



PROGRAMME ON FORESTS

*Working Draft*

Financial Mechanisms for Sustainable Forestry



## **FINANCIAL MECHANISMS FOR SUSTAINABLE FORESTRY**

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## **PREFACE**

This study has been prepared by Pedro Moura Costa, Jyrki Salmi, Markku Simula, and Charlie Wilson of Indufor OY and EcoSecurities. The UNDP Programme on Forests (PROFOR) developed the terms of reference that led to the structure and content of this paper. It constitutes a core part of UNDP's contribution to Programme Element II.a, Need for Financial Resources, of the Intergovernmental Forum on Forests (IFF).

A large number of interviews were carried out by the authors in preparation for this report. The full list of experts consulted can be found in Annex 2. The drafts of the study were commented on by Markku Aho, Philippe Alirol, John Dixon, Helmut Dotsauer, James Douglas, Eduardo Fuentes, John Gordon, Mahendra Joshi, Michael Linddal, Lennart Ljungman, Christian Mersmann, Tapani Oksanen, David Pearce, Reidar Persson, Ismail Roslan, Per Rydén and Ralph Schmidt. Marc Stuart contributed to the preparation of chapter eight. The preliminary findings were presented to representatives of the World Bank, the Inter-American Development Bank and WWF in a seminar on 14 January 1999, where valuable feedback was received. The authors wish to express their sincere gratitude to all whom have contributed to this study.

The views expressed in this study are those of the authors. Furthermore, the report is a working document and not an official UNDP document; it does not, therefore, represent the official views of UNDP.

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# FINANCIAL MECHANISMS FOR SUSTAINABLE FORESTRY

## EXECUTIVE SUMMARY

by

**Pedro Moura Costa, Jyrki Salmi, Markku Simula, and Charlie Wilson**

### **Overview**

The principal *objective* of the report is to outline a comprehensive global financing strategy for the implementation of sustainable forest management (SFM). The core components of this *strategy* include: the development of enabling conditions for the transition to SFM, including appropriate policy frameworks at international and national levels; the targeted use of concessionary finance in leveraging private investment; and the coordinated development of widely applicable instruments for SFM financing.

In addition, a *new financial mechanism* is proposed to fill a significant gap that is identified in the international forest financing architecture. This SFM Investment Promotion Agency (IPA) is specifically designed to leverage private sector finance by using small amounts of seed capital from the donor community to mitigate key investment barriers. The IPA's core activity would be to package investment opportunities and structure financial deals through a range of financial- and information-based services.

These recommendations are built up from a detailed analysis of the *structural and operational barriers* restricting investment in SFM, including weak sectoral financial management and the lack of mechanisms designed to recover value from the supply of forest services. Such barriers are the root causes of a financial shortfall, which is characterised as both quantitative and qualitative.

The financing strategy addresses the *quantitative shortfall* by more carefully targeting conventional forest financing flows and channeling additional private sector resources through innovative financing mechanisms, such as the Clean Development Mechanism and the proposed IPA. These actions, however, are recognised as being dependent on structural reforms needed both to create an 'enabling environment' for private sector investment and, crucially, to facilitate the transition away from unsustainable short-term forestry to SFM. Thus, ways to address this *qualitative shortfall* form an integral part of the financing strategy. Recommendations include strengthening the international forest regime, building national-level sectoral capacity through the national forest programme (nfp) process, and creating positive incentives for SFM. The establishment of an international 'forest fund' is not being proposed because it would duplicate the efforts of many existing institutions and financing mechanisms, and there would be great difficulty foreseen in raising funds on a sustainable basis.

In summary, the report contends that the question of *how much* additional financing is required for SFM is answered by addressing issues of *how* to finance SFM, particularly in the context of the private sector. The financing strategy therefore focuses on the structural reforms needed at both international and national levels, and the conventional and innovative financing mechanisms that can be used to this end.

### **Assumptions**

The key assumption that underlies these conclusions is that any comprehensive financing strategy must *harness both public and private sector resources*. Lack of coordination between the two is identified as an important barrier to SFM, particularly in the context of innovative finance. An attempt is therefore made to describe the roles that public and private finance can respectively play in SFM investments and, where appropriate, delineate roles and assign responsibilities. In particular, the leverage potential of concessionary finance in the early stages of SFM operations is highlighted, as well as the role of the public sector in promoting and developing market-based financing mechanisms.

It is further assumed that SFM has environmental, social, and economic benefits over prevalent unsustainable forestry practices. In part, this relates to the report's focus on the forestry sector and not wider land use practices or economic development considerations. Although this approach has limitations, particularly with regards such issues as forest conversion, it does allow for a more detailed study of how to improve the attractiveness of SFM investments.

It should also be noted that the remit of this study is global. Although due consideration is given to national-level processes within the financing strategy, the analysis and recommendations presented here are inherently general.

### **Sustainable Forest Management as an Investment**

The report argues that current financial resource flows into forestry are significant but inadequate to achieve SFM. Investment trends suggest the private sector to be the main source of additional finance. Market and policy failures, such as the inadequate valuation of forest goods and services, however, create perverse incentives for short-term unsustainable forestry. Another key constraint concerns the uneven distribution of costs and benefits. In particular, forestry generates significant non-market benefits at global, national, and local levels that have no recoverable value for investors.

The problem of SFM financing can therefore be encapsulated in two closely interrelated questions:

- How can existing financial flows be channeled into SFM rather than unsustainable forestry activities?
- How can financing mechanisms and limited public sector resources be used to leverage private sector investment into SFM?

## **Structural and Operational Barriers to SFM**

The enabling conditions for SFM investment require that prevailing structural and operational barriers be reduced. The former fall principally to the public sector and are related to policy and institutional frameworks and the creation of appropriate market conditions. Operational barriers are specific to investment projects (such as technology, skills, marketing, etc.) and can be addressed by both the private and public sectors.

## **Commoditisation of Forest Benefits**

A key structural issue is the lack of recognition by forest owners, managers, and investors of the full range of products and services supplied by SFM. Considerable scope exists to remove this barrier by exploring ways to 'commoditise' non-market services so as to create additional financial revenue streams for the forest owner or manager. In this way, commoditisation can play an important role in meeting the incremental costs of shifting from single product-based production (timber) to truly integrated multiple-objective forest management. Commoditisation can be achieved at global, national, or local levels through structural adjustment in policies, development of suitable instruments, and market development for products and services based on SFM.

## **Sources of Forestry Financing**

Financing sources are classified according to a domestic-foreign and public-private typology. In practice, these sources tend to be mixed through a range of combinations. As SFM should be (and often is) self-financing, *domestic sources* could be the main funding source. In developing countries, however, inappropriate policies and the lack of reinvestment of forestry revenue undermine the role of the domestic public sector. *Public sector resources* can exert significant leverage potential in removing structural barriers to investment specific to private sector needs and interests. Real and perceived risk, lack of sector knowledge, and poorly marketed and presented investment opportunities are examples of issues to be addressed.

*Official Development Assistance (ODA)* has an important complementary role to play but it has remained ineffective for a variety of reasons - notably donor policies and the lack of an effective link to good governance and recipient performance. While ODA is likely to be justified for low-income countries, global targets for 'new and additional' funding appear unrealistic, particularly in the revenue-generating forestry sector. ODA's effectiveness will largely depend on the extent to which it can leverage private sector financing.

The *private sector* is the key player in the financing of SFM operations. In particular, well-established debt, equity, and direct financing mechanisms will have a continuing role in activities such as timber production and wood processing. Most private investment, however, still flows to unsustainable forest management. The wider requirements of SFM will only be met by the implementation and widespread use of innovative financing mechanisms and the removal of structural and operational barriers.

## **Global Environment Facility (GEF) as a Source of SFM Financing**

The GEF is a mechanism to finance the agreed incremental costs of measures to achieve global environmental benefits in forestry-related areas of biodiversity, climate change, and international waters. As regards forest ecosystems, The GEF's focus has been in protected areas while less

attention has been given to sustainable use. The review of past GEF projects reveals that the contribution to SFM financing outside protected areas has been significant but mainly covering community participation and management of buffer zones around protected areas. Due to policy constraints, however, the GEF cannot currently finance sustainable logging and related activities. Thus, although the GEF is, and will continue to be, an important financing mechanism for forest conservation, its potential contribution to the broader financing requirements of SFM will require major structural changes.

### **Innovative Financing Mechanisms**

The potential of 18 innovative financing mechanisms for SFM was analysed according to a typology of direct commercial financing, direct concessionary financing, market development, and structural development mechanisms. Conservation activities appear to have the greatest potential access to innovative finance, but many other SFM-related activities can also benefit.

Many innovative financing mechanisms, however, like conventional finance, tend to be narrowly focused, often failing to correspond to the needs of multipurpose SFM. In particular, commercial-rate financing tends to be available only for late stage productive operations. Thus, there is a clearly identifiable need to explore ways of integrating or adjusting existing instruments, or developing new broadly applicable ones within the broad framework of SFM. Enhancing the compatibility and coordination of market-rate and concessionary financing mechanisms will be necessary to provide catalytic and operational support for private sector investments. Facilities to bind or package different mechanisms or financing streams together are identified as another key component of a comprehensive financing strategy.

Direct concessionary financing mechanisms tend to be poorly attuned to the needs and characteristics of private sector forestry investors. Moreover, they are best directed towards removing key structural barriers to SFM investment, complementing the role played by conventional public sector finance.

