumed that forests were isolated from broader social forces, and had singular, unambiguous purposes. These approaches are insufficient in an era when forests are recognized as forceful features of the social fabric. Traditional approaches to forestry cannot cope with the modern intensity, variation, and complexity of human activities and expectations. A new sense of scarcity and increased understanding of global functions are shifting attitudes of governments, civil society and the capital markets to the forest systems as valuable, diverse, and vulnerable assets.

Forests emerged on the international policy and political agendas in the mid-80s, following alarm raised by the environmental community about: the unprecedented rates of deforestation and forest degradation; environmentally unsustainable forestry practices in many parts of the world; and the consequent loss of the multiple values and benefits provided by forests for human well-being. Government regulation was seen as the key to generating resources to offset these losses.

After the 1992 Earth Summit in Rio de Janeiro, the concept of forest management shifted from sustained yield forestry, aimed at producing a specific product, to sustainable forest management, a conceptualization that requires viewing forests as ecosystems that simultaneously provide multiple values and benefits to the environment and society (Maini 1992). Civil society became and increasingly important influence on policy and played important roles in mobilizing and pioneering innovative action on the ground.

It is helpful to consider the evolving perspective on the management and contribution of forest that has taken place during the past decades (Fig. 1).

Figure 1. ODA Evolution from Grants and Condition to Partnerships and Contract for Public Goods



Source: Najam, 2006

Since then, the forest agenda has further evolved from strictly biophysical to multi-dimensional with sub-national, national, transboundary, regional and global dimensions. It is important to highlight some of these shifts in the way we view, value and manage our forest resource, because many of the new investment opportunities for SFM reflect these shifting values of society.

From Silviculture toward Ecosystem Service Management

Silviculture has historically focused on cultivating timber products and sustained yield. Sustainable forest management encompasses a much wider range of goods and services that forests provide, such as stabilizing climate, water yields and water quality protection; providing recreational (and associated economic)opportunities; and maintaining the spiritual and cultural values to humanity of sacred natural places, wilderness and open space in an increasingly urbanized world. The management of forest ecosystems for this broad range of goods, values and services therefore requires a much more diversified approach than conventional silviculture can provide.

From Volume toward Quality

Previously, products of the forest typically were considered in terms of volume rather than quality. Market and industrial structures have favored the production of bulk wood products that satisfy a minimum quality and economics of scale associated with highly capital-intensive technologies rather than ways to optimize the value of a diversified "portfolio" stream of forest goods and services. The latter approach requires new knowledge and new organizational strategies and technologies to produce, process, market, and finance a diversified and quality-oriented forest economy at scales that are significant.

From Stands toward Landscapes

Until recently, forests were treated primarily as collections of timber stands—discrete homogeneous units of timber and timber potential. Today, they are increasingly considered patterned aggregations of tress in landscapes of functionally interdependent units. Ecosystem management, agroforestry, watershed agreements, ecoagriculture, community forestry, riparian forests, urban forestry and carbon forests characterize a broad field of new approaches that have come to dominate public understanding of what the forest is and what it can produce.

From Ownership toward Partnerships and Communities

Engaging communities in forest management needs to be a central element to sustainable forestry. Experimentation in types of partnerships, cooperative management, community management, enterprise and job creation, etc. are increasing. The rise of multi-jurisdictional approaches to watershed management, and of community-centered systems of forestry are but two examples of these new approaches.

The contributions of the millions of indigenous and other communities and the millions of small holders to forest conservation management of some 200 million hectares are often overlooked. But even if valued at only $1 per day and 100 million forest owners, their active presence would be worth some $36.5 billion a year (Who Manages the World's Forests, Forest Trends 2005).

From Blind Consumption toward Consumer Awareness

The development of systems to certify the legality and/or sustainability of timber and other forest products marks a critical turning point for efforts to implement SFM. Certification is a marked-based mechanism that provides consumers with a way to signify through their purchases a preference for sustainable forest products. While the certification phenomenon is still quite young, an adolescent of only 13 years, the progress has been impressive by any measurement such as hectares certified, growth of chain of-custody certification capacities and systems, or market share. While certification has yet to effectively infiltrate the tropical world and the market has yet to fully reward certified producers with additional premiums, the abundance of certification schemes, now including at least 14 international or national schemes, is a sign that certification is truly here to stay.

Certification has also has contributed to creating a space for broad participation and continuous adaptation in forest management and conservation efforts. Hundreds of companies, communities, and forest landowners have reinvented their businesses, enhanced their products and established new partnerships on the coattails of the certification movement.

From the Forest as Product toward the Forest as Capital

Forests provide obvious economic contributions of forests such as water storage and flow, energy supply and conservation, an infrastructure that is exceedingly expensive to replace, local subsistence and enterprise, and a source of foreign exchange through sale of wood and non-wood forest products and tourism. However, a small fraction of these contributions have been assessed to forest value, and a much smaller fraction is invested to sustain them.

Sustainable forest management is stimulating efforts to close the loop between those who benefit from the forest and the forests and stewards who provide those benefits. Efforts to incorporate natural assets in national capital accounts are strengthening the capacity to treat forest investment as an aspect of national economic strategy. Institutional reforms are breaking down tenurial and jurisdictional barriers to exchanges between sources and recipients of forest benefits, thus increasing opportunities for return flows of investment from forest beneficiaries.

From Current Income toward Natural Infrastructure and Green Finance

Forests are exceedingly vulnerable to the force of financial markets. Throughout the world, forest composition and structures are historic expressions of financial forces rather than ecological and silvicultural judgment. A critical aspect of sustainable forest management is the pursuit of means to regulate relations between the dynamics of forest ecosystems and of the financial markets that dictate patterns and rates of forest exploitation.

A growing number of new institutions and investment funds are translating ecological values into comparable financial terms that permit payment for retained ecological attributes like carbon sequestration or water quality in addition to the timber values. Such changes are expanding the investment from the private sector from "Equator Banks" (like HSBC), from investment funds (like Harvard, Global Environment Fund), and from other financial institutions (like insurance and hedge funds) into sustainable forest operations (adapted from Rohm, Jenkins, et al.).

These shifts in terms of stakeholders and perspectives are fundamental aspects of the setting in which the on-going global discussions and UNFF deliberations on forests are placed. They represent powerful new opportunities and equally daunting new challenges as we look forward.

1.3 UNFF Global Objectives on Forests (GOF)

At the sixth session of UNFF, countries reached an agreement on four Global Objectives on Forests[1]:

Global objective 1
Reverse the loss of forest cover worldwide through sustainable forest management, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation;
Global objective 2
Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest dependent people;
Global objective 3
Increase significantly the area of protected forests worldwide and other areas of sustainably managed forests, as well as the proportion of forest products from sustainably managed forests; and
Global objective 4
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.

These four Global Objectives are interdependent. Progress towards achieving the first three Global Objectives will ultimately depend on the progress towards achieving the fourth, which encompasses the SFM finance issues and options discussed in this paper.

1.3.1 Guidance on MoI from UNFF-6

At UNFF-6, it was agreed that the international arrangement on forests will "enhance the contribution of forests to the achievement of the internationally agreed development goals, including the Millennium Development Goals and to the Johannesburg Declaration on Sustainable Development and the Plan of Implementation of the World Summit on Sustainable Development, bearing in mind the Monterrey Consensus of the International Conference on Financing for Development" (Annex 1. see Para 2.2 below). Accordingly, UNFF-6 emphasized the need to include forests on national and international development agendas and to mobilize financial resources to support forest and forest-related actions in developing countries, including least developed countries, landlocked developing countries, small island developing States, countries with fragile ecosystems, low-forest cover countries as well as countries with economies in transition.

UNFF-6 also noted the need to mobilize significant new and additional resources, provided by public, private, domestic and international sources. Furthermore, UNFF-6 identified the need to review current funding mechanisms, including, if appropriate, the possibility of setting up a voluntary global mechanism as a contribution towards

[1] ECOSOC Resolution 2006/49 operative paragraph 3.

achieving the global objectives and implementing sustainable forest management (SFM). The contributions of public-private partnerships, private sector initiatives at all levels as well as engagement of civil society were also emphasized.

This guidance is the reason this study was commissioned: to inform the discussions in the UNFF-7 on the various financing means of implementation.

2. Current Financial Architecture

In this section we review current funding sources broken down by domestic government financing of SFM, the ODA financing with descriptions of the various existing instruments, and private sector investments in SFM.

2.1 Overview of Current Sources of Finance

Estimates of annual financial flows to the forest sector based on data, collated from various sources by Savcor Indufor (2006) are presented in Table 1. Some of these estimates should only be regarded as 'orders of magnitude', since they are based on very sparse data. Further research is needed in order to firm up and disaggregate this data. However the table reveals that:

- private funding dominates forest finance – over 90% according to Tomaselli (2006);
- domestic investment constitutes over 90% of private sector flows (ibid);
- possibly 5-10% of total forest finance goes to developing and so-called transition economy countries (EITs).

Table 1. Estimated Annual Financial Flows to Forest Sector (billion US dollars)

Funding Source	**Global $ billion**	**Developing & EIT countries $ billion**
Public:		
Domestic	4	?
ODA	0.5-1.7	1.5
Private:		
Direct investment	63	8-15
Portfolio	130	4
Loans	28	3
Philanthropic		0.07
Total:	197-227	13-25

Source: Adapted from Savcor Indufor, 2006 (www.savcor.com/forest)

Plantation forestry dominates both private and public sector funding. This reflects a shift from natural forests to plantations – by 2050, up to half of all industrial wood may be from plantations compared to 15% in 2000 (Canby and Raditz, 2005).

A comprehensive assessment of the financial requirements for implementation of SFM worldwide was carried out as a part of the UNCED process and it was estimated that annual flows to forestry required for the years 1993-2000 were about $31.25 billion of which $5.7 billion was expected to be concessionary financing via ODA sources. In 1996 these figures were revised upwards to $33 billion per year. However, it is recognized that these figures never had any tangible importance and were often regarded as misleading. Against this it is estimated that the total gross annual investment in developing countries' forest sectors was about $20.4 billion, suggesting a financing gap of over $12 billion per annum. These estimates are not uncontroversial and communicate the scale of the challenge involved in raising finances for SFM (Costa et al. 2004). More specifically, investment trends indicate that, first the volume of ODA financing is at a level of about $1.5 billion and may rise to $1.75-2 billions, but still a significant shortfall from the $5.67 billion figure estimated by UNCED. Second, direct public sector investments into forestry (though still a fairly large proportion of the total) are generally on a declining trend in most countries. And, third, private sector investments (both domestic and foreign direct investments) in forests are on the increase.

Box 1. Linkages to the Private Sector
Clearly, the long-term strategy to making SFM profitable is to encourage responsible private investment flows into forestry by creating a favorable climate for such investments. This can be done if the international donor community supports countries efforts to address the structural bottlenecks in forestry such as poor legislative and policy frameworks, inefficient institutions, excessive regulation, corruption, and unstable macroeconomic regimes. At the same time, there is a need to develop the strategy focus on innovative financing and incentive mechanisms to give the private sector more investment options. Some such as those for carbon sequestration and watershed management have great potential. Some other promising options are: debt-for-nature swaps, bioprospecting, tradable development rights, conservation concessions, instruments to bring down the upfront costs of SFM, etc. In this way the ODA and public sector funds can fulfill an important leveraging function to boost *quality* private sector investments into the sector.

Source: Jenkins, Richards 2007

2.2 Domestic Government Financing of SFM

Four main sets of tools or policies for promoting investment in SFM include:

Direct Interventions and Investment

While many countries have policies and incentives for plantation forestry (e.g., direct and indirect subsidies in some countries amount to up to 75% of plantation costs) and protected areas, fewer countries have policies promoting natural forest management or small and medium scale forest enterprises (SMFEs). Also the capacity of governments to support SFM investments has been weakened by declining ODA support for state forest authorities, and the trends towards privatization, decentralization and delegation of functions to local government, and the changing role of government from provider to purchaser of public services (Whiteman, 2006). However, public sector finance has grown rapidly in some countries. For example, in China, public sector finance for forestry grew tenfold between 1998 and 2003 to $4.2 billion per annum (Savcor Indufor, 2006).

But the capacity of governments to support SFM investments in many developing countries has been weakened by the frequent refusal of development planning agencies and finance ministries to prioritize SFM as a mainstream element of economic development, and the resultant decline in support for state forest authorities. The trends towards privatization, decentralization and delegation of functions to local government, and the changing role of government from provider to purchaser of public services have also played a role (Whiteman, 2006). This trend is not uniform. In Asia, the finance sector has grown rapidly in some developing countries. For example, in China public sector finance for forestry grew tenfold between 1998 and 2003 to $4.2 billion per annum (Savcor Indufor, 2006).

Some countries (including Albania and Costa Rica) have introduced national forest funds as a way of boosting public sector investment to the forest sector. Many reforestation funds are focused in Eastern European countries like Bulgaria, Bosnia, Croatia, and Romania. These funds are playing an increasingly important role, but are dependent on forest taxes and royalties (Savcor Indufor, 2006).

The 2005 country-led initiative (CLI) in Costa Rica concluded that a critical limitation to accessing international resources has been the failure to integrate SFM in national investment priorities, and weak support for national forest policy and planning processes (Costa Rica CLI, 2005). Additional limitations include the absence of forestry in the national accounting, exclusion of forestry administration from national decision making processes and financial policies. Inter-sectoral cooperation is also key since non-sector policies and investments are major drivers of forest degradation: macro-economic, agriculture and transport policies influence deforestation much more than forestry policies (Sayer, 2005).