### **Clean Development Mechanism**

Innovative mechanisms that rely on the market by bringing recoverable financial value to environmental forest services such as carbon sequestration and watershed protection, seem the most promising. The Clean Development Mechanism (CDM), set up under the Kyoto Protocol to the UN Framework Convention on Climate Change (UNFCCC), has raised substantial expectations for forestry financing. The ongoing process to develop the CDM will define the respective roles of public and private sectors (i.e., the former will create market structures that facilitate the investment of financial resources by the latter). Pertinent issues and problems with such commodity-based approaches, including their inherent bias towards certain forestry types, activities, services, and users, need to be addressed before conclusions can be reached on their applicability for SFM financing.

### **SFM Financing Strategy**

The proposed SFM financing strategy addresses the two fundamental issues identified: (i) the redirection of additional and existing financing into SFM rather than unsustainable practices and (ii) the leveraging of private investment into SFM through various financing mechanisms and

using public sector resources. The overarching objective of the strategy is to mainstream SFM in the investment strategies of both public and private sectors at national and international levels, based on the recognition that SFM has to become a profitable and ethically attractive investment target.

The key elements of the strategy are revenue generation by the sector itself, the removal of structural and operational barriers, the commoditisation of environmental and social benefits of forests, tying financial support with performance and aid reform, and the development of mechanisms for leveraging private sector investment. Strategic interventions will be needed both at international and national levels. Each country will have to work out its own strategy for which the nfp provides a useful framework to ensure that barrier removal is comprehensive. At the international level, the policy framework needs to be strengthened, together with more carefully targeted concessionary funding, development of appropriate financing instruments, and improved coordination and cooperation between financing actors. A global level IPA is proposed as a key component of this strategy.

### **Investment Promotion Agency**

The objective of the IPA would be to develop and manage a range of financial services designed to facilitate private sector financial flows into SFM. Foremost of these activities would be an investment packaging and marketing facility to disseminate information on, and provide streamlined access to, the full range of financial resources, incentives, and mechanisms available to forestry at the global level. Depending on the needs of the investor or the investment, the IPA would bring these various funding lines together as part of a finance structuring service designed to address specific barriers to SFM investment. Such a facility would seek to attract private sector equity and debt financing from venture, institutional, or portfolio sources, using, where necessary, catalytic public sector or other concessionary funding.

The IPA's activities would include: investment packaging and structuring, identification and marketing of investment opportunities, promotion and development of innovative financing mechanisms, and streamlined access to risk mitigation services. These activities are designed to address the specific barriers to SFM investment identified in the study. In addition, three alternative institutional structures for the IPA are identified and compared. Two options represent a centralised approach; one option is decentralised, and suggests a series of franchises housed in existing financing institutions.

### **The need for an international Forest Fund?**

The IPA is not proposed as a panacea to the problems of forest financing. Its successful functioning is conditional or even dependent on appropriate investment environments being in place at both the international and national levels. This in turn entails addressing an array of outstanding market and policy failures in the forestry sector, for which the potential direct contributions of the IPA would likely be limited.

This raises the question of whether an international 'forest fund' is needed to channel and coordinate the disbursement of existing or additional ODA in supporting national structural development processes. Such a fund might also focus on countries and forestry types not covered



by existing financing mechanisms, particularly when ensuring that forest-dependent people are provided with alternative livelihoods and sources of income when needed. Furthermore, a forest fund could exploit potential synergies with the IPA role by; for example, supporting the initial steps of predominantly privately funded ventures within the framework of national forest utilisation strategies and creating incentives for private sector adoption of market-based financing mechanisms.

*Despite these considerations, the analysis carried out suggests that a traditionally conceived Forest Fund would largely duplicate the facilities and roles of institutions and financing mechanisms already active at both international and national levels.*

In any case, there is a clear need for better coordination and more careful targeting of available concessionary financial resources, as well as substantial institutional reforms. Whether a new forest fund could add value to this process should be carefully considered with regard to its potential role in mobilising additional funding and in addressing potential caveats. By contrast, the IPA's private sector orientation and horizontally integrated financial and information-based services represent a potential institutional innovation in terms of how concessionary finance can be more effectively used, in this case, to leverage significant private sector financial flows both from domestic and external sources into SFM activities and operations.

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## ACRONYMS

ACOPE	Costa Rican Association of Independent Power Producers
AfDB	African Development Bank
AIFM	Asian Institute of Forest Management
AIJ	Activities Implemented Jointly
AsDB	Asian Development Bank
BAT	best available technology
BPF	Bali Partnership Fund
C	carbon
C&I	criteria and indicators
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza
CBD	Convention on Biological Diversity
CBO	community-based organisation
CCD	UN Convention on Combating Desertification and Drought
CDM	Clean Development Mechanism
CEO	Chief Executive Officer
CER	certified emission reduction
CGIAR	Consultative Group on International Agricultural Research
CIFOR	Centre for International Forestry Research
CINDE	Costa Rican Investment and Trade Development Board
CO <sub>2</sub>	carbon dioxide
CoP	Conference of the Parties
CSA	core support agency
CTO	Certified Tradable Offset
EA	enabling activity
ECE	Economic Commission for Europe
EFI	European Forest Institute
EIT	Economies in Transition
ERU	emission reduction unit
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FCCC	UN Framework Convention on Climate Change
FDI	foreign direct investment
FFEM	Fonds Français pour l'Environnement Mondial
FONAFIFO	Fondo Nacional de Financiamiento Forestal (National Forestry Financing Fund)
fpa	forest partnership agreement
FPF	forest partnership facility
FRF	French Franc
FUNBIO	Fundo Brasileiro para a Biodiversidade (Brazilian Biodiversity Fund)
FUNDECOR	Fundación para el Desarrollo de la Cordillera Volcánica Central (Foundation for the Development of the Central Volcanic Range)
FYROM	Former Yugoslavian Republic of Macedonia
GEF	Global Environmental Facility
GEFOP	GEF Operations Committee
GHG	greenhouse gas

GIS	Geographic Information System
IA	Implementing Agency
ICE	Instituto Costarricense de Electricidad (Costa Rica Electricity Institute)
ICIMOD	International Centre for Integrated Mountain Development
ICRAF	International Council for Research in Agroforestry
ICSB	Innoprise Corporation Sdn. Bhd.
IDB	Inter-American Development Bank
IFAD	International Fund for Agriculture Development
IFC	International Finance Corporation
IFF	Intergovernmental Forum on Forests
IFIM	Innovative Financing and Incentive Mechanism
ILO	International Labour Office
INFAPRO	Innoprise - FASE Foundation Rainforest Rehabilitation Project
IPA	Investment Promotion Agency
IPCC	Intergovernmental Panel on Climate Change
IPF	Intergovernmental Panel on Forests
IPU	Investment Promotion Unit
ITC	International Trade Centre
ITTA	International Tropical Timber Agreement
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature
IUFRO	International Union of Forestry Research Organizations
JI	Joint Implementation
LDC	less-developed country
MDB	multilateral development bank
MIGA	Multilateral Investment Guarantee Agency
MINAE	Ministerio del Ambiente y Energia
MIT	Massachusetts Institute of Technology
MOU	memorandum of understanding
NEAP	National Environment Action Program
NEP	New England Power Company
NFM	natural forest management
nfp	national forest programme
NGO	non-governmental organisation
NSDS	National Sustainable Development Strategy
NTFP	non-timber forest product
OCIC	Costa Rican Joint Implementation Office
ODA	official development assistance
ODI	Overseas Development Institute
OP	Operational Program
OPIC	Overseas Private Investment Corporation
PAP	Protected Areas Project
PfB	Project for Belize
PFE	Permanent Forest Estate
PFP	Private Forestry Program
PROFOR	UNDP Programme on Forests
PVO	private voluntary organisation

QUELRO	Qualified Emission Limitation and Reduction Obligation
RBCMA	Rio Bravo Conservation and Management Area Carbon Sequestration Pilot Project
REIMP	Regional Environment Information Management Project
RIL	reduced impact logging
ROI	return on investment
SFM	sustainable forest management
SGP	Small Grants Program
SME	small and medium-scale enterprise
SSE	small-scale enterprises
STAP	Scientific and Technical Advisory Panel
STRM	Short Term Response Measure
t	ton
TFAP	Tropical Forests Action Programme
TNC	The Nature Conservancy
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organisation
UnSFM	unsustainable forest management
US\$	United States dollar
USIJI	United States Institute for Joint Implementation
WB	World Bank
VCF	venture capital funds
WEPCO	Wisconsin Power Company
WFP	World Food Programme
WHO	World Health Organisation
WRI	World Resources Institute
WTP	willingness to pay
WWF	World Wide Fund for Nature



## **SETTING THE SCENE**

**1.1 Background; 1.2 Objectives;**

**1.3 Methodology and Data; 1.4 Organisation of the Report**

## **PART I. SETTING THE SCENE**

### **1. INTRODUCTION**

#### **1.1 Background**

1. Underlying causes for deforestation and forest degradation include the non-recognition of environmental and social services value in terms of market prices and respective mechanisms to compensate such services to forest owners and managers. In addition, with the exception of carbon offset trades, there have been no mechanisms designed to trade in the global non-market benefits of forests. Recent developments in the international policy process under the Intergovernmental Panel on Forests (IPF) and its successor body, the Intergovernmental Forum on Forests (IFF), have opened up new horizons on how this fundamental problem can be addressed through provisions related to climate change and biodiversity conservation.

2. The IPF, under its Programme Element II International Cooperation in Financial Assistance and Technology Transfer for Sustainable Forest Management, invited UNDP and the Bretton Woods Institute, together with other relevant international organisations, to explore innovative ways to use both the existing financial mechanisms more effectively and to generate new and additional public and private financial resources for the management, conservation and sustainable development of all types of forests. In addition the panel discussed a proposal to establish an international fund for this purpose, particularly to meet the needs of developing countries. The idea of such a fund was first presented in the World Forestry Congress, in 1985, in Mexico City, and it was later taken up by the Food and Agricultural Organisation at the United Nations (FAO) in 1990 as a follow-up of the Independent Review of the Tropical Forest Action Programme.

3. In its second session in August-September 1998, IFF initiated discussion of the need for financial resources as one of the matters left pending by IPF under its Programme Element II.a. The note prepared by the Secretariat (IFF 1998) highlighted that substantial financial resources are needed for sustainable management of all types of forests, and that new and additional resources are not seen as forthcoming, despite commitments from both international and domestic public sources. Private capital flows are increasing, but it was noted that such flows might not significantly contribute to sustainable forest management (SFM). The private sector also faces problems in gaining access to start up capital and in overcoming risks and uncertainties associated with new operations. Various conventional and innovative financial mechanisms with potential application in forestry were reviewed, including the possible establishment of a global forest fund.

4. One major financial mechanism, the Global Environment Facility (GEF), has been supporting forest-related projects since its inception. Most of them have been implemented under the Forest Ecosystems Operational Programme under the Biodiversity Focal Area, but some additional forest protection projects fall under the Mountains, and Arid and Semi-Arid Zone Operational Programmes. In fact, biodiversity in forest ecosystems is a main activity in the GEF's biodiversity portfolio, currently accounting for 17 percent of its portfolio (GEF 1998). Under the climate change focal area, there is still no council guidance for carbon sequestration and related

forestry projects. The two existing initiatives of this nature were carried out during the pilot phase and would not be eligible under the current guidance. There is no operational programme focusing on carbon sequestration yet, but it is currently being developed.

5. The Third Conference of Parties to the Framework Convention on Climate Change (FCCC) held in Kyoto, Japan, December 1997, agreed on reduction targets for a basket of six greenhouse gases (GHGs) in industrialised countries (specified in Annex I of the FCCC) and established emissions trading and a Clean Development Mechanism (CDM) to encourage jointly implemented emissions reduction projects associated with sustainable development between developed and developing countries. The Kyoto Protocol also sets out the principle that forestry activities may be used to offset industrial emissions: “net changes in greenhouse gas emissions from sources and removals by sinks resulting from direct human-induced land use change and forestry activities, limited to afforestation, reforestation, and deforestation since 1990, measured as verifiable changes in stocks in each commitment period shall be used to meet the commitments in this Article of each Party included in Annex I” (Article 3(3), Kyoto Protocol). Although the appropriate practical modalities remain to be defined, an action plan agreed to at the recent Fourth Conference of Parties (CoP) held in Buenos Aires, Argentina, November 1998, has set out a work programme for the completion of the required rules and methodologies by CoP6 to be held at the end of the year 2000. It is apparent, however, that this Kyoto Protocol provision potentially opens up new opportunities for financing of sustainable forestry development, which could be far beyond what is currently channeled from developed to developing countries.

6. These promising developments raise, however, some fundamental concerns that should be addressed in the design of future implementation mechanisms for financing of SFM. Inappropriately defined partial approaches in financing criteria and programme design (emphasising a particular goal, e.g., biodiversity, carbon sequestration, or another “global” benefit) risks leading to sub-optimal solutions and unsustainable interventions not necessarily reflecting the national and local priorities of the places where they are undertaken. An integrated approach is therefore needed. It would combine socioeconomic development and environmental protection (including climate change and biodiversity) within the framework concept of SFM. A key challenge is to develop mechanisms to achieve global objectives with local demand-driven action. Global or national benefits should be received by individual land owners or users. Otherwise there needs to be a way of channeling the national or global benefits down to those who pay for maintaining the forests by foregoing exploitation of the land. The same argument also applies to private sector investors (Rydén, pers.comm.).

7. The UNDP Programme on Forests (PROFOR) seeks to promote forest policies addressing sustainable livelihoods and poverty eradication. Its objective is to promote SFM and related public and private sector partnerships at the country level through a collaborative approach to SFM, maximising the use of existing instruments and available resources for such financing. PROFOR also supports new and innovative financial instruments and partnerships. The underlying assumption is that SFM can contribute to poverty eradication and sustainable livelihoods.

8. Within its mandate and programme work, UNDP, as the lead agency for the IFF Programme Element II.a on financing needs, and as one of the GEF implementation agencies, is ideally positioned to develop strategies and modalities for how climate change and biodiversity should be integrated in the sustainable development of forests in developing countries with par-

ticular reference to new financing mechanisms and improving the effectiveness of the present ones. This study has been designed with the purpose of assisting UNDP in these tasks, with particular emphasis given assisting the IFF.

## **1.2 Objectives**

9. The purpose of the study is to develop operational concepts for financing of SFM integrating environmental and socioeconomic goals in programme and project design. The work will focus on improving the efficiency of existing financial instruments, and ways and means on how instruments currently in the planning stage (such as the CDM) could be made to contribute to SFM. The main attention is given to the international level, notwithstanding the importance of national-level arrangements for effective financing of SFM.

10. The specific objectives of the assignment are as follows:

- review the financial needs and problems and issues related to forestry financing both at national and international levels;
- review the conventional financing mechanisms seeking possibilities for their improvement;
- review the GEF's forest-related work with regard to lessons to be learned on sustainability, effectiveness, and efficiency from the viewpoint of financing SFM;
- identification and assessment of innovative financing mechanisms with regard to their potential for SFM financing, with particular attention paid to various forms of forestry-based carbon offsets as a source of funds;
- propose viable strategic approaches for forestry-related international financing that address the need for integration of developmental and environmental aspects in Programme and project design;
- make action recommendations on the improvement of the existing, forthcoming, and new financing instruments with regard to their forestry-related provisions considering implementation both at national and international levels.

11. The team was also requested to assess the political viability of the proposed international forestry fund as a possible element of strategic approaches to raise funds for SFM. This was not explicitly done in the study as, based on the deliberations of IFF2, it was clear that it will not be possible to raise financial resources for such a fund from ODA sources. As an option, the study identified an Investment Promotion Agency (IPA) which could address the same goal but using a different approach.

## **1.3 Methodology and Data**

12. A considerable amount of scientific work has been carried out on the various issues related to the problem; this work was reviewed as the starting point. Also reviewed was gray literature on the subject, which has proliferated during the last few years. Interviews were carried out among the representatives of international organisations, multilateral development financing

institutions, bilateral donor agencies, and representatives of non-governmental organisations (NGOs), and the private sector (Annex 2). Based on the review, an analytical framework was developed and key issues were identified to be addressed during the analysis.

13. On the GEF instruments and programme work the current guidance documents were reviewed from the SFM perspective with the purpose of identifying areas which could be addressed to improve efficiency and sustainability. A sample of forest-related GEF projects in biodiversity and climate change was taken for a more detailed review based on project documents and plans, monitoring, and evaluation reports, etc.

14. A number of international organisations and countries have been active in developing innovative mechanisms and instruments for joint implementation and specific forestry financing. The different approaches and instruments, in various stages of implementation, were reviewed and their strengths and weaknesses were assessed from the viewpoint of broader than national-level application. Based on the available documentation, a review of the key proposed instruments was carried out. A fact sheet was prepared on each of them and the results of the assessment are included in Annex 4.

15. There are two parallel studies under way related to the work of IFF: one is a study of economic instruments to promote SFM, and the other is an analysis of the valuation of forest goods and services. All three of these exercises are closely related, and there will undoubtedly be some overlap between them. This explains, however, why many economic instruments, particularly those applied at the national level, have not been covered in detail in this study.

16. The work was carried out by a team of four consultants under close supervision by, and in cooperation with, PROFOR.

#### **1.4 Organisation of the Report**

17. The report is divided in three main parts.

**Part I** – Setting the scene, which introduces the background, objectives, and methodology of the study, and further defines the analytical framework used.

**Part II** – Status and present instruments of forest funding which first analyses the financial requirements to achieve SFM, then studies the specific characteristics of financial needs and classifies the main sources and beneficiaries. An overview of the conventional financial mechanisms is provided, followed by a chapter on GEF. Finally, so-called innovative financing mechanisms are described and briefly analysed. This section also includes the assessment of forest-based carbon sequestration as a potential financing mechanism.

**Part III** – Proposed mechanisms for promoting SFM including a financing strategy and the description of a proposed IPA.

## 2. ANALYTICAL FRAMEWORK

### 2.1 Key Concepts and Definitions

18. This section provides definitions on selected concepts integral to this report. These concepts are: sustainability, forests, forest management, SFM, unsustainable forest management (UnSFM), deforestation, forest degradation, afforestation, reforestation, and forest values.

19. **Sustainability** is the capacity to last or continue. It is defined as the maintenance of production capacities at levels which at least prevent depletion and which, at most, give future generations the opportunity to enjoy a measure of consumption equal to that of the present generation (Jacobs 1991).

20. **Forests** are ecosystems dominated (at least 10 percent ground cover) by trees with climax height of more than five meters (FAO/ECE 1993, p. 34). In addition to trees, forests include other plants (shrubs, herbaceous plants, grasses, sedges, mosses and lichens), animals, fungi, bacteria and viruses. The living organisms of a forest depend on their geophysical environment: soils (including nutrients and trace elements), macro- and micro-climates, and hydrology. A forest, being composed of living organisms, is a dynamic entity that is in a continuous process of change, growth, and decay.