Fiscal Policies and Market Interventions

According to Whiteman (2006), "forest charges remain low in many countries and current fiscal policies are probably the main constraint to investment in sustainable forest management," and "send incorrect market signals to producers of forest products". For example, according to (FAO 2001), forest revenue collected per cubic meter of total roundwood production in selected African countries in 1999 averaged$0.19/$m^3$ with only three countries collecting above $1/$m^3$. Average revenue collected per cubic meter of industrial roundwood was $2.42/$m^3$, but without Côte d'Ivoire it was half this (Côte d'Ivoire accounted for over half of total forest revenue from these countries). Half of the African countries collected less than $1/$m^3$ in forest fees for industrial hardwood (ibid).

There are several elements to the fiscal problem – underpricing in the face of opposition by industrial forestry lobbies; undercollection of fees from legal forest enterprises; evasion of forest fees by illegal loggers; and how much of the revenue is used for forestry (Annex 3). The World Bank (2004) estimates that about $5 billion of taxes and royalties are lost each year due to undercollection from legal forestry operations, more than three times forestry ODA, and a further $10 billion as a result of non-collection from illegal loggers. Unfortunately fiscal loss estimates are quite outdated, and we believe significantly underestimated. Loss of fiscal revenue is also due to a combination of weak national forestry institution, lack of trained personnel in the estimation of forest values and management of revenue collection, as well as corruption and illegality (World Bank, 2004). An underpriced resource causes waste, inefficiency, industrial over-capacity, excessive demand on the resource, and rent-seeking by powerful stakeholders.

The problem of inadequate levels of taxation and rent capture in forestry (particularly on the stumpage value of logs) is symptomatic of the challenges mentioned above, and continues to be an issue in many countries around the world. Much effort on the part of developing countries (with encouragement and support from multilateral development agencies, donors and other agencies providing technical assistance) has gone into the reform of forest revenue systems worldwide, directed at their simplification and streamlining to set rent capture at “realistic” levels. However, progress has been slow for a variety of reasons—inadequate local constituencies for reform, inadequate enforcement capacity, corruption and resistance by powerful vested interests. Infusing transparency, building multi-stakeholder consensus and external donor collaboration particularly in disseminating successful experiences will be crucial in achieving rapid and significant progress in this important area in future.

A suggestion from the Mexico CLI is a voluntary contribution (i.e., as a “contribution towards poverty reduction”) on internationally traded wood products as an alternative or additional fiscal approach to funding SFM. For example, a 0.05% on a global trade value estimated at $130 billion would yield $650 million per annum (Mexico CLI, 2005).

Governance, Law and Law Enforcement: The Linkages to Mobilizing Finance for SFM

ECOSOC 2006/49 observes the priority of "strengthening the capacity of countries to address illegal practices according to national legislation and illegal international trade in forest products in the forest sector, through the promotion of forest law enforcement and governance at the national and sub-national and regional and subregional levels, as appropriate” (operative paragraph 6 (g)).

The relation between improving governance in the forestry and related sectors and mobilizing new financing for SFM is not always immediately apparent. But a growing body of empirical evidence illustrates that, in fact, improving governance can mobilize SFM finance in at least three ways: (a) Donors are far more likely to invest their ODA in well-governed sectors; (b) good governance is a core element of the enabling policy environment which attracts private sector investment; and (c) illegal practices such as illegal logging and tax evasion cost governments literally billions in lost revenues that could otherwise be invested in SFM.

But governance is hampered by forest regulations that are outdated, unclear or conflicting in many countries. Over-complex regulations are a major cause of illegality and corruption, while high costs of law enforcement result in weak compliance in many countries (FAO/ITTO, 2005). Illegal logging seriously reduces financial returns to legal operators. It has been estimated (Seneca Creek, 2004) that illegal logging depresses world market timber prices by 9-16% (and local market prices possibly by much more) – this is the likely difference between viable and uneconomic forest management. Illegality and corruption also increase costs so that operators that don’t pay bribes are unable to compete (Canby and Raditz, 2005).

Governments and other stakeholders have expressed their political support for robust national efforts, backed by international cooperation, to combat illegal logging and associated trade through their participation in the various regional Forest Law Enforcement and Governance (FLEG) ministerial processes in the Asia-Pacific, Africa, and Europe-North Asia regions. The challenge in these and other regions is to turn this political commitment into action on the ground, and in the international trade context. According to Whiteman (2006), improved governance and regulation requires more focus including; a more structured approach to law enforcement; clearer definition of rights and responsibilities of all sectoral stakeholders; and a stronger 'social contract' between lawmakers and society.

2.3 Official Development Assistance (ODA)

2.3.1 Overall Trends

ECOSOC Resolution 2006/49 calls on governments to reverse in the decline of ODA for SFM.
While there are no precise data on forest sector ODA, annual estimates range from $0.5 to $1.7 billion (OECD and World Bank estimates cited in Savcor Indufor, 2006). This makes forest sector ODA about 0.5-1.5% of total ODA (grants and loans). It is also unclear how much forest sector ODA goes to 'SFM'. It is estimated that about 63% is allocated to 'forests', which includes investments in forest industry and processing, and 20% to 'policy and administration' (ibid). The assistance to forestry is *very unevenly distributed* around the globe. Of the total annual bilateral assistance to forestry, the top 10 recipients in the world, who received 70% of the total assistance to forestry, were located in Asia and South America. The top 10 recipient countries in Africa received 60%, in Asia 97% and in Latin America 81%. The OECD statistics show that about 120 ‘remaining countries’ received a total of $47 million (Persson, 2003).

A considerable proportion of ODA comes through the World Bank Group and the regional Development Banks. Obtaining a grant or loan depends on the strategies and agendas of both donors/lenders and recipient governments. A key constraint for forestry is that it is rarely prioritized either in national poverty reduction policies or in donor driven macro-economic assistance strategies; unfortunately forest sector aid is not perceived as especially poverty reducing, and is often questioned on grounds of economic viability (Savcor Indufor, 2006).

Recent trends in ODA show a move away from sectoral approaches to budgetary support and broader development strategies that respond to the Millennium Development Goals (MDGs). Some countries are also reported to be hesitant about accepting loans or even grants for SFM projects. The prospect for increased ODA for SFM increasingly depends on a country's willingness to invest in forestry, rather than funding availability (Simula, 2006).

Attempts to increase ODA for timber-based forestry activities in or affecting primary forests are not likely to be very fruitful. This is because past ODA funded investments in primary forest areas, apart from those directly targeted at forest conservation, have been powerful drivers of deforestation and forest degradation in many tropical countries. As a result, donor agencies – and the taxpayers who fund them – have expressed a strong preference not to support the further felling of primary forests, whether for timber, agriculture, infrastructure, or other purposes. This view is not, however, a constraint on increasing ODA for conservation and non-consumptive forest uses (e.g. ecotourism) in primary forests, or livelihood enhancement activities that reduce incentives for cutting primary forest in adjacent rural communities.

ECOSOC Resolution 2006/49 specifically mentions the International Tropical Timber Agreement (ITTA) (including the Bali Partnership Fund), the national forest program (nfp) Facility, and PROFOR as mechanisms contributing additional ODA financial resources for SFM (operative paragraphs 5: b, c and d). These sources are particularly associated with the development of national forest programs and similar policy instruments, technical assistance, monitoring and evaluation, provision of statistics and other information, pilot SFM projects testing out new approaches, and analytical studies.

These funding sources cover the seven thematic elements of SFM individually or collectively. In general they are regarded as efficient and accessible sources of finance for SFM, providing seed money for national studies and other SFM initiatives. A key potential use of these funds is to integrate SFM into national development strategies – although progress on this has been disappointing to date. A major challenge is replenishment of the funds after initial donor enthusiasm.

Finally, in the spirit of the Paris Declaration (Box 3), there is an urgent need for the multiplicity of multilateral and bilateral agencies to coordinate their activities, and to help partner countries resource and use funds effectively.

Box 2. The Paris Declaration on Aid Effectiveness

The 2005 Paris Declaration on Aid Effectiveness is an international agreement committing donors and partner countries to increase their efforts to harmonize, align and manage results-based aid (http://www.oecd.org/document/18/0.2340.en). It sets out a 'roadmap' for improving the quality of aid and its impact on development. Twelve indicators of aid effectiveness were developed as a means of tracking and encouraging country progress. The Declaration also sets out a partnership approach for improved transparency and accountability in the use of development resources. Donors and recipient governments commit to a process in which they are mutually accountable to each other, and their compliance in meeting commitments is publicly monitored.

The Paris Declaration does not address any specific sector, but could have implications for attempts to secure more ODA for SFM. For example, it includes donor commitments to "respect partner country leadership and help strengthen their capacity to exercise it" and "provide reliable indicative commitments of aid over a multi-year framework and disperse aid in a timely and predictable fashion according to agreements schedule." Donors should continue to make progress untying aid, thereby reducing transaction costs and improving ownership and alignment.

Country partner commitments include: developing their national development strategies through a broad consultative process; implementing them through results-oriented operational programs; establishing a mutually agreed framework for assessing performance, transparency and accountability; and intensifying efforts to mobilize domestic resources, strengthen fiscal sustainability, and create an enabling environment for pubic and private investment. Implicit in the Paris Declaration, is the recognition that the volume of ODA will increase to achieve internationally agreed goals, including support for improved governance, but this needs to be accompanied by increased aid effectiveness and results-based management.

This implies opportunities for countries to secure increased ODA for SFM, but only if forestry is included as a priority in national development strategies. For this to happen, forest sector projects or strategies need to be presented showing:

- Clear relationship to overall national development and environment goals
- Clear targets with progress monitored against indicators;
- How domestic resources will be mobilized:
- That reports will be results-based; and
- How they will be accountable and transparent in the use of development resources.
- Quantification of economic impacts
- Linkages with broader environmental, economic and social impacts
- Potential impacts on poverty

2.3.2 The Global Environmental Facility (GEF)

The GEF's mandate is to provide "new and additional grant and concessional funds to meet the agreed incremental costs of measures to achieve global environmental benefits". While the GEF is not mandated to fund forestry projects *per se*, it supports many forest-related investments in its role as official funding agency of the three post-Rio Conventions; the CBD, the UNFCCC and the UNCCD. In exercising its mandate, the GEF has six focal areas: biodiversity, climate change, international waters, ozone depletion, land degradation, and persistent organic pollutants.

Over its first nine years (1996-2005), GEF financed 236 projects related to SFM with a total value of $1.2 billion. Half of this was for protected areas, 12% for SFM in production forest areas, and 35% for wider production landscapes (Savcor Indufor, 2006). While protected areas are expected remain the core element of GEF's forest-

related financing, projects encompassing production forests and wider landscape approaches are expected to increase over the coming years. It is important to remember, however, that GEF, by its mandate, may only fund "the agreed incremental costs of achieving global benefits". Most investments in production forests – which by definition produce significant national and local benefits – are therefore likely to come through grant or loan co-financing leveraged by incremental GEF funding.

Indeed, GEF funding has leveraged almost three times more funds from non-GEF sources, and benefits from a well-managed replenishment negotiation mechanism. GEF has been criticized, however, for the high transaction costs, complexity and slowness (average 66 months) of the project preparation process for full-scale projects. GEF's Small Grants Program is far more nimble, and has been generally praised, although it operates at a far different scale from the main part of GEF. The policy recommendations accompanying the 4th replenishment of GEF (2007-2010) direct the GEF and its implementing agencies to carry out reforms to address current bottlenecks and weaknesses, and the new GEF Chair and CEO, who assumed her position in mid-2007, has proposed a far-reaching reform agenda which is currently under consideration by the GEF Council, GEF's governing body. A part of this reform process in the revision of GEF's Focal Area Strategies, a process within which forests are being explicitly treated as a cross-cutting issue addressed primarily within the Biodiversity and Sustainable Land Management Focal Areas.

2.3.3 The International Tropical Timber Agreement (ITTA) and Bali Partnership Fund (BPF)

The 1994 ITTA established an Administrative Account based on contributions by ITTA members, a Special Account for project funding from voluntary, mainly earmarked, contributions, and the Bali Partnership Fund (BPF), again mainly from voluntary contributions. The Administrative Account is mainly for policy, normative and information/statistical work.

Current expenditure from the Administrative Account is about $5-5.5 million per annum, and allocations to the Special Account and BPF about $15-16 million per annum (Savcor Indufor, 2006). Earmarked funding has been in decline for several years, and there is a constant problem of arrears in contributions from member countries, but it is hoped that the new thematic programs in the 2006 ITTA will increase donor interest.

In general, the 2006 ITTA is designed to be more donor-friendly, since there is an urgent need to diversify funding sources; three donors have been responsible for most funding to date. The Thematic Programme sub-account allows donors to earmark funds for specific project activities and reduces transaction costs, while giving the ITTO Council more authority to decide on projects (Savcor Indufor, 2006). A second change is to finance outreach, communication and policy-related work from the Administrative Account; producer as well as consumer countries will contribute to these activities.

The BPF has so far been weakly supported by donors with total allocations under $17 million during its first decade. Most of this has been transfers from the ITTA Special Account or interest earned (about $1 million per year) on earmarked funds deposited in the ITTA Special Account; less than $3 million has come directly from donors. Due to recent program activities, the BPF has less than $1 million left.

2.3.4 The National Forest Program Facility (nfp Facility)

The nfp Facility was established in 2002 as a 'special entity' hosted by FAO. The Facility is essentially a small-scale funding mechanism and information initiative, created in response to the recognition of the role nfps can play in addressing forest-sector issues in a holistic, comprehensive and multi-sectoral manner. Nfps provide a foundation for formulating and implementing SFM strategies. Thus the IPF and IFF recommended that only forest-related actions emanating from nfps should be funded.

The nfp Facility is financed through a Multi-donor Trust Fund. At mid-2006, nine donors had committed $15.5 million. The proposed Phase 2 (2007- 2012) budget is $33.7 million (Savcor Indufor, 2006). The nfp Facility provides country-level support in two stages: it concludes country partnership agreements, and provides financial and technical support to stakeholders in partner countries through grants (up to $300,000 per country for three years), training and policy assistance. Funding is mainly for workshops/fora, in-service training, policy analysis, information sharing and knowledge management. The Facility also facilitates information exchange between nfps.