21. **Forest management** is defined here as the manipulation of forests to produce a determined set of forest products and services both material and immaterial, as demanded by society. It is important to note that desired products and services are constantly changing along with the values and well-being of the population at large. It is therefore assumed here that *the task of defining the goals of forest management should be left to political processes*. An observable trend has been that the “the set of forest products and services” explicitly demanded by society has been expanding continuously.

22. **Sustainable forestry or sustainable forest management (SFM)** is the type of forest management that can be continued over time as defined as the result of the policy process. The word “continue” implies here that the Total Economic Value (TEV) (see Figure 2.2) of the stock of forest resources has to be at least constant through time, or, if the stock is capable of technological augmentation, the TEV of the flow of goods and services produced by forests has to be constant or rising through time (see Box 2.1).

#### Box 2.1 International Tropical Timber Organisation (ITTO) Definition of SFM

Sustainable forest management is the process of managing forests to achieve one or more clearly specified objectives of management with regard to the production of a continuous flow of desired forest products and services without undue reduction of its inherent values and future productivity and without undue undesirable effects on the physical and social environment.

23. Factors that affect the ability to continue or sustain forest management can be classified as economic, ecological, and social. The main economic principle of sustainability is for activities to

create at least as many benefits as the costs they incur. This means that SFM must be profitable in order to be continued. In traditional analyses, economic criteria have been maximised under the constraints of ecological and social criteria. It should be noted that other criteria could also be maximised under the profitability constraint. It is important to note again that the current definition of SFM (as with the concept of forest management) is ultimately assumed to *depend on the present values of society which are operationalised through political processes*.

24. There have been several efforts to operationalise the concept of SFM. These include the ITTO Criteria and Indicators, the Helsinki and Montreal processes (see Box 2.2), and the Tapapoto proposal. These attempts have defined relevant and analytically feasible criteria and measurable or descriptive indicators, commonly known as **Criteria and Indicators or “C&I”** for SFM.

**Box 2.2 Criteria for Sustainable Forest Management According to the Montreal Process**

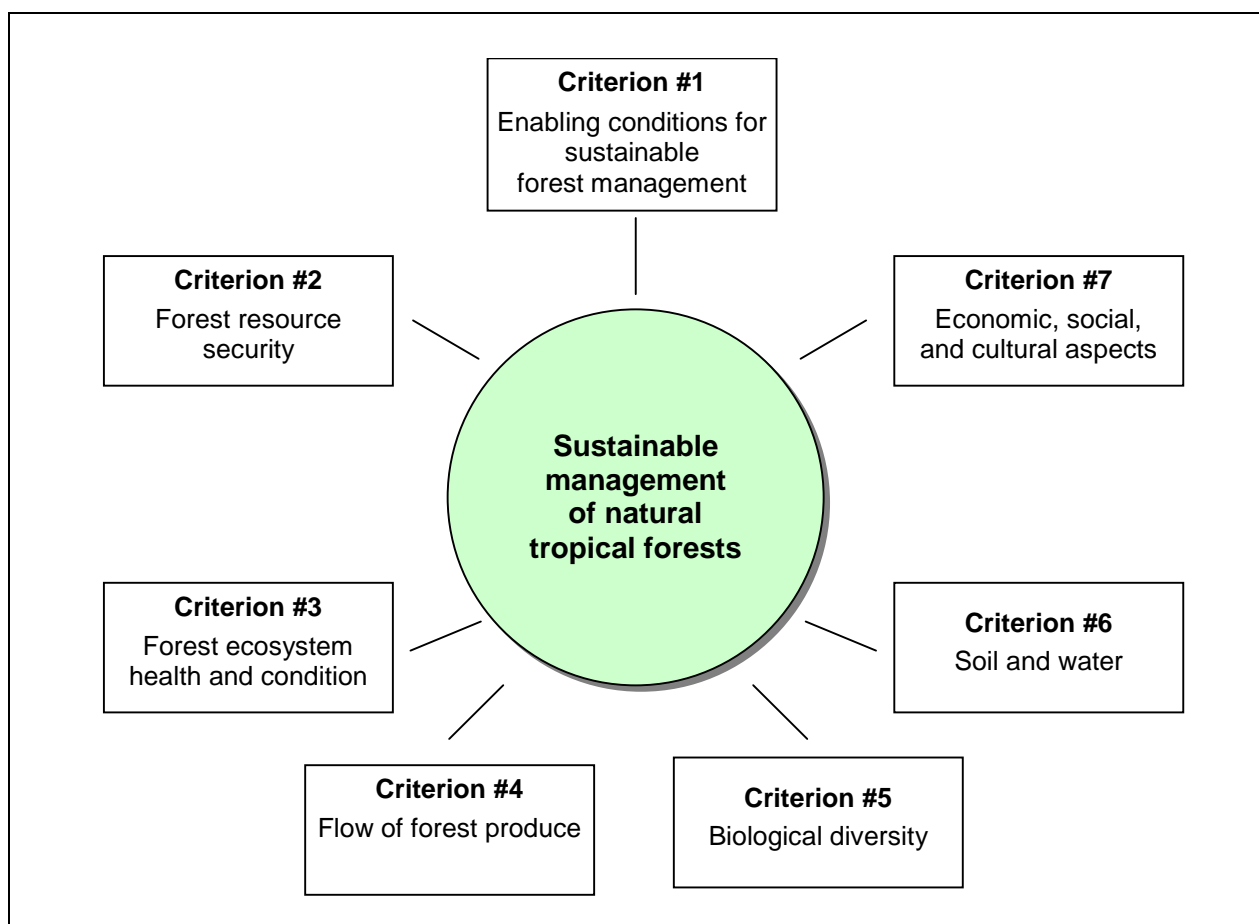
- Maintenance of forest health and vitality
- Conservation of biological diversity
- Maintenance of forest productivity
- Conservation of soil and water resources
- Maintenance of forest contribution to global carbon cycles
- Maintenance of long-term socioeconomic benefits
- Legal, institutional, and economic framework for forest conservation and sustainable development

25. The ITTO criteria for SFM are presented in Figure 2.1. At the national level, generic C&I are further specified to reflect local situations. In Finland, for example, some 160 quantitative and descriptive indicators have been chosen to describe the status and changes in the sustainability of forest management.

26. It is clear that SFM is a truly complex concept, with no panacea or simple solutions for implementing it in practice. The multitude of products and services provided by forests imply that there cannot be a single maximisation or optimisation criterion (e.g., wood production, biodiversity conservation, or CO<sub>2</sub> sequestration) that could be used in operationalising SFM. In maximising or maintaining the social net value of the forest, an optimum mix of products can be defined, which is specific to particular local conditions.

27. UnSFM refers to forest management that fails to not reflect the current values of society, and/or leads to a long-term decrease in the total value of products and services produced by forests. Forest management that ignores some forest values can also generally be considered UnSFM. This is typified by forest management regimes dedicated only to the production of timber. It is assumed here that the substitution products and services should be allowed, provided it does not cause irreversible changes (e.g., species extinction). It is also assumed that the appropriate spatial level for assessing any changes in total value is at the ecosystem level or an entire national territory and not, for example, a forest holding or forest management unit.

**Figure 2.1 ITTO Criteria for Sustainable Forest Management**



28. **Deforestation** refers to the change in land use from forests to other land uses or depletion of forest crown cover to less than 10 percent (FAO 1995).

29. **Forest degradation** refers to changes that negatively affect the capacity of the forest to produce products and services or reduce the values of the forest. In most cases, forest degradation constitutes a gradual reduction of biomass, changes in species composition, and soil degradation, rather than a decrease in the area of woody vegetation (FAO 1995).

30. **Afforestation** means planting of previously denuded or otherwise non-forested land with trees.

31. **Reforestation** means replanting with trees an area which has been a forest but has been cleared (e.g., due to logging).

32. **Forest values** are all the values attached to a forest. *Economic value*, also called *actual use value*, is defined as the sum of the discounted present values of the flows of all the goods and services (Freeman 1993). Economic valuation measures human preferences (Peterson and Brown 1995), i.e., the economic value is inherently *anthropocentric*. According to Pearce and Turner

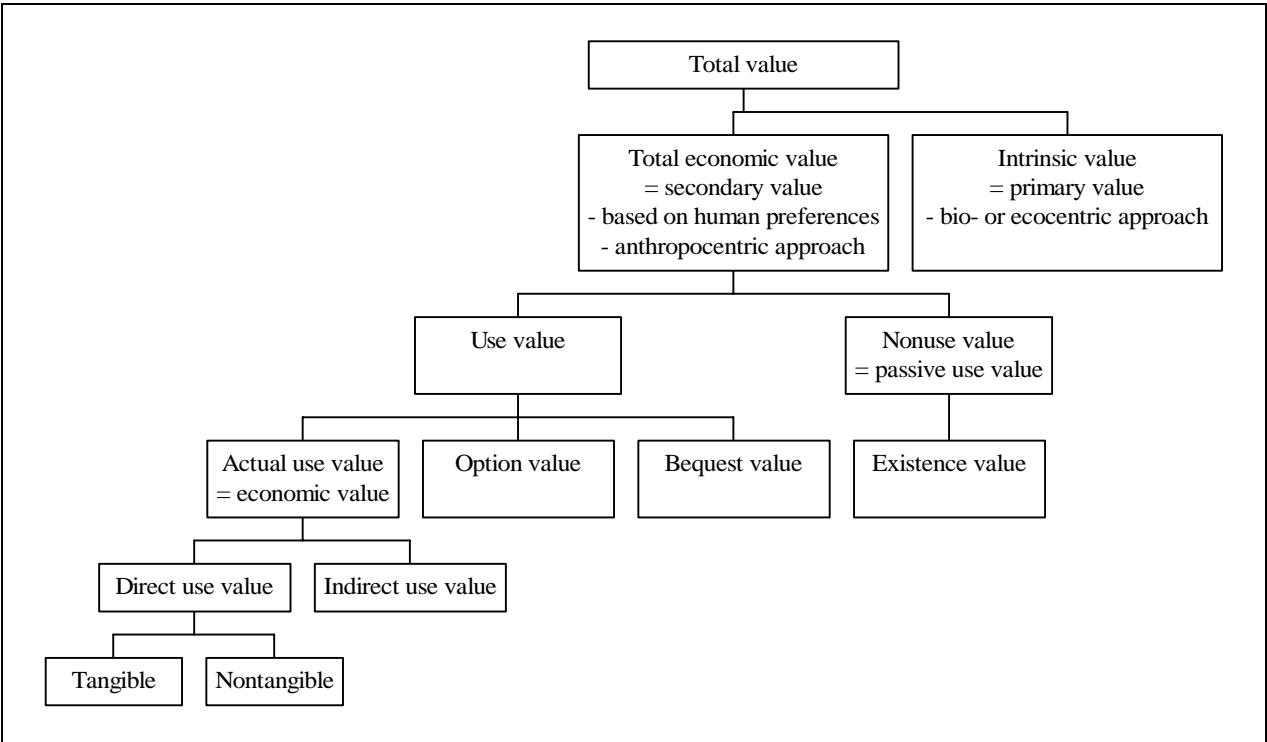


(1990), the *total economic value* includes the actual use values plus option value plus non-use values. The non-use values also include existence values that measure the human preference on the existence of, for example, species.

33. Not all values can be measured in economic terms. The *total value of forestry* includes total economic value and so-called *intrinsic values*. Intrinsic value is the inherent value of something, e.g., species, regardless of any human preferences. It has also been argued that both existence and intrinsic values cannot be estimated or are claimed to be infinite. The only way intrinsic value may be measured for the purposes of economic analysis is via nonuse values; i.e. a person's willingness-to-pay (WTP) for forest conservation can readily be influenced by the view that a "forest" has a right to exist. This is of course a narrow view of intrinsic value, particularly in view of difficulties related to WTP studies.

34. This typology of values of natural resources, also applicable to forests, is summarised in Figure 2.2. The associated *costs* related to various values are related either to the costs of production or maintenance of these values or the opportunity costs for losing these values.

**Figure 2.2 Typology of Values of Natural Resources**



Adapted from Turner et al. 1994.

35. Based on the above typology an example of a set of forest products and services demanded by society is presented in Box 2.3.

## Box 2.3 Forest Products and Services (example)

1. USE VALUES
1.1 Direct use value = products and services with market value
1.1.1 Tangible products
1.1.1.1 Wood
1.1.1.1.2 Saw and peeler logs
1.1.1.1.3 Pulpwood
1.1.1.1.4 Firewood
1.1.1.1.5 Other timber
1.1.1.2 Game
1.1.1.2.1 Meat
1.1.1.2.2 Hides and skins
1.1.1.2.3 Other
1.1.1.3 Resin, gums, and other extracts
1.1.1.4 Fruits, nuts, berries, edible roots, edible leaves
1.1.1.5 Other non-timber forest products
1.1.2 Non-tangible services
1.1.2.1 Tourism and commercial recreation
1.1.2.2 Other
1.2. Indirect use value = products and services without market value
1.2.1 Tourism and recreation
1.2.2 Amenity (landscape)
1.2.3 Ground for research and education
1.2.4 Conservation of cultural heritage
1.2.5 Soil conservation
1.2.6 Ground water conservation
1.2.7 Surface water flow buffering (flood prevention)
1.2.8 Life support systems
1.2.9 Carbon sequestration
1.2.10 Conversion of waste and effluents
1.2.11 Noise reduction
1.3 Products and services with option value
2. NONUSE VALUES
2.1 Existence value
2.1.1 Biodiversity, species habitats
2.1.2 Wilderness areas

## 2.2 Forestry as a Multipurpose Activity

36. Most of the international debate on sustainable forestry or sustainable forest management has been revolving around the question “What is forestry or what should it be: conservation or production?” Traditionally, forestry was mainly about the production of wood, even though other uses have also been locally important (e.g., hunting). Many forestry professionals and environmentalists alike think that not much has changed in this respect. Many more foresters, however, and society in general, seem to think that the forestry of today comprises much more than wood and trees. To them it is a science, an art, and an industry that deals with everything to do with the

management of forests, as well as trees outside the forest proper. In short, forestry has increasingly adopted multiple objectives.

37. In this report, it is assumed that forests are always *multipurpose* (or multiple-use) management units. The broad categories of forest functions are ecological, economic, and social. The approach taken here is anthropocentric, however, acknowledging the existence of intrinsic values of forest ecosystems and individual species.

38. The assumed multipurpose nature of forests means that both production and conservation forests are simultaneously providing a wide array of products and services to people - locally, regionally, and globally. An example of the multiple products and services of typical conservation and production forests is presented in Table 2.1. The listing is only illustrative and, in practice, the multiple objectives have to be defined in detail, based on site-specific local conditions. Different types of forests have different potentials to contribute to various goods and services which is also influenced by the prevailing social and economic conditions.

**Table 2.1 Examples of Multiple Products and Services of Typical Conservation and Production Forests**

Conservation forest	Production forest
<ul style="list-style-type: none"> <li>• Recreation / amenity</li> <li>• Biodiversity conservation</li> <li>• CO<sub>2</sub> storage</li> <li>• Ground water retention</li> <li>• Surface water buffering</li> <li>• Non-timber products (if allowed)</li> <li>• Local income from tourism</li> <li>• Existence value</li> </ul>	<ul style="list-style-type: none"> <li>• Wood</li> <li>• Recreation / amenity*</li> <li>• Biodiversity conservation*</li> <li>• CO<sub>2</sub> sequestration and storage*</li> <li>• Ground water retention</li> <li>• Surface water buffering</li> <li>• Non-timber products*</li> <li>• Income from employment</li> <li>• Existence value*</li> </ul>

\*secondary products

39. Even the most intensively managed tree plantation produces products and services (at least CO<sub>2</sub> sequestration) other than just the main targeted product (e.g., pulpwood). Similarly, the strictest possible conservation area also provides spin-off services to people outside the management area (e.g., water retention).

40. In most cases there are tradeoffs between the various products and services. The importance of these tradeoffs and the substitutability of the products and services have been debated intensively (Pearce & Turner 1990, Tietenberg 1994). For example, there is a tradeoff between maximising production of wood fiber (e.g., in intensive monoculture eucalyptus plantations) and at the same time maximising CO<sub>2</sub> sequestration and biodiversity conservation or the production of non-timber forest products. The quantification of such tradeoffs has proven to be difficult. Furthermore, the tradeoffs are site specific, making general estimations problematic.

41. It is to be noted that forests, as a distinct land use category, are in a constant dynamic relationship with other land uses, and involve synergies and conflicts. In particular developing

countries have to meet their immediate needs often involves tradeoffs between alternative land uses. The expansion of agricultural frontiers often takes place at the cost of forest conversion. Part of such forest clearing, however, may be necessary and appropriate to achieve national development goals (Kaimowitz et al. 1998).

42. Such decision should be guided by the principles of sustainable development. At the same time SFM addresses how to manage forests to meet their various multiple purposes

43. The notion of scale is important when considering forestry as a land-use option vis-à-vis other uses that may offer higher apparent returns on investment. Forest areas are often so large and their biological potential so varied that their large-scale conversion would not be forthcoming through investment. The reasons are that the actual returns would gradually become lower, and investment capital requirements would be too high to get funded, while the respective production increase in agriculture would not necessarily be absorbed by the market at remunerative prices due to excess supply. Much of deforestation takes place therefore, not because of capital intensive investment but by extensive slash-and-burn practices, which are being applied as part of policy outcomes. If forests were maintained, their sustainable management would be less capital intensive than conversion into modern agriculture. Evidence suggests that when the opportunity cost of both capital and labor can be increased, deforestation seems to slow down. In other places, where alternative returns to labor and capital remain low, deforestation rates remain high (Kaimowitz et al. 1998).

### **2.3 Financing of SFM**

44. Forestry has a number of well-known characteristics, which makes financing of investment more complex than in most other sectors. These characteristics include:

- (a) long rotation periods (from 6 to more than 100 years), which represent a source of risk and which mean that benefits are not necessarily reaped by the owner of the resource but instead are passed to the next generations;
- (b) uneven distribution of benefits and costs over time as initial investment outlays can be large, annual management costs relatively small, and most of the revenue (if not all) occurs at the end of the rotation period (typically in afforestation and reforestation);
- (c) the importance of non-market benefits (public goods), particularly environmental services, which have not been possible to capitalise by investors<sup>1</sup>; and
- (d) the various use rights of forest resources (customary and formal) may be poorly defined, or are in conflict with each other, which influences the rights of forest dwelling people but which also makes investment a complicated and risky exercise.

45. These characteristics make forestry quite different from other land uses, particularly agriculture, where similar problems of long-term financing are not encountered. In particular, the link between investor and beneficiary is direct in agriculture and non-market benefits play no or a limited role. There are also important similarities, however, such as maintenance of landscape values.