During Phase 1 (2002-2007) of the nfp Facility, partnerships were formed with 42 countries and four sub-regional organizations, and 200 grants (to mid-2006) made to country stakeholders. But developing countries face major institutional, financial and political constraints in the development of their nfps, and demand has been weak for initiatives to mainstream nfps in national development strategies and inter-sectoral coordination mechanisms, as well as attempts to integrate international commitments in national forest policy formulation.

2.3.5 The Program on Forests (PROFOR), World Bank

PROFOR was established as a multi-donor partnership program in 1997 at the United Nations Development Programme (UNDP), and relocated to the World Bank in 2002. It is funded mainly by the EU, UK, Finland, Japan, Switzerland, Australia and the Netherlands, as well as by the World Bank. Trust fund income received from 2002 to 2006 was $6.4 million, of which $4.3 million has been spent. In 2006 PROFOR held a balance of just over $2 million (Savcor Indufor, 2006, PROFOR 2007).

PROFOR's goal is to: “to foster forest's contribution to poverty reduction, sustainable economic development, and the protection of global and local environmental values through the implementation of national forest programs or equivalent forest policy processes” (www.profor.info). PROFOR aims to generate new ideas and knowledge, and link them with ongoing or emerging policy and strategy processes at the global, regional or national level, focusing on four thematic areas:

- Livelihoods approach to poverty reduction
- Forest governance
- Innovative financing for SFM
- Cross-sectoral cooperation.

PROFOR has funded 34 activities to date, with governance the most funded theme (33%) and cross-sectoral cooperation the least funded. Disbursement has been divided between global level activities, for country level, and for regional level activities.

2.4 Private Investment

There is a lack of systematic data on direct private investment in forestry, and much less for SFM. Tomaselli (2006) estimates that in 2004 it amounted to about $63 billion (1.5% of global direct investment) and that about 90% of it was domestic. World Bank estimates that for developing countries it may be between eight and 15 billion dollars.

The UNFF ad hoc Expert Group on Finance (2003) emphasized the vital role of private sector finance for SFM as a complement to public sector and ODA finance, while pointing out the key role of governments in providing an enabling investment climate, including adequate measures for risk mitigation and sharing.

2.4.1 Domestic Private Investment

Domestic private investment can be divided between company and community or farmer investment. Company investment can also be divided between larger scale industrial forestry enterprises (whether for natural forest concessions or plantations) and small and medium forest enterprises (SMFEs), defined as up to 100 employees, an annual turnover of $10,000 to $30 million, or annual roundwood consumption of 3,000-20,000 m^3 (Mayers, 2006). Private domestic investment in SFM is also difficult to measure but current estimates are that companies invest in the order of $130 billon in gross value added and communities contribute between $1.3 to $2.6 billion per year. Private forestland owners also play an important role. Quantification of their investment in SFM is not readily available and requires additional research.

Small and Medium Forest Enterprises (SMFE’s):
Most forest products are produced and consumed locally, and most forest operations are small to medium-scale – typically 80-90% in developing countries (Mayers, 2006). As argued by Mayers (2006), World Bank (2004) and others, the SMFE sector has a high poverty reduction potential and makes a major economic contribution to global and national economies. Globally SMFEs generate an estimated $130 billion in gross value-added and employ at

least 20 million people; in many countries over half of all forest sector employment is in SMFEs; in China, over 90% of wood product value is generated by SMFEs (Mayers, 2006).

There are a few niche possibilities for SMFEs to access finance through dedicated investment funds or credit intermediaries. For example, Terra Capital (for certified enterprises), Ecological Finance (specialising in NTFP producers) and Sarona Fund are attempting to support SMFE's. Some NGOs are providing guarantees to commercial banks to encourage them to lend to SMFEs (e.g., Shared Interest in South Africa). In Mexico, local government programs like FIRCO provide revolving loans (Canby and Raditz, 2005). The possibility of accessing this kind of finance is greatly increased with forest management certification. Another possible option is 'equipment leasing'

But SMFEs are often ignored when discussing forest finance; they suffer from a high failure rate and numerous challenges and problems, especially to accessing formal sector finance, including (Canby and Raditz, 2006):

- High perceived levels of risk;
- Financial vulnerability: they rely heavily (possibly 80%) on the financial resources of owners and have few financial reserves;
- Liquidity: they lack working capital to respond to new orders, and are forced to pay high interest rates to informal money-lenders;
- Social isolation: they lack access to corporate protocols, expertise and advice;
- Lack of policy or market influence;
- Large scale operations often create uniform, highly rationalized production in extended areas, which are focused on few products without recognizing multiple use needs of adjacent properties;
- 'Corporate expediency' - they are driven by immediate needs;
- Lack of long-term tenure security;
- Problems of wood quality and access to buyers;
- Financial constraints to certification.

Key priorities for SMFEs include (Molnar, Jenkins, et al, 2004, Donovan et al, 2006, Canby and Raditz, 2005):

- A governance environment based on tenure security, equality and transparency;
- Strengthening SMFE associations through business development services, including brokering of links between SMFEs and investment sources;
- Development of credit unions, risk assessment, alternative forms of collateral, and forest insurance to facilitate access to formal credit (see also 3.3);
- Simplification of the legal framework to lower transaction costs;
- Removal of marketing constraints and perverse subsidies;
- Fiscal incentives like start-up tax breaks;
- More accessible and lower cost certification models;
- Information exchange networks.

Catalyzing new dedicated resources for SME's and community enterprises is another part of a portfolio further elaborated on in section 4.

Community/Indigenous Natural Resource Management

According to Molnar et al (2004) community investment of their own resources may amount to $1.3 - 2.6 billion per year, equivalent to annual ODA flows to forestry. For example, in Mexico community enterprises invest twice as much per hectare as the government invests in protected areas adjacent to these community-managed lands, as well as paying $1.2 million per year to the government in forest fees.

There is increasing evidence that, due to their long-term livelihood interests and possibly cultural factors, communities, and especially indigenous communities, are more likely than companies to pursue SFM and conservation objectives. Chomitz observes that *ceteris paribus* indigenous forest ownership is associated with significantly lower deforestation; possible explanations include that "indigenous people place a higher value on conservation than outside colonists, use more benign and appropriate technologies for land and forest management, or have less contact with markets" (172). Scherr et al (2004) also observe that indigenous forest managers usually harvest less than the legal allowable cut.

For community and indigenous forest management, key priorities include:

- Legal ratification and protection of tenure and political rights;
- Strengthening of grass roots and second order institutions (especially important for establishing and negotiation payments for ecosystem services);
- Development of community-company partnerships and/or access to technical assistance, business development, and marketing advice;
- More appropriate certification models ;
- Other actions identified for SMFEs.

At the same time, the international community needs to be very cautious about persuading community forestry enterprises, especially indigenous enterprises, down the international timber market route, since timber-based SFM is risky and of uncertain viability. There can also be a clash of incentives between market and traditional economic institutions which tend to weaken common pool resource institutions and lead to the breakdown of traditional SFM systems (Richards, 2006). A less risky route for indigenous communities is to support and compensate traditional natural resource management practices via tenure, institutional, political and social support in exchange for the provision of biodiversity conservation and other public goods (Molnar et al, 2004).

2.4.2 Foreign Direct Investment (FDI)

The scale of FDI in forestry is unclear, and only ad hoc figures are available, but recent reports suggest a sharp increase in FDI to the forest sector in developing countries, and a decline in FDI flows to industrialized countries (Savcor Indufor, 2006). There has been a rapid growth in FDI in Asia and the Latin America/Caribbean region. The trend in Africa has been flat until recently where there have been some first signs of increased investment in Southern Africa. According to United Nations Conference on Trade and Development (UNCTAD) data (cited in Savcor Indufor, 2006), the wood and wood products sector accounts for about 2.6% of total FDI stock in developing countries (FDI stock is the asset value of FDI in parent company accounts).

It is also unclear how much FDI contributes to SFM. On the one hand, it may contribute more to SFM than domestic private investment since it is more likely to be subject to an environmental impact assessment or other forms of best practice screening by financing institutions, as well as to international scrutiny (Simula, 2006). On the other hand, while forest governance and law enforcement remain weak, there is no obligation for FDI to invest in SFM, and there may be a tendency for it to be directed to weaker regulatory environments which generate higher short-term returns.

One reason why FDI may not be being channelled into SFM is its uncertain viability. Various constraints to SFM investment (whether public or private) in developing countries, especially as regards timber-based SFM in natural forests, are mentioned by Whiteman (2006), Canby and Raditz (2005), Jenkins, and Best (2000):
Slow tree growth in many forests;

- A declining market share of tropical roundwood from natural forests;
- Relatively low value-added from tropical roundwood production;
- Weak governance and policies, preventing an enabling investment climate;
- Increasing production and management costs, e.g., higher compliance costs supplying European countries which have introduced stricter timber procurement policies without a commensurate increase in producer prices;
- Poor public infrastructure and services, especially communications and utilities, e.g., 'power outrages' can be very expensive;
- A low or absent premium for certified timber; and,
- High or increasing opportunity costs in some areas (e.g., mechanized soybean cultivation in the Amazon region, oil palm cultivation in Indonesia).

Whiteman (2006) reports that while primary forest management is still profitable, with value-added between $500 per ha (dryland forest) and $3,000 per ha (moist tropical), it is marginal in secondary tropical forest - $20-100 per ha – making it difficult to compete with alternative land uses such as soy beans, oil palm, and cattle ranching. Data from a economic study of logging in Brazil which "illustrates a general pattern" is presented by Chomitz et al (2006: 55): while reduced impact logging from an initial selective cut nets $128 per hectare, a second harvest 30 years later would be worth less than a dollar per hectare using a "reasonable" (i.e., realistic) discount rate of 20%.

Most of the increase in forest sector FDI has been in the pulp and paper capacity in developing countries, rather than SFM in natural forests. Indeed, investment in pulp and paper in some countries has in fact been a powerful driver of deforestation rather than a manifestation of SFM. According to Savcor Indufor (2006), current growth in the plantation area in developing countries is 1.8 million hectares per annum, resulting in investment requirements of about $4 billion per annum. Whereas in industrialized countries, forestry FDI is dominated by the manufacturing and processing sectors (of the forest sector), in developing countries the emphasis is on primary sector activities.

As with forestry ODA, forestry FDI is unevenly distributed, with a concentration on countries with profitable forest industries. These tend to be where there is considerable harvesting of natural and semi-natural forests, and where industrial forest plantations are expanding (Savcor Indufor, 2006).

Box 3. Mitigating Risk

Risk is the main constraint to forest sector FDI. The World Bank created the Multilateral Investment Guarantee Agency (MIGA) in 1988 to provide political non-commercial risk insurance to investors and lenders with the aim of promoting FDI in emerging economies (Canby & Raditz, 2005). MIGA provides cover up to 15-20 years and $200 million, and also helps developing countries attract investment by developing investment strategies, providing information on investment opportunities, and helping with dispute resolution and legal services. But to date the MIGA has not been used much to support forestry FDI.

Developing risk mitigation instruments to encourage private sector investment in SFM is another proposed element of the portfolio approach further elaborated on in Section 4.

2.4.3 Investment Portfolios

Overall portfolio investment to developing countries is estimated at $90 billion per annum, and there is more than $2,000 billion in Social Responsible Investment portfolios in the US alone (Canby and Raditz, 2005). SFM could access international portfolio capital like pension funds due to its potential for secure long-term returns and because returns to forestry investment tends to be inversely related to returns to other types of investment (see section 3.2 on Eco-Securitization). But to access such sources, forestry investments need to show that they are secure and ethical – which probably means investing mainly in certified forest enterprises.

2.5 Public-Private Funding Partnerships (PPPs)

Arguably the main benefit of public funding is its capacity to catalyze private sector funding and partnerships. Thus multilateral ODA-based funding tends to have a high leverage ratio. For example, the International Finance Corporation (IFC) funds 11 forestry projects with an annual disbursement of about $400 million, but this is estimated to have a leverage factor of 500%, so that total investment stemming from IFC investments are about $2 billion per annum (Savcor Indufor, 2006). While the IFC has voiced their interest in supporting small and medium enterprise, to date their investments have been narrowly focused primarily on large pulp and paper operations. Investment in large pulp and paper operations is rarely a manifestation of SFM, and is in fact, in many cases the opposite. However, in some cases, large-scale investments in forest industries do implement appropriate environmental and social safeguards, a positive development.

3. New Emerging Financing Mechanisms

3.1 Payments for Ecosystem services (PES)

The past decade has seen the widespread emergence of markets and other payment schemes for forest ecosystem services such as watershed protection, biodiversity protection and carbon sequestration or stock protection (Box 5). The growing interest in these markets is driven by increasing appreciation for the multiple goods and services provided by forests, frustration with 'command and control' approaches, societal demand for ecologically sound products, growing pressures for corporate social responsibility, the desire of companies and individuals to neutralize their carbon footprints, and the forest industry's need for additional revenue sources.

Figure 2 on the next page summarizes the SFM business case for PES.

Box 4. Major Forest Ecosystem Services

- Purification of air and water
- Regulation of water flow
- Detoxification and decomposition of wastes
- Generation and renewal of soil and soil fertility
- Pollination of crops and natural vegetation
- Control of agricultural pests
- Dispersal of seeds and translocation of nutrients
- Maintenance of biodiversity
- Partial climatic stabilization through carbon stock protection or sequestration
- Moderation of temperature extremes
- Wind protection
- Support for diverse human cultures
- Aesthetic beauty and landscape enrichment

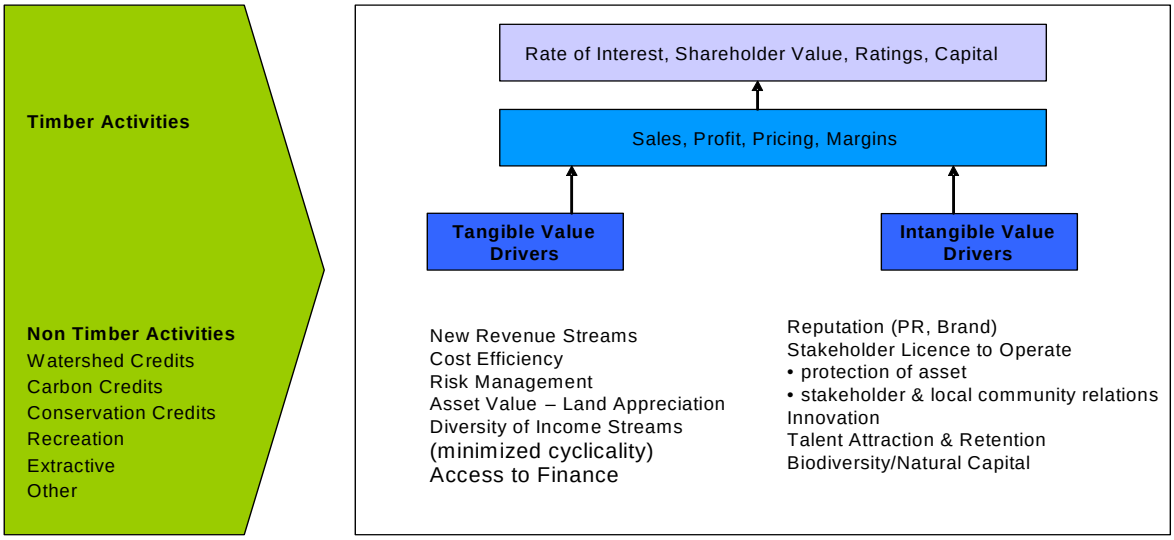
Source: Daily, 1997
* Note that the Millennium Ecosystem Assessment also includes the 'provisioning' services of ecosystems in producing food and raw materials (not included here).

This situation has given rise to a wide range of PES markets or mechanisms. These can be classified into four main types (Scherr et al, 2006):

- Public payment schemes to forest owners or managers to maintain or enhance ecosystem services (e.g., Costa Rica, China and Mexico);
- Trading between buyers and sellers under a regulatory cap or floor on the level of ecosystem services to be provided, known as 'cap and trade' mechanisms;
- Private deals in which individual beneficiaries of ecosystem services contract directly with the service providers (e.g., downstream beneficiaries and providers of watershed protection services);
- Eco-labeling of forest or farm products so that consumers are assured that production processes have a neutral or positive effect on ecosystem services.

PES can include both monetary and non-monetary transactions (such as deals involving shifting property rights) between individuals or groups who provide ecosystem services ('sellers') and individuals or a range of private or public bodies who pay to maintain these services ('buyers'). The key characteristic of these buyer/seller transactions is that the focus is on maintaining a flow of a specified ecological service, or in some cases of a bundle of ecosystem services. In order to ensure these flows are real, all PES transactions require regular and independent verification of the sellers' actions and effects on the resources.

Figure 2 The SFM Business Case for PES



Source: Jenkins, Salvesen, et al. 2005

In this section of the paper, the current status and future potential of PES are presented for each of the three main ecosystem services (carbon, hydrological services, and biodiversity), as well as for 'bundled' ecosystem services. Table 2 presents indicative estimates from Forest Trends' Ecosystems Marketplace of current and future (2020) value of the main forest-based PES mechanisms.

Table 2. Estimates of Current and Future Value of Forestry-Related PES (US $ million per annum)				
PES mechanism	US$ million per annum			**Notes on Developing Country Potential**
	Current Global Estimate	**Current Developing countries**	**2020 Global Estimate**	
Compliant (regulatory-driven) Carbon Forestry	$100 m	$50 m	$1,500 m	Depends on progress of 'Avoided Deforestation'
Voluntary Carbon Forestry	$15 m	$12 m	$35 m	Higher if carbon forestry restricted under regulatory carbon markets
Government-mediated Payments for Watershed Protection Services	> $2,000 m	> $1,000 m	$10,000 m	High untapped potential
Private Payments for Watershed Protection Services	$5 m	$2 m	$100 m	Good potential
Compliant Water Quality Trading	$7 m	$2 m	$200 m	High potential if legislative/ enforcement capacity
Land Conservation (land trusts, easements, and NGO land protection)	$8,000 m	$2,000 *	$10,000 m	High potential if legislative/ enforcement capacity.
Government-mediated Biodiversity Conservation Payments	$3,000 m	$6.6 m	$5,000 m	High potential
Certified Forest Products	$5,000 m	$120 m	$30,000 m	Good potential with improved governance
Compliant Biodiversity & Habitat Offsets	$1,000 m	Unknown	$2,000 m	High potential if legislative/ enforcement capacity
Voluntary Biodiversity & Habitat Offsets	$20 m	$10 m	$125 m	High potential
Bioprospecting	$18 m	$14 m	$35 m	Disappointing to date
* Estimate by McKinsey – World Resources Institute –TNC				
Source: Ecosystem Markets Matrix. Based on expert consultation and market monitoring. (www.ecosystemmarketplace.com)				

3.1.1 Carbon Forestry

Regulatory and Voluntary Markets for Carbon Forestry

The Intergovernmental Panel on Climate Change (IPCC) report of February 2007 warns that a rise in temperature this century of 2 to 4.5 degrees centigrade is almost inevitable, and 6 degrees or more "cannot be ruled out". Carbon trading, primarily through EU Emissions Trading Scheme (EU-ETS) and the Kyoto Protocol, has exploded in importance in the last two years. The global value of carbon contracts has risen from about $100 million in 2004 to an estimated $25-30 billion in 2006. But the share of forest carbon has been relatively small. This is because:

- It is currently excluded from the EU-ETS (although it could be included from either 2008 or 2013 depending on on-going discussions);
- Only afforestation, reforestation and agroforestry (known as A/R) are allowed in the Clean Development Mechanism (CDM) of the Kyoto Protocol; it is however worth noting that so far only one A/R project has been registered with CDM.
- Progress in the CDM and Joint Implementation (involving carbon offset projects in Annex I countries, composed of industrialized and transition economy countries) has been very slow mainly due to the complex rules and procedures for A/R and land use, land use change and forestry (LULUCF) activities.

Annex 1 discusses the development of carbon forestry in the voluntary carbon markets, and contrasts regulatory and voluntary markets. In practice many see a healthy complementarity between a large regulated market designed for its impact on climate change, and a smaller voluntary market responding to the needs of a wide range of potential buyers and sellers. The voluntary markets are providing vital experience with carbon forestry in advance of larger scale regulation, and have allowed innovative approaches like the Plan Vivo model (Dresner et al, 2006) to flourish. An important aspect of Plan Vivo is its orientation to agroforestry, which generates income and boosts farm productivity for around 1.2 billion people (mostly poor), is effective for degraded forest areas, and helps minimize leakage.

Forest Trends (Bayon et al. 2007) conservatively estimates the future value of carbon forestry of at least $1.5 billion by 2010 and $6 billion by 2020, but this is subject to huge uncertainty due to such factors as:

- Whether and when carbon forestry is allowed under the EU-ETS;
- Whether and how 'avoided deforestation' is adopted (see below);
- How ambitious future Kyoto emission caps are;
- Whether the US and Australia rejoin the Kyoto Protocol, or if they remain outside, the development of their own regulatory markets.

Climate Change Adaptation Funding

Given the apparent pace of climate change and its impact on ecosystems and livelihoods, the climate change adaptation agenda is also very urgent. Forest-based livelihoods will naturally be a focus of efforts to reduce the vulnerability of the poor to climate change. Watershed protection and integrated resource management, including for biodiversity, will be important investment areas, as will a range of capacity building and disaster preparedness measures.

Adaptation funding will come from a combination of UNFCCC funds, government expenditure, disaster relief and ODA, including through the GEF. There are three UNFCCC adaptation funds – the Special Climate Change Fund, the Least Developed Countries Fund, and the Kyoto Protocol Adaptation Fund, the latter funded partly by a 2% levy on CDM carbon credit revenues (but contributions so far to these funds have been very modest). Disaster relief can also be important, e.g., mangrove planting on the coastal Vietnam has been cited as a good example of a disaster relief project contributing to prevention (Bouwer and Aerts, 2006).

The Potential and Challenges of 'Avoided Deforestation'

The modest scale of carbon forestry would change if 'avoided deforestation' (AD) is adopted as a climate change mitigation strategy by the UNFCCC. Especially following the 2006 Stern Review (Box 7), there is increasing momentum for this. A key characteristic of AD is that it involves national or regional rather than project level actions. This is due to the problem of 'leakage' – without a national or regional program, logging tends to be displaced from protected or regulated forests to unregulated areas. If AD participating countries are to significantly reduce their deforestation rates, they will need to tackle the policy, governance and market failures driving deforestation. A discussion of the different options for AD is presented in Annex 2.

Box 5. The Stern Review and Avoided Deforestation

The Stern Review (2006), commissioned by the UK Government, points out that whereas forest conservation (carbon storage) is allowed for industrialized countries in the Kyoto Protocol, it is not permitted for developing countries where most deforestation takes place, causing 'at least' 18% of man-made CO_2 emissions – this makes it the second most important source of emissions. Stern therefore argues for AD as one of four 'key elements' of a global climate change mitigation strategy, arguing that it would be a "highly cost-effective way of reducing greenhouse gas emissions … fairly quickly."

This cost-effectiveness is derived from the observation that land use opportunity costs are generally low compared to the value of carbon. A study of eight countries contributing 70% of carbon emissions from land use change found an average land use opportunity cost of $1-2 per ton of averted CO_2 emissions. This compares to unit costs up to 30 times higher for cutting emissions from fossil fuels. AD would thus reduce the global cost of climate change mitigation, and, although the emission reductions may not be permanent, would buy vital time for technological and policy changes to cut industrial emissions. On the other hand, Stern recognizes that "major institutional and policy challenges" must be overcome to do this.

Financial and SFM Potential of AD

Estimates of the global value of AD payments are subject to major variation depending on the underlying assumptions. Assuming a conservative carbon value of $10 per ton of carbon dioxide (CO_2e), estimates include a net present value of $150 billion (Chomitz et al, 2006) and annual revenue of $2.3-12 billion (Ebeling, 2006). But with more positive assumptions about the carbon price ($10-20/t CO_2e) and deforestation reductions (20-50%), Ebeling (2006) estimates annual AD revenue at $7-23 billion. Ebeling (2006) also presents the potential AD revenue by country (see Annex 7). These calculations show that there would be 'winners' and 'losers' among the countries (Box 6).

Box 6. Winners and Losers from Avoided Deforestation

Winners and losers from AD will be determined by their levels of forest cover, current deforestation, and baseline deforestation rates. The winners would be those with more forest cover and high deforestation rates, assuming they are able to lower these. The losers would be countries that have reduced their deforestation rates or are experiencing forest transition like India and China. A key issue for political acceptability in the Climate Change Convention is whether to reward past conservation efforts by, for example, Costa Rica, which would be one of the 'losers'. This could mean allowing some 'hot air' into the system, as happened when Russia was persuaded to ratify the Kyoto Protocol. The financial incentives for participation will be determined by how the baseline is set – probably at the average deforestation rate for the 1990s, but this could be hard to prove for many countries.

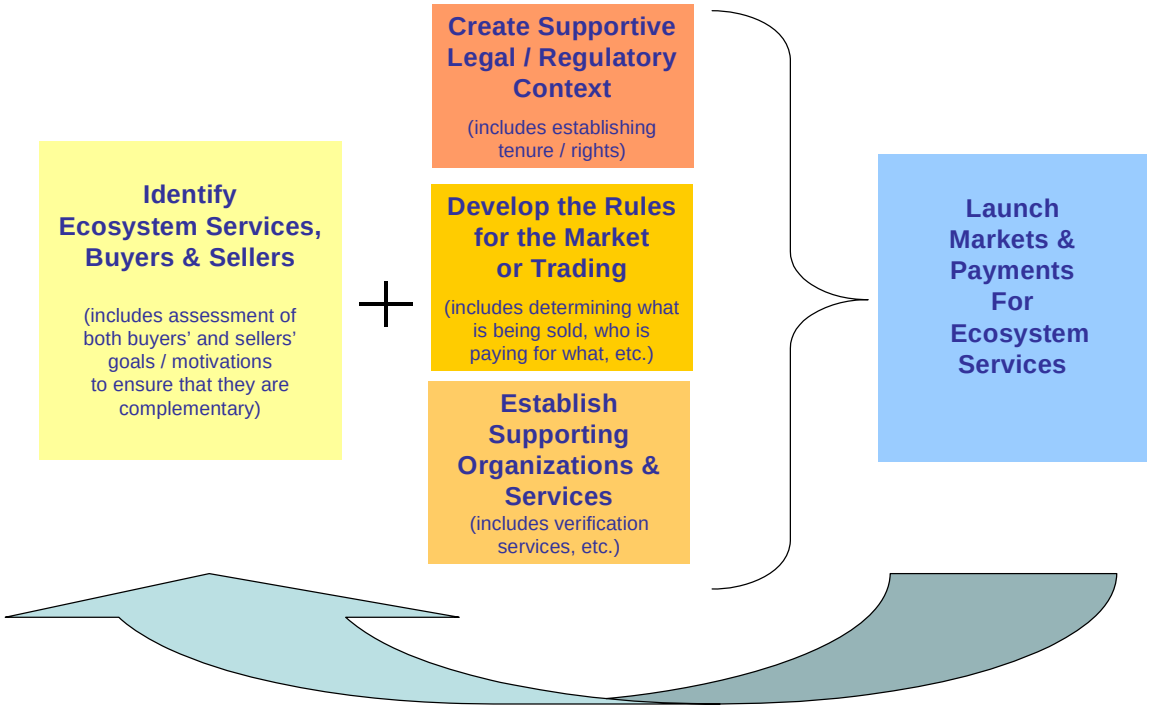
Source: mainly Ebeling (2006)

Table 3. Estimates of Global Annual Revenue from Avoided Deforestation (Ebeling, 2006)			
Carbon price $/t CO_2e	10% cut in deforestation $ billion	20% cut in deforestation $ billion	50% cut in deforestation $ billion
$10	2.35	4.70	11.76
$15	3.52	7.04	17.60
$20	4.69	9.38	23.44
Note: adjusted from Euro values (exchange rate $1.29 per Euro).			