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<sup>1</sup> Some investors may capture environmental services, e.g. through carbon trades.

46. The perception of problems (a) and (b) changes when a departure is taken from the one-hectare model of analysis and an entire forest management unit is considered as a going concern or business entity. Such a unit typically has a forest structure, which allows regular (annual) revenue that is partly reinvested. On the other hand, if a comparison is made between efficient, capital intensive agriculture and forest activities under distorted market conditions with inappropriate pricing structures, it is clear that investors give a preference to agriculture. However, were the market conditions and incentives appropriate, sustainable forestry can be an efficient and profitable activity.

47. The problem of financing of SFM is not so much a matter of flows or instruments *per se*, but rather:

- how the current flows could be directed from unsustainable to sustainable forestry, and
- how the necessary preconditions for investment can be met reflecting the different time preferences of investors and society related to various forest-based benefits.

48. Analyses of the tradeoffs between *sustained yield logging* and conservation in tropical forests have revealed that traditional unsustainable logging, of one or a few highly valuable species, is two to five times more profitable than logging in a way that would ensure sustained yield supply of the same species (Rice et al. 1997, Bowles et al. 1998). The same authors drew the conclusion that sustained yield logging would simply make logging company's operational costs unfeasible. A better strategy than sustained yield logging would therefore be to continue the selective logging as before. At the same time, it would persuade the logging companies to set aside sizeable, mainly commercially inoperable areas, which could be preserved. It should be noted, however, that the definition of SFM used in this analysis was narrow, focusing on sustained yield logging and ignoring the downstream value chain. The suggestion by Rice et al. (1997) may have merits in some specific conditions, but they also involve important implicit assumptions, which are not met in reality (e.g., no demand for land for other uses, substitutability of growing timber stock, and other forms of capital). Furthermore, limitations of stand-level analysis for broader policy conclusions should be duly considered.

49. The trouble with the multipurpose approach is that it makes any quantitative analysis extremely complicated. Furthermore, the invisible hand of the market has not been very successful in turning multiple use forestry into a sustainable and profitable venture. In a perfect market, the market mechanism should be able to allocate and channel sufficient or optimal amount of resources/financing to the forestry sector and in particular to SFM. However, there are at least four main reasons why this is not happening:

- (1) Policy failures ("poor" policies) at local, national, regional, and global levels.
- (2) Market failures (externalities, missing markets, and a lack of information and knowledge).
- (3) By its nature, SFM is defined by political processes. Market requirements, however, are increasingly considered in these processes.
- (4) Time scale: tree growth and other biological processes of the forest take long periods of time, such that there are different generations of people involved in making any in-

vestment in forestry and in reaping the eventual benefits (or bearing costs) of the investment.

50. The policy and market failures have resulted in a situation where SFM is not profitable for the resource owner or resource manager. Deforestation is occurring precisely because it has been profitable (Douglas and Magrath 1996). The private benefits and costs are different from the benefits and costs accrued to society at local, national, regional, or global levels. The traditional means to correct or alleviate policy and market failures have been various public incentive mechanisms, often through various forms of subsidy.

51. However, *environmental externalities* may be taken as the valid justification for long or medium-term subsidies provided that their efficiency and impact on distribution are desirable or acceptable. On the side of positive externalities, forests produce a wide array of non-marketable public goods that are precisely the source of the most important environmental externalities in forestry (e.g., ground water storage, surface water buffering, biodiversity conservation, amenity, and CO<sub>2</sub> storage and sequestration). These services can be provided at local, national, regional, or global levels implying that the payment for these services (financing of the subsidies) should be arranged at similar scales. Such payments can be arranged administratively (GEF, pollution abatement subsidies) or through market internalisation. People, however, are not usually willing to pay for public goods (because they can enjoy them for free), so environmental regulations are often needed to create the necessary WTP. Examples of market internalisation of externalities include carbon trading, timber certification, and bio-prospecting contracts. Such market measures, however, require adequate regulatory measures, too.

52. The *non-marketable benefits* of forestry can be observed at different levels: global (biodiversity, CO<sub>2</sub>, etc.), cross-border (watershed management, biodiversity, reduced land degradation, etc.), national (water supply, flood control, etc.), or local (drinking water supply, erosion control, recreation, etc.). Each individual forest (as a management unit) has its own possibilities to contribute to these various benefits depending on the local environmental and socioeconomic conditions. The necessary mechanisms to make these benefits marketable or valued in decision-making have to be developed accordingly. There are many problems involved in this process, not least due to difficulties in separating global from national or local benefits, which are often indivisible. In order to quantify such benefits as biodiversity, CO<sub>2</sub>, or water supply, some methodologies already exist but further work in this area is needed (Pearce et al., forthcoming). In specific country conditions the key issue is who should pay for these benefits and how should their pricing be addressed.

53. In the same way as benefits are difficult to separate, there are also problems of *cost allocation*, i.e., how the costs of SFM should be allocated to various multiple benefits. As proper costing can be one element in establishing appropriate values for benefits, this issue needs to be duly addressed. There are both conceptual and practical problems to do this, but their detailed discussion is beyond the scope of this study.

54. The *values of various non-market products* and services may be difficult to express in absolute terms, as their definition is often relative to other land use alternatives. In addition to tradeoffs between forest products and services, such tradeoffs also exist between land use types.

In addition, market mechanisms are not necessarily specific to the forestry sector but encompass the entire economic systems at different levels (local, national, global), including the markets for other competing sectors (e.g., agriculture, energy, etc.). This increases the complexity of adjusting structural barriers.

55. *Transfer payments* are normally used in the mitigation of existing policy failures. By definition, they should be a temporary measure reducing the impact of a “poor” policy. Risks associated with transfer payments are:

- their tendency to “buy time” for the policy failure, i.e., they tend to prevent necessary policy reforms rather than promote them;
- the difficulty in repealing them once they are established; and
- they may lead to further policy distortions, which are even more difficult to resolve than the original distortion.

56. Examples of national level transfer payments include differential land use taxes, log export taxes, and tree planting subsidies. Examples of international transfer payments include ODA grants, debt-for-nature swaps, and various trust funds.

57. One especially important policy failure relating to SFM in the case of tropical forests in many countries is unclear *property rights*, which increase the risk and uncertainty of the resource users and managers. Insecure property rights and open access result in short-term profit maximisation instead of long-term planning and investment. This is particularly problematic in the case of forestry, which is a long-term venture. The applicability of the property rights approach in multipurpose forestry is limited since many of the services (values) are inherently non-rival and/or nonexclusive in use. In other words, they are public goods for which the property rights are difficult to establish and even more difficult to enforce. In addition to property rights, there are of course many other sources of policy failure that increase investment risk, and many of them are macro-level issues (taxes, currency fluctuations, etc.).

## **FINANCIAL REQUIREMENTS TO ACHIEVE SFM**

- 3.1 Assessment of Financial Needs; 3.2 Characterisation of Financial Needs;**
- 3.3 Commoditisation of Forest Benefits;**
- 3.4 Beneficiaries and Recipients of SFM Financial Flows**



## **PART II. FOREST FUNDING – STATUS AND INSTRUMENTS**

### **3. FINANCIAL REQUIREMENTS TO ACHIEVE SFM**

58. This chapter seeks to assess the global financing requirements for implementing SFM, focusing on the developing world. The issue is first approached quantitatively. No original analysis is contributed in this context; rather, rough estimates from recognised sources are briefly reviewed. Preliminary conclusions are then drawn to serve as the basis for the remaining sections' qualitative assessment. Particular attention is paid to the various barriers that currently prevent or restrict financial flows into SFM. Possible solutions and strategies for removing these barriers are also identified. Of these, the 'commoditisation' of forest goods and services is considered in some depth. Finally, the different beneficiaries and recipients of SFM financing are identified.

59. The context of this analysis of SFM financing is the forestry sector. In this sense, SFM is examined in counterpoint to unsustainable forms of forestry, and not in relation to wider land use and economic development considerations. Therefore, the financing requirements for SFM presented here are principally targeted at meeting the incremental costs of forest operators adopting SFM practices, creating value for the non-market benefits supplied by SFM, and addressing the perverse structural incentives that favor unsustainable forestry.<sup>2</sup>

#### **3.1 Assessment of Financial Needs**

60. This section gives a generalised view of the evolution of current financial flows into SFM activities, as well as estimates of the overall financial resources required for the widespread adoption of sustainable forestry. Many of the figures presented are derived from the 1992 United Nations Conference on Environment and Development (UNCED) process (UNCED 1992) and from the Pretoria Workshop on Financial Mechanisms and Sources of Finance for Sustainable Forestry (UNDP 1996), both of which have been criticised by some commentators for overstating the deficiencies in SFM financing. Due attention is therefore given to other estimates, and contending viewpoints.

61. In this light, particular attention should be drawn to the concluding section (3.1.5) in which the case is made that any identifiable need for additional finance is inseparable from the need for qualitative shifts in market and policy structures at both international and national level. Without such structural reforms to underpin the transition to SFM, mobilising additional financing will have limited impacts and may even exacerbate SFM deficiencies.