While these AD revenue flows may be significant, they could prove less important for SFM than the indirect impacts of legal, policy and governance reforms introduced to reduce deforestation (although some countries could attempt to cut deforestation mainly by targeted incentives to forest managers, this approach would be prone to leakage). For example, if effective, these reforms would reduce illegal logging, and raise wood prices domestically and internationally. A necessary condition for this to take place is to have a credible and reliable system to prepare a base-line and monitor ALL forest harvesting activity in a country.

AD would also be very important for UNFF Global Objective 3 since it could provide a major new funding source for protected areas. It would result in major ancillary biodiversity benefits, and it has been suggested that AD can resolve some of the conflicts between the UNFCCC and Biological Diversity Conventions - one source (Santilli et al, 2005) sees it as a potential mechanism for "implementing" the latter. An initiative to bring CPF technical expertise to emerging UNFCC investment in SFM is another element of a Portfolio, further elaborated on in Section 4.

Figure 3. Key Role of the State for PES Market Development



Adapted from Brand, David. 2002. "Investing in the Environmental Services of Australian Forests," in S. Pagiola, J. Bishop, and N. Landell-Mills (editors). *Selling Forest Environmental Services: Market-Based Mechanisms for Conservation and Development.* London, U.K.: Earthscan Publications.

3.1.2 Payments for Watershed Protection Services

Demand for clean water will continue to grow fast – water use has increased at twice the population rate for the last hundred years, and demand could double or triple by 2050 – while watershed erosion is increasing supply scarcity. Most people live downstream of watersheds and 40% of major cities rely on forests or protected areas for their drinking water (Dudley and Stolton, 2003).

Payments for watershed protection services can be for three main types of service: water quality, flood control and (dry season) water quantity. It is important to note that the precise role of forests is often uncertain, especially for the latter two. The wide range of public and private mechanisms involves a diversity of public and private sector buyers and institutional arrangements. Whereas national and private schemes have grown fast in Latin America, they are rare in Asia and Africa.

Values and Examples

Annex 8 documents a range of watershed payments and shows that public schemes are currently much more important (over $2 billion globally) than private or market-based schemes (less than $5 million), although the latter are growing fast and could be worth $100 million by 2020. There are a few 'cap and trade' water quality trading systems located in the US and Australia, but these are demanding in terms of administrative and enforcement capacity. Important state-mediated watershed payment programs are given by Scherr et al, (2006 and Bishop et al, (2006).

Important state-mediated watershed payment programs include (Scherr et al, 2006, Bishop et al, 2006):

- China: over 7 million hectares of hillsides have been planted or protected in the Sloping Land Program, worth over $1 billion since it was set up in 1999, motivated by severe flooding of the Yangtze and Yellow rivers;

- US: the $150 million New York City Watershed Management Program involves a mix of fiscal/market-based measures to get upper watershed managers to adopt sustainable management practices to counteract pollution loading;
- Mexico: the World Bank helped the government establish a $20 million Hydrological Services Payment Program (PSAH) in 2002. Most of the beneficiaries are community forestry enterprises;
- Costa Rica: this involves payments to private forest owners by the government, partly funded by a fuel tax and carbon payments, and by hydroelectric utilities.

Both Mexico's and Costa Rica's programs involve annual payments to forest managers or owners based on the land use opportunity cost, e.g., in the case of Mexico about $36 per hectare is paid for cloud or mesofilous forests, and $30 for other forest, based on the returns to basic grains. Forest managers sign five year contracts and receive annual payments following satellite photos and random site inspections.

Latin America also leads the way on market-based or private watershed protection payments. Since 1995, irrigation farmer associations in the Cauca Valley of Colombia have been compensating watershed managers. In the WWF supported Water Fund in Sierra de las Minas Biosphere Reserve, Guatemala, there are several industrial and state users of clean water. And in a new World Bank/GEF program in El Salvador, PES agreements will be established between upstream farming groups and water users following local institution building. In Asia, the RUPES (Rewarding Upland Poor for Environmental Services) program also focuses on maximizing poverty reduction benefits while restoring native vegetation. Some strengths and weaknesses or constraints of watershed PES mechanisms are presented in Annex 4, and other examples of watershed PES projects or mechanisms are presented in Annex 8.

3.1.3 Payments for Biodiversity and Bundled Services

There are a wide range of PES mechanisms for capturing biodiversity values (see Annex 5), reflecting the fact that unlike water and carbon, biodiversity is by its nature a diverse service as well as a range of buyers including international NGOs, governments, pharmaceutical and tourism industries, and consumers of certified forest products.

Values and Examples
The most important category for biodiversity is 'land conservation' - land trusts, conservation easements, and expenditure by NGOs on conservation, estimated at $8 billion globally and $2 billion in developing countries. Second in importance is eco-labeling - certified timber and NTFPs have a current estimated global value of $5 billion, although to date only a fraction of this is in developing countries. It is also important to note that this is not usually additional payment to forest managers but is only the value of the wood since buyers or consumers have been generally unwilling to pay a 'green premium' in recognition of the co-produced ecosystem services. This means that the incentive for developing country forest managers to switch to certified forest management is still weak. But there are some promising trends:

- Demand for certified timber is increasing rapidly in Europe due to increased public concern about illegal timber products, and this should increase price;
- There are state procurement policies in eight European countries - Denmark's includes a premium of up to 30% for certified timber (Christian Jensen, personal communication):

Biodiversity offsets, both regulatory-based and voluntary, are also growing in importance. In the US, a major market for mitigation credits has sprung up involving over 200 banks or third party offset providers - developers buy 'like for like' credits from approved conservation banks to offset each hectare damaged. There are also emerging examples from Brazil, Mexico and Uganda (Bishop et al, 2006). The voluntary offset market, although modest in scale, is also increasing rapidly as a result of corporate social responsibility and 'license to operate' pressures. Such factors have resulted in public commitments by companies like BC Hydro, Rio Tinto and Walmart to offset their footprints. Investors like ABN-Amro, Henderson and IFC view biodiversity offsets as a new business opportunity which helps demonstrate corporate governance (Bishop et al, 2006).

Some biodiversity PES mechanisms, like eco-labeling, tradable development rights, and NGO conservation payments, as well as some state-managed watershed PES programs (e.g., Costa Rica, Mexico) capture the value of a

'bundle' of ecosystem services, even though biodiversity or water may be the most important service. The importance of bundled ecosystem payments is that a single compensated ecosystem service may be less than the opportunity cost of forest retention. *The current challenge is that 'additionality' is difficult to establish, so buyers may be reluctant to pay for co-produced services.*

Other PES mechanisms like bioprospecting, ecotourism, sport hunting and entrance fees are discussed in Annex 6, which presents some strengths and weaknesses of selected PES mechanisms.

3.2 Eco-Securitization and Forest-Backed Bonds

The aim of Eco-Securitization is to enable access to international capital through a forest funding instrument or bond in which the returns match the biological and sustainable growth profile of natural growth forestry. Such an instrument would enable long-term SFM benefits to be delivered 'up-front'. The long-term stable financial performance of forestry, coupled with its low or negative correlation with returns from other investment options, should make it an interesting alternative investment opportunity for institutional investors (currently $35 billion per annum) - if they can be convinced it is a secure investment

Plantation or timber securitization has already been used by some major forest companies in order to buy land or make capital investments. Although the forest asset is ‘sold’, the company can continue to manage it. Another key attraction, as regards forest finance, is that governments can collect forest fees 'up-front'. But there are some key conditions or constraints to eco-securitization as a financing option:

- Forest owners must have secure and transferable property rights over the assets, since this ensures the investor (bond holder) has access to future values, and is prepared to accept some sacrifice or restrictions on their property rights in order to secure the up-front finance;
- The assets and the suppliers (or borrowers) must be familiar, predictable and well-understood. There should be good past and/or predicted performance of the assets, backed up by reliable performance data (e.g., a good credit rating);
- Availability of 'credit enhancement', which is a kind of insurance over future returns generated by the asset, and makes the bonds more attractive to investors. This is available in some 'mid-income' countries like Brazil, but limited in lower income countries, although the IFC and the Multilateral Investment Guarantee Agency of the World Bank can play a key role in these areas;
- Non-existent or underdeveloped local capital markets limit the options available to financiers for managing the local currency risk;
- Difficulties in valuing biodiversity conservation.

Supported by IFC and DFID, EnviroMarket is exploring various options that address some of these issues, including the potential of PES (e.g., from avoided deforestation) to enhance the attractiveness of forestry asset backed bonds. *However, current PES are unlikely to be directly included in a securitisation due to their lack of familiarity, track record and scale.*

As part of the portfolio, further articulated in Section 4, an initiative to help develop securitization of forests, an instrument to bring greater public, private and philanthropic investment into SFM is also included..

3.3 Forest Insurance and Re-Insurance

Risk, in its many forms, is the main constraint to commercial credit, especially for SMFEs (Canby and Raditz, 2005). Commercial funding sources to the forest sector demand insurance or collateral from forest companies. For SMFEs, the essential importance of forest insurance is to access finance by insuring the lender's exposure to the risk of losing the trees. Therefore a significant demand for forest insurance from SMFEs is as a collateral guarantee for bank loans.

Certified enterprises are able to access lower cost risk insurance since they are perceived as less risky. As pointed out by Cottle (2001), there are strong similarities between SFM, certification and insurance criteria, notably the importance of transparency, information and monitoring.

The World Bank's Multilateral Investment Guarantee Agency (MIGA) was discussed in Section 2. Political risk instruments, like Partial Risk Guarantees from the World Bank's Sector Guarantee Programs, can also increase investor security and enable private sector finance insurance – it is most useful in the early stages of a policy reform process and when there are large and risky operations, or operations highly dependent on state support (Canby and Raditz, 2005). Similar programs are operated by the Inter-American Development Bank, Asian Development Bank, European Development Bank, and by some bilaterals, e.g., USA Export Import Bank.

SMFEs do not currently have access to forest insurance in the conventional insurance market, which thus limits their access to credit. This is because they are seen as too small. But ForestRe has identified an unsatisfied demand for risk insurance in Brazil, Russia, India, China and the emerging economies (www.forestre.com). ForestRe is in the process of establishing a new capacity to offer SMFE forest insurance globally in partnership with the 'A rated' Lloyd's Syndicates, London (Phil Cottle, personal communication).

There is also potential for insurance against the loss of forest cover in the delivery of watershed-based ecosystem services. Looking to the future, forest insurance is set to expand as structured financial instruments like forest asset backed bonds develop, and in facilitating the forward purchase of carbon credits.

3.4 Other Private Sector Instruments

3.4.1 The Equator Principles and Due Diligence

Since 2003, over 40 leading banks and finance institutions have signed up to the Equator Principles, which require that all loans over $50 million adhere to the environmental and social safeguard policies of the IFC. Revised in July 2006 to, among other things, apply to all new project financings with a total capital cost of $10 million or more. The revised principles reflect the experience of the 40 financial institutions that had implemented the original Equator Principles, and also recent revisions to the International Finance Corporation's (IFC) Performance Standards, upon which the Equator Principles are in part based. These sources represent over 75% of global project financing funds, and the Equator Principles are rapidly becoming a *de facto* standard for foreign direct investment in emerging markets (Canby and Raditz, 2005). The attraction for the lenders is that it lowers their risks, especially of costly litigation. Most forest sector impact will be in pulp and paper investment[2] – this is important since pulp and paper tends to attract hedge funds which have few regulatory controls and minimal levels of transparency and accountability (Capistrano et al, 2007).

In addition to adherence to the Equator Principles, four large banks (Citigroup, ABN AMRO, Bank of America and HSBC) have 'forest policies' specifying avoidance of any project connected with illegal logging. In 2005, Citigroup publicly declared that a client, Rimbunan Hijau – a Malaysian company targeted by NGOs over human rights and illegal logging issues – would need Forest Stewardship Council (FSC) certification for its Papua New Guinea operations (www.citigroup.com). This implies that certification or independent verification is needed for all transactions with these banks; a concern is that this might send 'good' forest companies to less demanding lenders (Canby and Raditz, 2006). ANB-AMRO also has a detailed risk policy for forestry investments (Source: http://www.abnamro.com/com/about/env_report_1.asp).

HSBC has expressed an interest to take additional steps and create a sustainable forestry investment fund. While this is yet to be operationalized it reflects the growing interest of large financial institutions to increase investments into SFM.

[2] Few other types of forestry project reach $50 million and most private funding to the sector is through portfolio investment, bonds and non-project specific loans (SAVCOR INDUFOR, 2006).

3.4.2 Community-Company Partnerships

The importance of community and indigenous forestry is covered in Section 2.4.1. The growing interest from the private sector forest industry in community-company partnerships is another emerging instrument to bring private sector investment into SFM and for the benefit of local communities.

A survey by IIED (Mayers and Vermulen, 2002) of 57 community-company partnerships in 23 countries found that the partnerships work best when communities have secure tenure and there is strong government support. Mayers and Vermulen, (2002) and Donovan et al, (2006) have cited some promising partnerships.

Such schemes impact on poverty mainly through supplementary rather than principal sources of income. Encouraging influences include decentralization and the emergence of 'fair trade' forest products. On the other hand, poor community members are often excluded; employee working conditions and community bargaining positions have changed little; and environmental impacts have been mixed, depending on the regulatory framework (Canby and Raditz, 2005).