##### **3.1.1 Overview of Financial Flows**

62. Financial flows are used in this report as a broad term integrating all the main forms of capital flows among the various actors involved in forestry. At the global scale, it comprises two main categories (World Bank 1997):

- (1) ODA – grants, concessionary loans, and human resources; and

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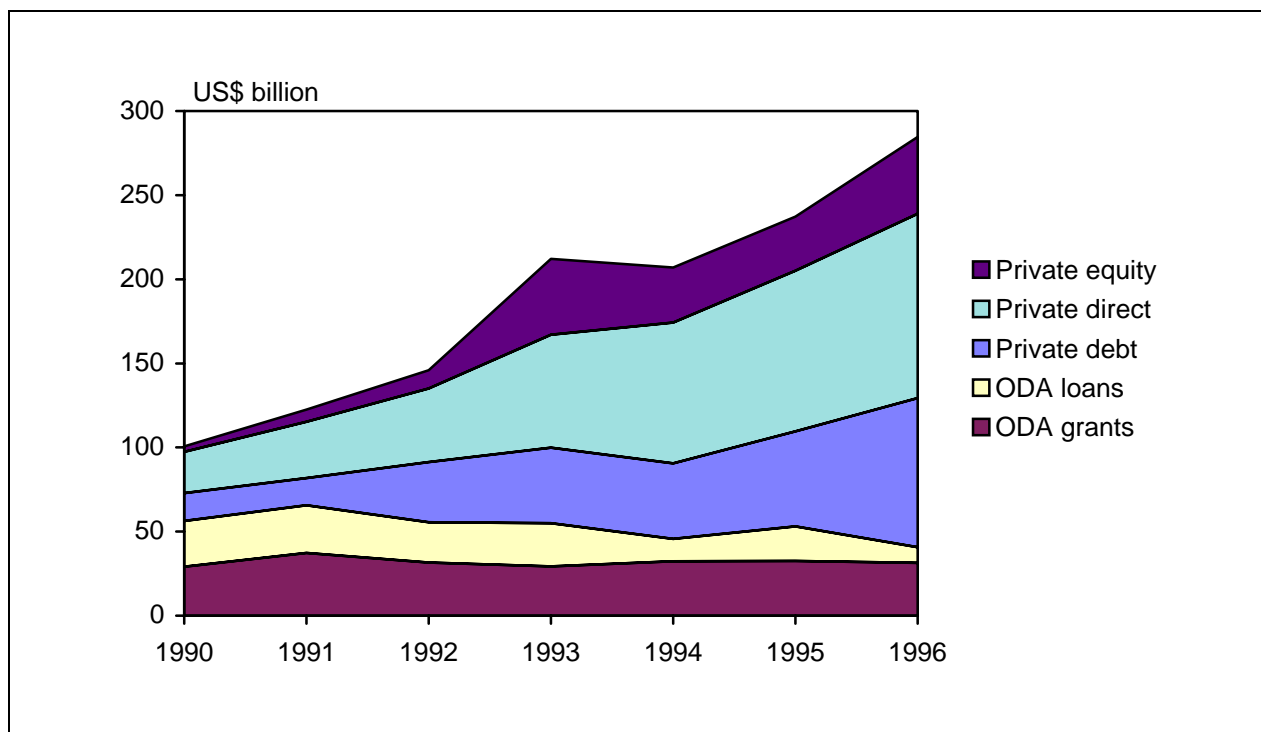
<sup>2</sup> Thanks to David Pearce for this clarification.

- (2) private sector capital – debt and equity flows, foreign direct investment (FDI) flows.<sup>3</sup>

63. In 1996, global financial flows from developed to developing countries totaled US\$284.6 billion across all sectors, a 184 percent increase since 1990 (see Figure 3.1). Over the same period, levels of ODA decreased by 27 percent in absolute terms, or from a share of 56 percent to fewer than 15 percent of the total (see Figure 3.2). The dominant trend is thus the strong emergence of the private sector in financial flows during the 1990s. Amongst other factors, this has been attributed to (World Bank 1997, Bouton et al. 1997, UNDP 1997a):

- maturing private capital markets and improving macroeconomic management in developing countries;
- increased borrowing from commercial banks; and
- investment reforms taken to attract FDI (and also portfolio equity investments).

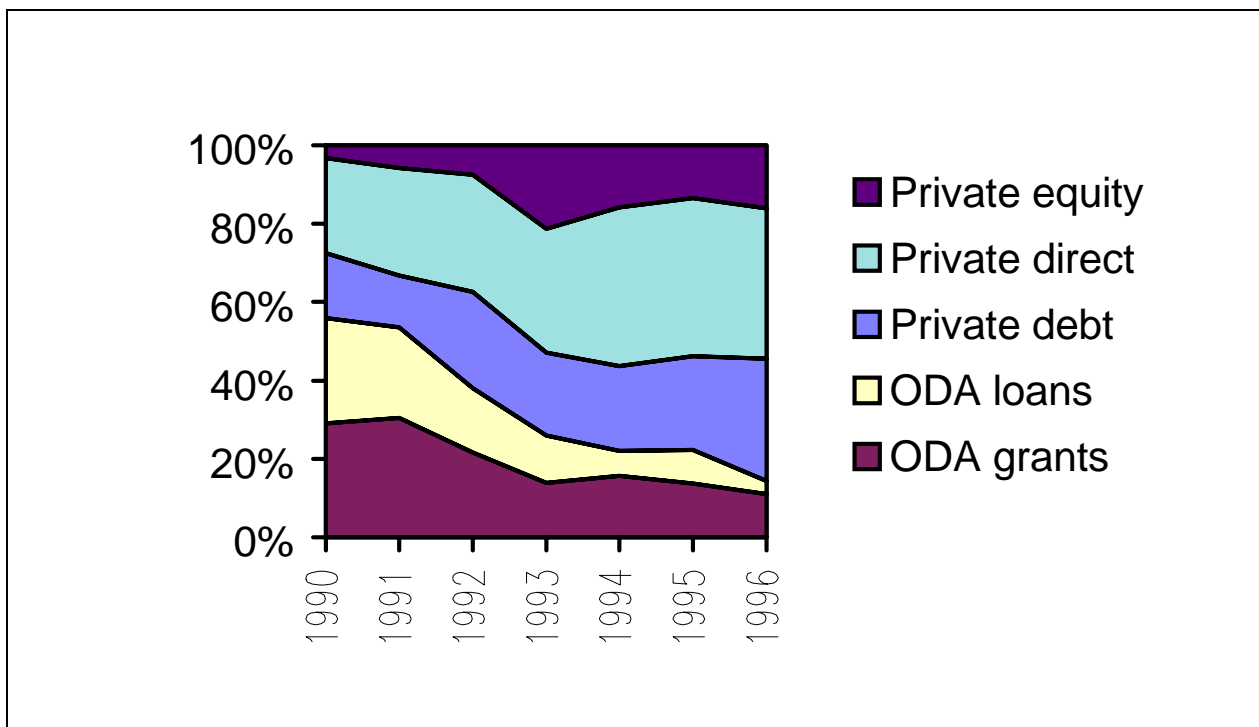
**Figure 3.1 Net Resource Flows to Low and Middle Income Countries**



Source: World Bank 1997

<sup>3</sup> There are obviously other categories of financial flows such as those from NGOs, which although quantitatively less on a global scale, are often important for funding specific activities.

**Figure 3.2 Relative Shares of Net Resource Flows**



Source: World Bank 1997

### 3.1.2 Estimates of Required SFM Financial Flows

64. A comprehensive assessment of the financial requirements for the worldwide implementation of SFM was carried out as part of the UNCED process.<sup>4</sup> It was estimated that annual flows to the forestry sector required for the years 1993 to 2000 were approximately US\$31.25 billion, of which 18 percent or US\$5.67 billion was to be in the form of concessionary funding from ODA budgets.

65. In 1996, these UNCED figures were revised upwards to US\$33 billion per year in the context of the Pretoria Workshop on Financial Mechanisms and Sources of Finance for Sustainable Forestry (UNDP 1996). This new estimate principally reflected the requirements of capital equipment and infrastructure (37 percent of the total), the protection of non-timber forest services (18.5 percent), and institutional development and capacity building (17 percent) (Chandrasekharan 1996a).

66. In addition, some commentators have argued that these figures ignore the investment required to counter or compensate for the ongoing depreciation of the world's forest resources

<sup>4</sup> In the UNCED context, these requirements were specifically related to the implementation of Chapter 11 ("Combating deforestation") of the Agenda 21 document. The forestry components of other Agenda 21 chapters such as those on land resource management (Chapter 10) or rural development (Chapter 14) are not included (UNCED, 1992).

through deforestation and degradation (Chandrasekharan 1996a).<sup>5</sup> The estimates, therefore, indicate the magnitude of the required net rather than gross investment in SFM (for 1992).<sup>6</sup> This argument, however, has been countered as being overly concerned with forestry and not placing SFM in the context of wider land use concerns and values.<sup>7</sup>

67. Other quantitative studies that have been carried out have revealed requirements well below the UNCED figures presented above. A 1994 ITTO study, for example, put the total additional financing required to achieve the necessary ‘minimum’ improvements for widespread implementation of SFM in the tropics at US\$11.2 billion (cited in Richards 1998).<sup>8</sup> An earlier 1992 ITTO study had concluded a lower figure of US\$330 million per year. However, direct comparability of these varying results is hindered by the widely different methodologies and assumptions used.

### 3.1.3 Estimates of Current SFM Financial Flows

68. Accurate data on financial flows to the forestry sector (rather than specifically to promoting SFM) are only available for up to 1993 (Joshi 1997). However, as mentioned above, what is important in this context is not so much the actual figures but the trends, and there is little evidence to suggest that these trends have significantly changed since 1993. Total gross annual investment in developing countries’ forest sectors was estimated at US\$20.4 billion (Chandrasekharan 1996a).<sup>9</sup>

69. In 1993, bilateral and multilateral ODA devoted to forestry amounted to US\$1.54 billion, equivalent to 7.5 percent of this total (FAO 1995). Other estimates have put the private sector’s contribution, both domestic and foreign, at US\$8-10 billion, although targeted largely at plantations and downstream forest-based industries (Chandrasekharan 1997). As such, the often substantial ‘in kind’ inputs from small-scale operations at the community level in tree planting and forest management may not have been duly considered. Nevertheless, as broad-brush approximations these figures suggest that somewhere around US\$10 billion can be attributed to domestic public sector investments.