3.5 Conservation NGO Finance

As environmental NGO's have grown to be hundred million dollar or billion dollar institutions, their own investment into SFM and biodiversity has become a major contribution. While some of their resources come from bi-lateral agencies (10%) a much larger percentage are from individual directions and memberships representing a wealth of new investment from civil society. This relatively recent growth (approximately 15 years) brings a new set of players to the SFM table as real investors.

Table 4 presents the income and assets of some major conservation NGOs, *although the forestry proportion is unclear* since they also invest in marine and other types of biodiversity conservation. The Nature Conservancy is by some way the largest conservation NGO. In 2005 it spent $702 million on conservation lands and easements, and had $1.5 billion invested in conservation lands and $1.1 billion in conservation easements (www.conservation.org).

Table 4. Income and Assets of Selected Conservation NGOs

Name of NGO	Income US $ Million	Assets US $ Million
The Nature Conservancy (TNC)	943 *	3,739
WWF International (WWF)	126 *	180 *
The Conservation Fund	106	289
Conservation International (CI)	93 *	261
The World Conservation Union (IUCN)	76 *	-
Natural Resources Defence Council (NRDC)	56	101
Nature Conservancy of Canada (NCC)	56	197
***** 2005 – other data are from 2003		
Source: NGO websites, http://www.greendonor.org/compare2.htm		

3.6 New Philanthropy

In the last 5-10 years there has been a dramatic change in philanthropy both in terms of players as well as objectives. New huge foundations like Gates, Buffet and Moore have dominated the traditional foundations in size and agenda, bringing business like approaches to philanthropy. Others are on the immediate horizon like Google, YouTube and even emerging new foundations in Europe are tuning into the issues of climate change and could be influenced to engage around forests and natural resource issues. Cultivating long-term and strategic partnerships with influential individuals also offers opportunities to generate both financial support and policy support for forest initiatives. The Clinton Global Initiative has illustrated the power of engaging wealthy individuals and foundations to address a variety of global problems including HIV Aids and Global Warming. The transformation of disease research by the Gates and Buffett gifts, the enhancement of UN capability by the Turner Foundation, the protection of entire water sheds in Kamchatka by the Moore Foundation or the protection of Patagonian forests by Thompson illustrate the power of this approach.

In addition to the more traditional foundations emerged in environmental issues (Ford and McArthur Foundations) there are a set of new potential philanthropic investors in SFM that could be divided into two categories:

1. Individual donors – cultivate a network of wealthy individuals for philanthropic financial support such as Gates, Buffett, Moore and Thompson, the latter three of whom have contributed to forest protection. Furthermore, there are opportunities to explore support from newly wealthy individuals, for example internet technology entrepreneurs.

2. Champions/forest ambassadors – Cultivate relationships with well-known and influential individuals who can serve as a champion spokesperson for forests and generate interest in forest initiatives.

4. Conclusions: Elements of a Portfolio Approach

The design of an *effective* approach to forest sector financing would include maintaining the current financing for forests as well as to mobilizing new and additional financial resources for SFM and would need to consider the broad realities on the ground (Maini, 1996, 2003). Additionally, any forest financing approach must recognizes and address not only the multiple types and multiple uses of forests but also the multiple interests or 'realities' that different countries, and groups within countries, bring to the international dialogue on forests.

It is important to note that nearly 66 % of the world's forest cover is located in only 10 countries and about 82% in about 25 "*forest- rich countries***"** countries. The remaining 18 % of the forest cover is shared by about 170 countries. Sixty-four countries, located mostly in North Africa, West Asia and small islands, have less than 10% of their land forested and are recognized as low forest cover countries (LFCCs). Broadly speaking, countries with high *per capita* income and richly endowed with forests are major producers and consumers of forest products. Industrialized countries with scarce forest rely heavily on offshore sources to meet their demand for wood and wood products. Forest-rich developing countries view forests as an important resource for economic development. Globally, nearly a billion people live in or near forests and depend on these forests for some part of their subsistence and livelihoods.

In face of these diverse realities and interests on the ground, it is unlikely that a single financing instrument could meet these needs, and perhaps this is why finding a solution to the forest financing problem has been so difficult. A broader, more strategic approach for financing SFM is needed that recognizes the wide range of policy and financing instruments available to fit the range of forest-related priorities and needs. *The challenge is to identify key financial resources that could be part of a portfolio approach or multi-dimensional Forest Financing Mechanism (FFM) that combines the resources of governments, private sector and civil society towards SFM.*

Box 7. A Portfolio Approach to Forest Financing

Although the exact mix of the 'portfolio' that makes up the FFM 'Mechanism' could consist of a variety of resources, products and services and new ones could be added (or subtracted) with more experience. The wide range of the current as well as new and additional sources of financing for forests, described in Sections 2-3 above can be clustered and identified into the following five major financial product and service 'types':

- Public funding
- ODA (bilateral and multilateral, grants and loans)
- Payment for ecosystem services
- Engaging the private sector
- Mobilizing philanthropic leaders for resource leadership

4.1 Towards a Forest Financing Mechanism (FFM)

An FFM that is based on a portfolio of resources, products and services as noted above has the capacity to capture the differential competencies of states, civil society and private sector at different geographic scales and offer the flexibility needed to address diverse and evolving needs world wide.

This proposed approach is necessarily broad and necessarily preliminary. The goal is to simply begin outlining the contours of a portfolio approach. One of the great strengths of such an approach is that not all products and services need to be sought simultaneously. A modular approach can be adopted. Moreover, it is a mechanism that is flexible, not only because it can be used by multiple parties in multiple ways, but also because it offers the ability of self-correction and internal learning by doing.

Past experience has shown that individually, the public sector, the private sector and civil society cannot mobilize sufficient resources. However, a combination of products and services from the elements of the portfolio - public funding, payment for ecosystem services, engaging the private sector, mobilizing philanthropic leaders for resource generation could add up to this win-win, mutual gains solution the UNFF is striving to achieve. A fundamental parallel action is for national governments to create an enabling environment for investment.

4.2 Giving Shape to an Illustrative Portfolio – resources, products, services and actions

4.2.1 Leveraging Private Sector Investment – Catalyzing a Risk Mitigation Instrument

As discussed previously, the private sector has continually pointed to risk (inflation, political, etc.) as the major barriers for increased investment in forestry operations in the tropics. The low returns from natural forests, coupled with high risk, drive investors to demand higher returns over short time frames -- putting it at odds with SFM. While the number of private investment funds is growing (Global Environmental Fund, New Forests, etc.) the need for risk mitigation remains a major barrier.

The FFM could influence the creation of new financing instruments, like insurance products or a significant risk guarantee for private sector investors investing in sustainable forest management projects in developing countries. The FFM could also play an intermediary/advisory role with an interest to support investment in natural forests and restoration opportunities. This would directly address the objective of bringing new investment in SFM from the private sector.

4.2.2 A Community SFM Program of Work

There is increasing evidence (Chomitz et al. 2006, Molnar et al. 2004, Mayers 2006) that community forestry enterprise and SMFEs represent a more promising route to SFM, and especially poverty reduction benefits, compared to the industrial forestry sector. However, historically these stakeholders have been largely ignored in discussions about SFM finance.

As part of the portfolio approach, the FFM could act as a convener and consensus builder and work with key institutions such as the IFC and GEF to develop a new instrument to invest into community-company partnerships and directly into community enterprises. This could be a relatively small investment ($100 million) with a large return. It would be critical that this instrument is significantly more streamlined, less risk adverse, and less bureaucratic than is the norm for those institutions.

For community and indigenous forest management, key elements of support would include:

- Legal ratification and protection of tenure and political rights
- Strengthening intermediary institutions that provide business development, technical assistance to communities
- More appropriate certification models for communities (based on CIFOR criteria and indicators approach)
- Development of community-company partnerships

FFM could also facilitate mobilization of additional funding from financial institutions like Equator Banks such as Citigroup and HSBC that have an interest in these types of investment. Supporting SMFE and community enterprises speaks directly to the Millennium Development Goals of improving livelihoods, and reducing poverty.

4.2.3 Capacity Building for PES

FFM could work through CPF and its members such as GEF and appropriate regional processes and programs such as the Katoomba Group to catalyze and coordinate the building of the infrastructure of new PES markets so that there are conservation and livelihood benefits. This includes the formulation of legal, policy and institutional basis for payments for ecosystem services (PES): all PES mechanisms, whether market-based or not, require an enabling regulatory, policy and institutional framework. For example, an important factor in Costa Rica's PES system is the National Fund for Forest Finance (FONAFIFO), a dedicated institution for PES. The key role of the state in developing and regulating PES mechanisms is clear. Scherr et al (2006) list a range of services associated with PES development: financing; management support of ecosystem services; measurement, monitoring and verification of ecosystem services; certification; registries; insurance; legal and financial advisory service and technical assistance for resource management and marketing. Perhaps, most fundamentally would be to provide transparent information on prices, transactions, how-to tools with these rapidly developing markets, particularly to government policy makers, project developers and low-income communities. Currently these services are provided mainly by external agencies, or not at all – the challenge is to build national capacity.

The FFM could mobilize additional resources for PES instruments from the GEF and other sources that have expressed interest in these emerging markets. This service of the FFM could also address equity and poverty goals. Avoided deforestation appears to offer one of the best hopes for forest peoples if it can be linked with more participatory approaches to biodiversity conservation.

4.2.4 Increased Donor Collaboration/Cooperation

The FFM, as an impartial objective entity could function as a coordinator to catalyze as well as to enhance the impact of donor contributions. While this does not represent a direct financing mechanism it is clearly fundamental to more efficient and effective investments to support the work of CPF and other efforts of bilateral donors to coordinate activities. The report has mentioned a number of the instruments such as PROFOR, NFP Facility, BPF, etc. that have been created. More effective linkage between theses instruments is critical for their success. Several members of the CPF such as the World Bank, FAO, ITTO, UNEP and the Secretariats of CBD, UNFCCC and CDD have programs and funds to directly or indirectly support SFM in a variety of ways. The FFM would work to strengthen these forest-related initiatives and to further improve coordination of their activities while helping partner countries tap into and use funds effectively. An additional value of the FFM would be to link to private sector initiatives like the Equator Banks and linkages to civil society initiatives as ITTO did with the Civil Society Advisory Group.

4.2.5 Improved Governance

FFM could help facilitate improved governance as well as encourage expanded usage of certification. SFM is in a competitive marketplace as regards public and private finance. As pointed out by Savcor Indufor (2006), allocation is either through political criteria or market forces, but both tend towards the highest return activities either to investors or to society. SFM's problem is that it is not currently perceived as producing high returns to either. This is because (a) the public good benefits of SFM are not factored in; and (b) if they are factored in, there is a high perceived risk they will not be achieved due to the prevailing policy and governance failures.

Thus several sources (e.g., Chomitz et al, 2006) argue that improved forest governance and secure property rights are more effective routes to SFM (compared to additional forest finance), since they tackle underlying policy and market failures, as well as being 'self-financing'; for example, the reduction or elimination of illegal logging will increase world market prices for wood products by an estimated 9-16% (Seneca Creek, 2004). However more resources are clearly needed to implement the policy, governance and regulatory reforms necessary to effect self-financing forestry.

The FFM could act as an advocate to promote improved forest governance and law enforcement, vital for increasing the economic incentives for forest managers to switch from unsustainable to certified forest management (Richards,

2004). It can also be noted that secure property rights and effective governance are pre-conditions for the emerging market-based finance mechanisms presented in Section 3.

Certification is another market based instrument that has had effect on SFM globally over the last decade. Because it operates as a voluntary market, the most important role for FFM would be to further invest in national SFM technical capacity building that is focused on certification, help support pilot projects that will inform expanding certification to non-timber forest products and ecosystem services, and continue to create a forum to convene the different certification schemes to help build greater complementarity.

4.3 The FFM Potential Sources of Investment

To raise new and additional sources of finance, a combination of the following sources would be pursued:

Public Funding: New voluntary contributions from the public sector would be solicited by the FFM to support either specific elements of the portfolio such as community forestry as a contribution to the overall portfolio.

Private Sector: The private sector has the potential to contribute at several levels:

a) Bring significant amounts of new investment into SFM particularly through ecosystem service markets that are anchored in forests and increasing commitments to corporate social responsibility (CSR). The roles of the FFM would be multiple and include creating public sector incentives (tax breaks) or risk reduction instruments (insurance, bonds) that would encourage greater private sector investment into SFM;
b) Serve as a deal broker or liaison between private sector investors and project originators (SMEs for example) in host countries;
c) Work with other institutions particularly civil society, non-profit organization in creating the best practice standards, brands, etc. that will give greater confidence to the market;
d) Directly solicit co-financing from corporate entities that will have common interests in elements of the portfolio (examples in SFM enterprises are HSBC and Citigroup; Mitsubishi and Shell, in PES and biodiversity funds; Unilever and Coca Cola, in water/forest issues).

Philanthropy: The FFM could also approach the range of philanthropic investors from foundations in the U.S. (i.e. the Gordon and Betty Moore Foundation and Google Foundation) and Europe to high net-worth individuals as was mentioned earlier in section 4.

4.4 FFM Governance

Within the proposed portfolio approach of the FFM, a variety of actors and stakeholders are envisaged to employ multiple financial products and services to generate new and additional resources for forests and forest-related initiatives. To be attractive to donors and investors and to effective in promoting SFM, the FFM must be a nimble instrument with a governance structure that both reflects the diversity of stakeholders and beneficiaries and delivers resources most efficiently. It is important that UNFF-7 and beyond explore governance options.

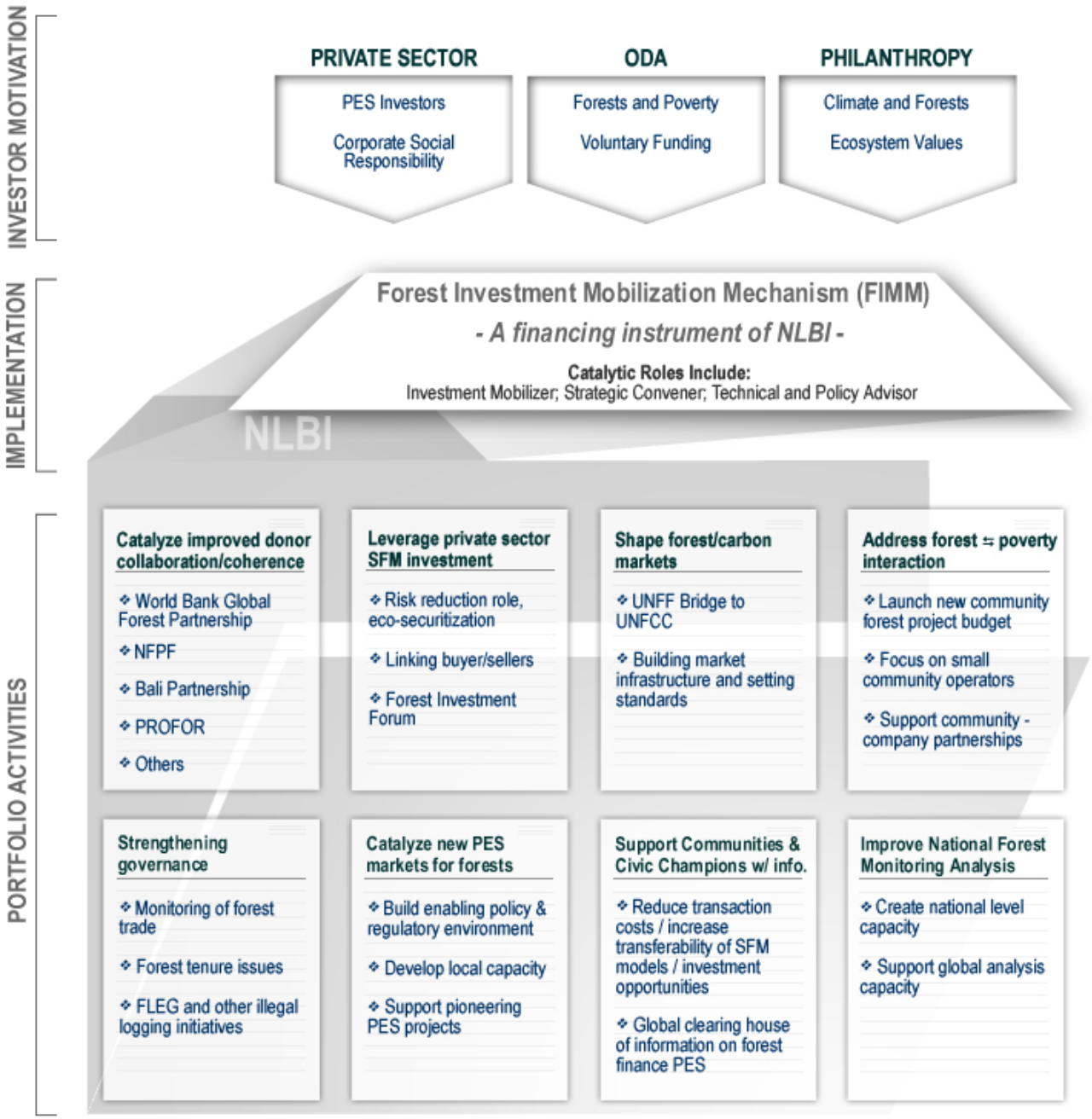
To ensure the multi-stakeholder platform an Executive Board membership could consist of representatives from developed and developing countries, the private sector, NGOs and civic leaders. Access to FFM resources could follow a number of tracks. Windows should be created for the set of global level activities described in the portfolio. There should also be a window for national level SFM projects to support nfp priorities. Additionally, there should be opportunities to support innovative projects that would have catalytic impact on SFM such as certification. Since it is difficult to predict in advance which options and partnerships will be successful, it is recommended that several diverse tracks be deployed simultaneously combined with an adaptive management strategy that allows for easy shifts in effort and resources as conditions dictate. Importantly, this approach would require a much more robust ongoing assessment capability than is traditionally the case.

Administratively, it will require a staffing and governing body that would ensure efficient management, strategy and policy guidance and effective monitoring and oversight. There are a number of experiences in efficient administration of a portfolio of products in the fields of immunization, plant genetic resources, and microenterprise as well as lean administrative structures in the private sector (Visa Corporation) that the FFM could draw upon.

4.5 FFM - Possible Next Steps

It is recommended that in follow up to UNFF-7, a broad consultation process be initiated to convene the appropriate stakeholders to design and develop the FFM structure, with a final recommendation to be presented at UNFF-8. As a new arrangement, FFM would need some seed funds to start. As part of the process of developing the FFM, ongoing and new initiatives on forests and how they link with the FFM should be considered. For example, the new initiative of the World Bank– the Global Forest Alliance – could be of high relevance as it proposes to take a similar approach for combing diverse sources of forest sector finance to leverage greater support for SFM.

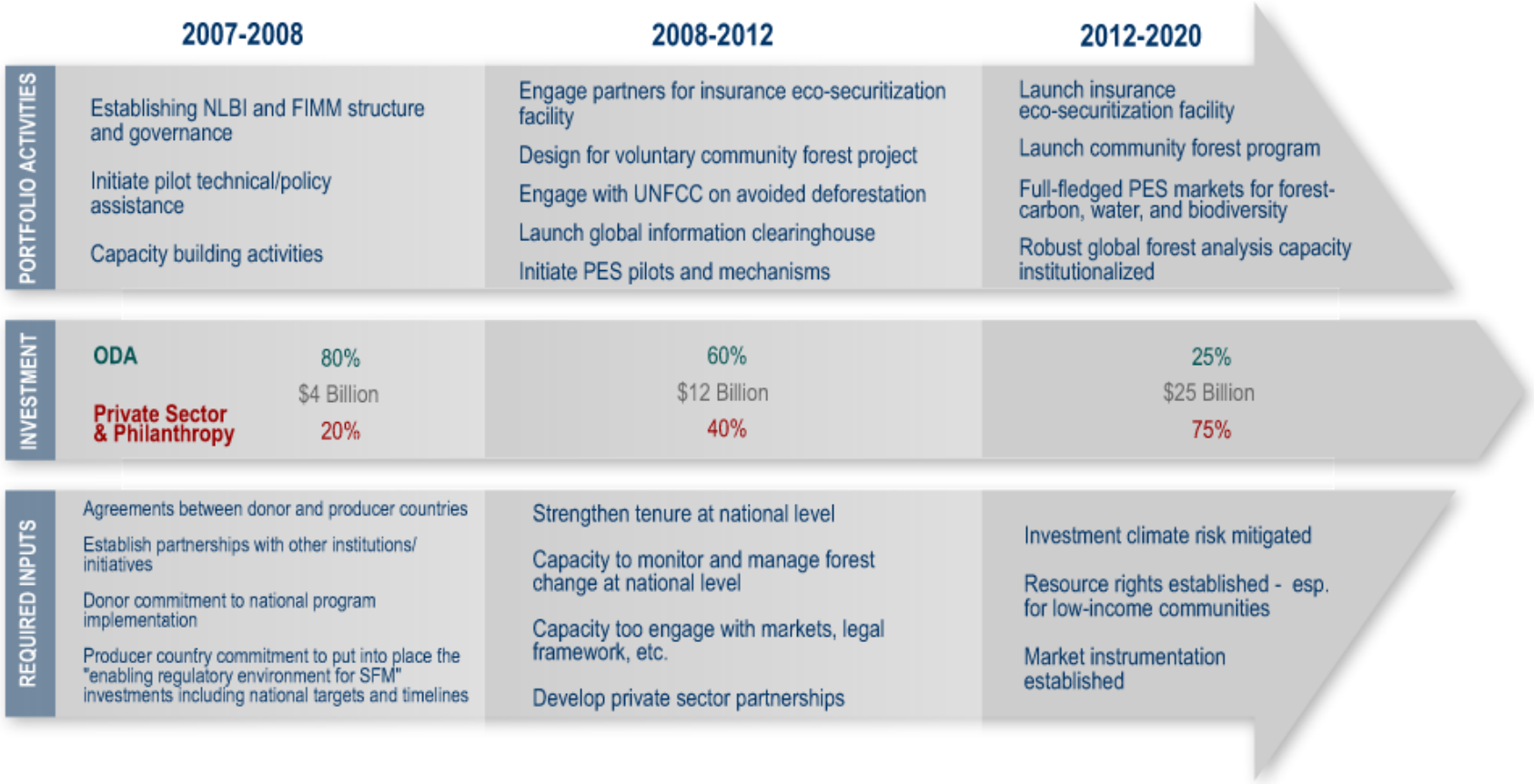
A Portfolio Approach for New SFM Financing



The Evolution of SFM Financing:

Expanding from grants and conditionality to new investments around contracts for and provision of public goods

A Potential Scenario with Timeline and Illustrative Development Examples



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Annex 1. Development of Carbon Forestry on Voluntary Markets

Issues such as 'additionality', 'leakage' and 'impermanence', and complex carbon measurement and accounting methodologies, have caused the UNFCCC technical bodies to impose a complex set of rules and procedures for carbon forestry - so that only 1 forestry project has been CDM certified (several methodologies have been accepted) by January 2006. But on the voluntary carbon trading markets, like the Chicago Climate Exchange, forest carbon has been much more popular. Voluntary carbon markets are growing fast due to (Bayon et al, 2006):

- The difficulties and costs of generating carbon credits in the Kyoto Protocol;
- Corporate social responsibility (CSR) pressures;
- Individual, company and 'event' demands (e.g., 2006 Football World Cup which offset 100,000 tons at €10/t CO_2e) to neutralize carbon footprints;
- Companies wanting to develop carbon neutral products (e.g., BP ultimate grade petrol in Australia);
- Companies anticipating future emission regulations.

The table below identifies some of the advantages, as well as disadvantages, of the voluntary carbon market compared to the regulatory market. A key advantage of the voluntary market is that it allows 'gourmet carbon' options, i.e., a combination of carbon, social and/or biodiversity benefits. Carbon offset investors or buyers can pay a premium for gourmet carbon over 'commodity carbon', and thus maximize their political or commercial benefits (Bayon et al, 2006). There is therefore more potential for SFM in the voluntary carbon markets, although an urgent need is to increase the credibility of voluntary carbon credits through the unification of standards and more rigorous accounting methodologies.

Comparison of Regulatory and Voluntary Markets for Carbon Forestry		
Criteria	**Regulatory-based carbon forestry**	**Voluntary market carbon forestry**
Scale/impact	Large	Limited
Carbon as a tradable ('fungible') commodity	High	Lower
Quality assurance, standardization and uniformity	Single standard and standardized verification ensures quality	Several standards and variable quality – less buyer confidence
Transaction costs	High	Lower
Speed of transactions	Very slow	Relatively quick
Price	Higher	Lower
Equity impacts	Poverty reduction difficult in CDM	Carbon & social benefits can be combined
Relationship with biodiversity	Trade-offs likely	Good potential for 'biocarbon'
Flexibility/Innovation	Modest – new methodologies can be proposed	High
Participation of NGOs and individuals	Low	High

Annex 2. Alternative Options for Avoided Deforestation

Several proposals are on the table for avoided deforestation, each with their strengths and weaknesses (see Table below). Most observers (Stern, 2006, Chomitz et al, 2006, Ebeling 2006, and others) argue for inclusion of avoided deforestation in the Kyoto Protocol since:

- It is likely to have the biggest impact and lower the global cost of mitigation, but only if the demand for carbon offsets is greatly increased by much more ambitious emission caps for industrialized countries - Chomitz et al (2006:198) argue that "by incorporating avoided deforestation into the global climate strategy, the world could afford to set a more ambitious goal for reducing CO_2 buildup. In the Kyoto context that would mean tightening emission allowances while allowing avoided deforestation as a source of emissions reductions. By increasing both demand and supply, the price can stay around acceptable levels for all parties, but the climate impact is greater" (but supporters of the other proposals feel that avoided deforestation would flood the market and cause the carbon price to collapse);
- It would be mainly self-financing, unlike the Brazilian Proposal;
- It would involve 'meaningful participation' in the Kyoto Protocol by participating developing countries, which would have to adopt LULUCF emission caps. The US has consistently stated that lack of 'meaningful participation' of the large emitting developing countries is a barrier to its participation. If the US did rejoin the Kyoto Protocol, this would boost the carbon price and avoided deforestation payments;
- Once countries have started to participate in avoided deforestation, they would have strong incentives to 'over-achieve' their emission reduction targets.

Proposals for Avoided Deforestation: Strengths and Weaknesses

Proposal origins	Nature of proposal	Strengths	Weaknesses	Financial implications
Coalition of Rainforest Nations (CRN)	Additional trading mechanism in Kyoto Protocol	Most mitigation impact; facilitates stricter emission caps and US participation	Fears of 'market flooding' and reduced pressure to cut industrial emissions; political acceptability due to winners and losers	Depends on carbon price but likely range of $7-23 billion per annum
German Advisory Council on Global Env. Change	Parallel Protocol for LULUCF activities	Avoids market flooding and reduced pressure on industrial emissions	Less incentive for Annex 1 countries since de-linked from Kyoto caps: carbon value would be lower	Difficult to predict but much less than the CRN proposal
Brazil government proposal	New dedicated UNFCCC Fund for avoided deforestation	Avoids carbon trading problems, easier to develop biocarbon/SFM	Not market based (carbon trading) so relies on ODA; may not be cost-effective due to weak targeting	ODA support could be modest
Voluntary market (default option)	Continuation carbon forestry on the voluntary markets	Avoids the problems of regulatory markets	Limited scale & impacts; leakage problem of project level activities	Modest impact – voluntary carbon forestry estimated $35 million by 2020

Sources: Chomitz et al, 2006; Ebeling, 2006; Schlamadinger et al, 2005

Annex 3. Forest revenue systems in Africa: Highlights from a recent survey

Forest revenue systems in Africa: Highlights from a recent survey

- Benin has not raised forest taxes since 1974 – it has an overall forest taxation of around $\$1/m^3$.
- In the DRC, there are 60 to 80 forest taxes administered by 8 agencies – the total level of forest taxation comes to about $\$5/m^3$.
- In Gabon, most forest taxes have not changed for 25 years and there is a reliance on export taxes to generate income.
- In Ghana, the problem is that there has not been a mechanism to rapidly update forest taxation rates with the fall of the local currency against the dollar – the royalty rates were last updated in 1999 but the cedi is now (2002) only worth half its 1999 US dollar value.
- Use of *ad valorem* charges is frequent (Gabon, CAR for example); *ad valorem* taxes have the advantage that they do not need continual review, but they also encourage under invoicing and transfer pricing.
- Some taxes are so low that they must cost more to collect than they are worth, e.g., the DRC's surface area tax is just $0.0015/ha/year, Benin's royalty for native species other than Iroko is $0.5 – 2 per tree, and in CAR the average export tax comes to $\$0.26/m^3$.

What happens to forest revenue?

According to an FAO (2001) study of forest revenue and expenditure in 22 African countries, 26% of the 1999 state forest expenditure of these countries was funded by forest revenue or fees, 33% by the government 'treasury', and 41% by external funding. A 2003 PROFOR workshop (World Bank, 2004) also revealed that:

- In Cambodia, 20% of forest revenue goes to the Forest Department;
- In Cameroon, about half of forest royalties go to government, and of this a 'percentage' goes to the Forestry Development Fund – the rest goes to local villages and councils;
- in Indonesia, non-tax and tax revenues are differentiated, with the non-tax share used for reforestation;
- in Brazil, except for the 'forest recovery fee', all forest revenue goes to the federal budget.

The FAO (2001) study also found that in all but one of the 22 African countries, governments spend more on forestry than the revenue they collect. Therefore while a high proportion of forest revenue may go into the 'state coffers', considerably more revenue is usually returned for use by the forest sector, resulting in a net public revenue flow to the forest sector.

Annex 4. Strengths and Weaknesses of Watershed PES Mechanisms

Strengths and Weaknesses of Watershed PES Mechanisms	
Strengths/benefits	**Weaknesses/constraints**
Beneficiaries or users are easy to identify and, where there is scarcity, are often willing to pay for forestry interventions – even though there may be weak scientific evidence	Hydrological impacts of forest interventions are largely site-specific and hard to prove. Where users are not getting what they are paying for, the durability of such programs is doubtful
Investments in watershed management are cheaper than treatment or new water supplies, e.g., in the US, it is estimated that each $ spent on watershed protection saves $7-200 in new filtration and water treatment facilities	In state managed programs, cost-effectiveness can be problematic, e.g., research of Mexico's PSAH shows that only 10% of payments have gone to 20% high risk forests: tendering schemes are needed to reduce over-payments
High win-win potential in developing countries since upper watershed farmers are usually poor, e.g, RUPES program has built collective action institutions and consolidated tenure	Common equity constraints are insecure tenure, weak local institutions, and weak or inequitable public enforcement capacity; strong donor/NGO support has been needed
Works best when there is (a) scarcity of clean water, and (b) water users with capacity to pay, e.g., urban citizens	Beneficiaries are often poor and/or unwilling to pay for a 'free good' or their basic right to water; difficult to exclude beneficiaries who won't pay
For the private or market-based mechanisms, there is good potential for leverage of federal or municipal finance	'Cap and trade' mechanisms are demanding of administration and compliance, so developing country schemes rely on heavy external support
Sources: Scherr et al (2006), Bishop et al (2006, Chomitz et al (2006), Bond (2005)	

Annex 5. Types of Payments for Biodiversity Conservation

Types of Payments for Biodiversity Conservation	
Type	**Mechanism**
Purchase of High-Value Habitat	
Private land acquisition	Purchase by private buyers or NGOs explicitly for biodiversity conservation
Public land acquisition	Purchase by government agency explicitly for biodiversity conservation
Payment for Access to Species or Habitat	
Bioprospecting rights	Rights to collect, test and use genetic material from a designated area
Research permits	Right to collect specimens, take measurements in area
Hunting, fishing or gathering permits for wild species	Rights to hunt, fish or collect flora (with limitations)
Ecotourism use	Rights to enter area, observe wildlife, camp or hike
Payment for Biodiversity-Conserving Management	
Conservation easements	Owner is paid to use and manage defined piece of land only for conservation purposes; restrictions are usually in perpetuity and transferable upon sale of the land
Conservation land lease	Owner is paid to use and manage a defined piece of land for conservation purposes, for a defined period of time
Conservation concession	Public forest agency is paid to maintain a defined area under conservation uses only; comparable to a forest logging concession
Community concession in public protected areas	Individuals or communities are allocated use rights to a defined area of forest or grassland, in return for commitment to protect the area from practices that harm biodiversity
Management contracts for habitat or species conservation on private farms, forests, grazing lands	Contract that details biodiversity management activities, and payments linked to the achievement of specified objectives
Tradable Rights under Cap & Trade Regulations	
Tradable wetland mitigation credits	Credits from wetland conservation or restoration that can be used to offset obligations of developers to maintain a minimum area of natural wetlands in a defined region
Tradable development rights	Rights allocated to develop only a limited total area of natural habitat within a defined region
Tradable biodiversity credits	Credits representing areas of biodiversity protection or enhancement, that can be purchased by developers to ensure they meet a minimum standard of biodiversity protection
Support Biodiversity-Conserving Businesses	
Biodiversity-friendly businesses	Business shares in enterprises that manage for biodiversity conservation
Biodiversity-friendly products	Eco-labeling: certified forest and agricultural products
Source: Adapted from Jenkins, Scherr & Inbar (2004)	

Annex 6. Strengths and Weaknesses of Selected Biodiversity PES Mechanisms

Strengths and Weaknesses of Selected Biodiversity PES Mechanisms		
PES mechanism	**Strengths/Benefits**	**Weaknesses/Constraints**
Eco-labelling (certified forest products)	Fast-growing demand driven by concerns about illegal imports; potential to move to landscape level certification	'Green premium' has not been paid by consumers resulting in weak incentives for certified SFM in developing countries
Biodiversity offsets	New conservation funds, target threatened sites, stimulate private sector involvement, high proportion in developing countries	Concern that it gives license to destroy unique habitats – offsetting is second best to avoidance; metrics of establishing 'like for like' replacement
Bioprospecting	> 50% of drugs derived from natural products; INBio model in Costa Rica shows potential of raising pharmaceutical funds	Unrealistic expectations, substantial business risks, risk of 'biopiracy', transparency and public accountability concerns
Ecotourism	Up to 20% of all tourism; potential for participatory approaches; new certification standard being developed by Rainforest Alliance	Most benefits have gone to urban-based companies; forests have shy and elusive wildlife; fickle market – tourism fashions
Sport hunting and fishing	Campfire program involves strong participation, successfully replicated in Luangwa, Zambia	Requires specific game animals; needs careful regulation
Entrance fees to national parks	Trend towards cooperative revenue sharing agreements with local communities	Previous free entry makes people reluctant to pay, few benefits to local stewards to date
Sources: Scherr et al (2006), Bishop et al (2006), Chomitz et al (2006), GEF (2006).		

Annex 7. Estimates of Avoided Deforestation (AD) Income in Millions of Euros

Estimates of Avoided Deforestation Income in Millions of Euros (10% Deforestation Reduction and €15/t CO_2e)			
Country	**Annual AD income as % of GDP**	**Annual AD income € million**	**Annual deforestation 000 ha ***
Top 25 countries (AD as % of GDP)			
1. Liberia	8.4	32	60
2. Congo, DR	6.2	285	461
3. Solomon Islands	3.1	7	40
4. Thailand	2.5	9	96
5. Zambia	2.3	127	445
6. Togo	2.1	0	20
7. Bolivia	1.8	136	270
8. Myanmar	1.7	73	467
9. Zimbabwe	1.4	48	313
10. Mongolia	1.2	18	83
11. Nicaragua	1.0	40	90
12. Benin	1.0	35	65
13. Central African Republic	0.9	9	30
14. Madagascar	0.8	30	57
15. Honduras	0.8	53	183
16. Malawi	0.8	13	33
17. Sierra Leone	0.8	7	19
18. Cambodia	0.8	32	166
19. Burundi	0.7	5	9
20. Papua New Guinea	0.7	22	139
21. Cameroon	0.6	79	220
22. Guinea	0.6	14	45
23. Paraguay	0.5	29	179
24. Nepal	0.4	24	79
25. Ghana	0.4	31	128
Other selected countries **			
Indonesia	0.3	701	1,872
Brazil	0.3	1623	2,822
Nigeria	0.3	208	410
Venezuela	0.2	185	288
Peru	0.1	63	94
Sudan	0.09	19	589
Gabon	0.05	4	10
Costa Rica	0.05	7	12
China	0.03	449	2,677
Tanzania	0.02	8	412
Mexico	0.01	47	319
India	0.01	50	251
* average annual deforestation between 1990 and 2005.			
** including countries with the highest levels of absolute deforestation.			
Source: Eberling, 2006			

Annex 8. Examples of Watershed Protection PES Projects and Mechanisms

Examples of payments for watershed functions (Source Pushpam Kumar[1])

Name of case study	Service provided	Supplier	Buyer	Instrument	Intended Impacts on forests	Payment
France: Perrier Vittel's Payments for Water Quality	Quality drinking water	Upstream dairy farmers and forest landholders	A bottler of natural mineral water	Payments by bottler to upstream landowners for improved agricultural practices and for reforestation of sensitive infiltration zones	Reforestation but little impact because program focuses on agriculture	Vittel Pays Each Farm About $230 Per Hectare Per Year For Seven Year. The company spent an average of $155,000 per farm or a total of $3.8 million
Costa Rica payments by hydroelectric utilities and others	Regularity of water flow for hydroelectricity generation	Private upstream owners of forest land	Private hydroelectric utilities, Government of Costa Rica and local NGO	Payments made by utility company via a local NGO to landowners; payments supplemented by government funds	Increased forest cover on private land; expansion of forests through protection and regeneration	Landowners who protect their forest receive $45 per hectare per year; those who sustainably manage their forests receive $70 per hectare per year; and those who reforest their land receive $116 per hectare per year
Cauca River, Colombia: Associations of Irrigators' Payments	Improved base flows and reduced sedimentation of irrigation canals	Upstream forest landowners	Associations of irrigators; government agencies	Voluntary payments by associations and government agencies to private upstream landowners; purchase by agency of lands.	Reforestation, erosion, control, springs and waterways protection, and development of watershed communities	Association members voluntarily pay a water user fee of $1.5-2 per litre on top of an existing water access fee of $0.5 per litre. The total investment was over $1.5 billion between 1995-2000
Australia: Irrigators Financing of Upstream Reforestation	Reduction of water salinity	New South Wales State (state government agency)	An association of irrigation farmers	Water transpiration credits earned by State forests for reforestation and sold to irrigators	Large-scale reforestation, including planting of desalination plants, trees and other deep-rooted perennial vegetation	Irrigators pay $40 per hectare per year for ten years to NSW State Forests. Revenues are used by State Forests to reforest on private and public lands. Private landowners receive an allowance but rights remain with State Forests
New York City: Watershed Management Program	Purification of New York City's water supply	Upstream landowners	Water users taxed by New York City with supplemental funds provided by federal state and local governments	Taxes on water user; New York City bond; entrust funds; subsidies; logging permits; differential land use taxation; development rights; conservation easements; development of markets	Adoption of low impact logging; retirement of environmentally sensitive land from agricultural production; forest regeneration	Dairy farms and forest owners adopting best management practices were compensated with $40 million, which covered all their additional costs. Foresters who improved their management practices (e.g., by adopting low impact logging) received additional logging permits for new areas; forest landowners owning 50 acres or more and agreeing to commit to a ten-year forest management plan are entitled to an 80% reduction in local property tax

Examples of payments for watershed functions (Source Pushpam Kumar[1])

Name of case study	Service provided	Supplier	Buyer	Instrument	Intended Impacts on forests	Payment
Columbia; Environmental Services Tax (eco-tax) for Watershed Management	Regularity of water flow for industrial uses; regularity and water purity for drinking water	Private landowners and municipalities	Industrial water users and municipalities	Eco-tax on industrial water users; payments by municipalities and watershed authorities to landowners	Improved forests management expansion of forests	NA
State of Parana, Brazil; Public Redistribution Mechanism	Rehabilitation of private and public areas for watershed protection	Municipalities and private landowners	State of Parana	Public-sector redistribution mechanism: State provided additional funds to municipalities with protected areas and which harbor watershed supply for neighboring municipalities	Rehabilitation of degraded forest areas	$170 per hectare
US: The Conservation Reserve Program	Reduction of soil erosion; improvement of water quality and regularity of stream flow	Owners of cropland and marginal pasture lands	US Department of Agriculture	Conservations easements; restoration cost-share agreements; yearly rental payments to landowners for engaging in conservation; additional incentive payments	Though the program is directed at farms, many advantages to trees: tree-planting strips, riparian buffers, grassed waterway, field windbreaks, shelter belts, living snow fences, and establishment of bottomland timber.	Farmers receive $125 per hectare per year and are compensated for 50% of the costs to establish approved conservation practices. Total government cost: $1.8 billion per year

Source: Scherr et al, 2004