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<sup>5</sup> Although they did include the assumption that deforestation would be contained at 1992/3 levels. Note also that the IPF debated on the valuation of deforestation as depreciation, and it was not included in the IPF’s own report.

<sup>6</sup> The ‘disinvestment’ associated with depreciating forest stock was estimated to be in the order of US\$36 billion per year (though it should be noted that as capital depreciation is brought under control, the required investment will be progressively reduced). The required gross investment for the implementation of global SFM was therefore estimated to be of the order of US\$69.3 billion every year (Chandrasekharan 1996a). It should be noted that these calculations originally applied up to the year 2000.

<sup>7</sup> For example, if forests are cleared for oil palm plantations, this equates to disinvestment. If forests are cleared for pine plantations, this does not. This is irrespective of their impacts and externalities on local communities and the broader economy (R. Persson, pers. comm.).

<sup>8</sup> These relate to: policy & legislation; enforcement & boundary defence; improved logging, sustained yield assessment and monitoring; training, research, public education, etc.

<sup>9</sup> If the argument described earlier is followed, that in addition there is an annual disinvestment through loss of forest capital by deforestation estimated at US\$45 billion, current financial flows to the forestry sector in the developing world would constitute a negative net investment of the order of US\$25 billion per year (Chandrasekharan 1996a).

### 3.1.4 Identifying a Shortfall

70. As the global estimates of required SFM financial flows vary so widely, it is difficult to clearly identify a quantitative shortfall in levels of SFM financing, although the UNCED figures do reveal some discrepancy between estimates of current and required resources.

#### Domestic Investment

71. Domestic financing is particularly problematic. If the UNCED figures are taken at face value, together with the stipulation that 80 percent of total resources should be mobilised domestically from both public and private sources (UNCED 1992), it seems probable that current domestic financial flows in the developing world do reflect a substantial shortfall, particularly as there is little evidence of SFM practices being adopted.<sup>10</sup>

72. Further evidence suggests the domestic public sector share is likely to continue to fall as a percentage of total investment, as governments' role in forest management and related operations is reduced or out-sourced to the private sector (Crossley 1998; Landell-Mills et al. 1998). The degree to which localised private sector investment can be promoted both in addition to and substituting for the state is uncertain, not least because quantitative data is hard to obtain.

73. Some commentators, however, have argued that these deficiencies do not equate to an insufficient level of funding in the forestry sector. Repetto & Sizer (1996), for example, contend that "the forestry sector should not only be self-financing; it should generate resources to cover development expenses in other sectors of the economy." Their argument is that structural deficiencies in the form of policy and market failures prevent governments from capturing adequate levels of economic rent from their forest concessions. Indeed, the same structural failures actively create incentives for private sector investors to derive windfall profits from short-term unsustainable exploitation of natural forest resources.<sup>11</sup>

74. According to this argument, mobilising additional financing is not therefore the priority. Attention should instead be concentrated on implementing policies, particularly at the national level, to capture already existing financial resources, which can subsequently be reinvested into SFM. In this sense, the need for additional financing is not quantitative but qualitative.

#### Foreign Investment

75. Also envisaged as part of the UNCED estimates on SFM financing was that over US\$5 billion should come from bi- and multilateral ODA budgets (UNCED 1992). The US\$1.54 billion annual ODA flows (1993 figures) fall clearly below this suggested requirement, and, given current trends (illustrated by Figure 3.3), it seems unlikely that this shortfall will be redressed.

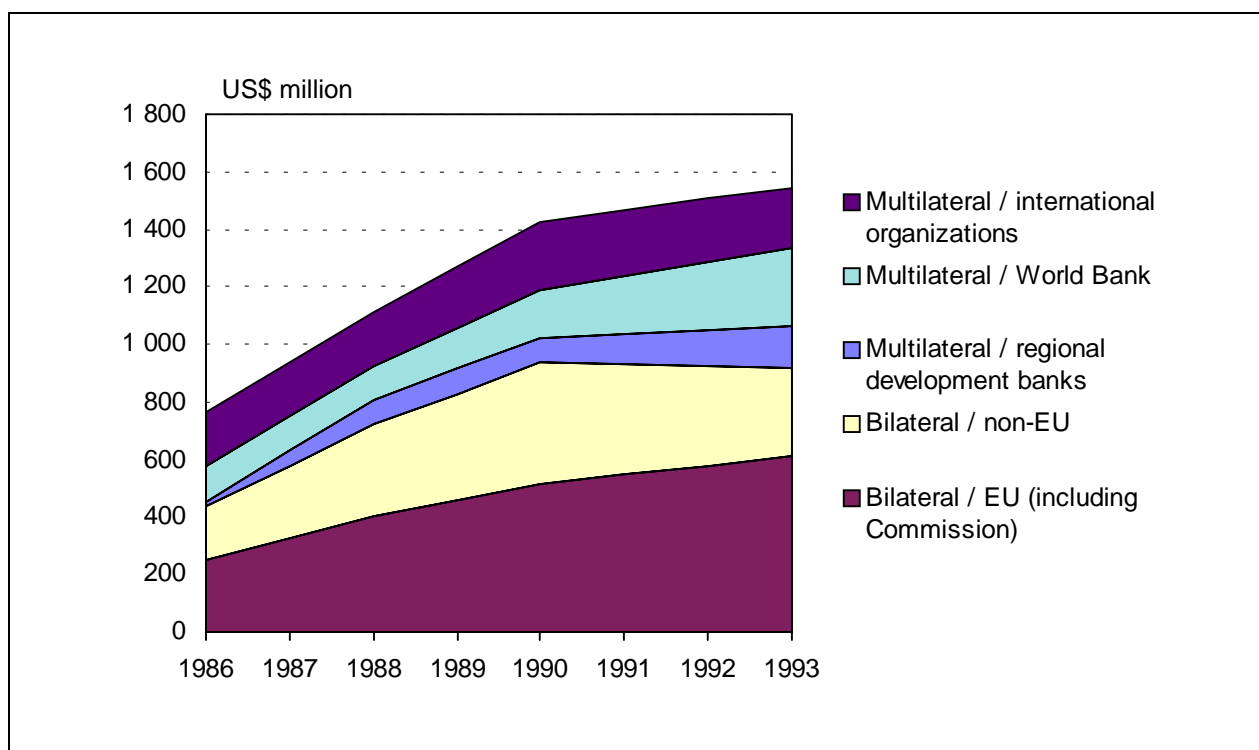
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<sup>10</sup> In this context, the 80 percent stipulation refers to the implementation of Chapter 11 of the Agenda 21 document – see earlier.

<sup>11</sup> It is worth noting that some critics go a stage further in questioning whether even redressing these failures would make SFM profitable. Conservation International, for example, has argued that a more effective conservation strategy would be to allow natural forests to be logged over once so that they can then be bought cheaply by conservationists and protected *in perpetuity* (Rice et al. 1997)

76. Conversely, trends suggest that foreign private sector direct and portfolio investments in the forestry sector have been rising sharply (World Bank 1997).<sup>12</sup> However, it is difficult to make a clear quantitative assessment of foreign private sector investment as flows are problematic to track, so appropriate data remain scarce. Furthermore, as most foreign private direct investment is still via transnational corporations, the distinction between foreign and domestic capital blurs as many transnational corporations operate through partner or subsidiary national companies. There are also issues relating to the type of forestry activities supported by the private sector and whether or not they fall within the term SFM, as well as the unequal distribution of private sector investments across the developing world (e.g., ODI 1997).

**Figure 3.3 ODA Flows to Forestry**



Source: FAO/TFAP Unit, cited in Chandrasekharan 1996a.

### 3.1.5 Preliminary Conclusions

77. As Section 3.1.4 reflects, there is some controversy as to whether additional financing needs to be mobilised for SFM, or whether efforts and resources should be focused on making the sector self-supporting financially through structural reforms aimed at improving rent capture. It is an underlying assumption of this report that the need for additional financing and the need for structural reforms are, in fact, the two principal components of a single coherent and comprehensive forest financing strategy.

78. There is a wealth of evidence and research (much of which is reviewed in following sections) which supports the argument that insufficient resource capture and allocation by

<sup>12</sup> This holds true for natural resource development activities in general (e.g., UNDP 1997).

national forest administrations is one of the root causes behind the limited implementation of SFM (e.g., Douglas & Magrath 1996). As a result of these and other perverse structural incentives, private sector resources are being channeled into unsustainable operations and will continue to do so as long as these incentives remain. There is also broad agreement that, for whatever reason, the availability of public sector funds for direct investment into forestry is declining at both national and international levels, and that additional financing for SFM at the operational level is required as a consequence. This slack is being picked up by the private sector and will continue to be.

79. With this in mind, and irrespective of the scale of the financing shortfall, the following broad conclusions can be drawn:

- (1) Private sector investments in forestry operations are rising *relative to* the availability of public sector resources. As a result, it seems clear that any quantitative shortfall in financing SFM operations will be redressed through the mobilisation of private sector finance,
- (2) In this regard, a key leverage role can be played by targeting ODA and domestic public sector resources at removing international and national market barriers to private sector engagement with SFM, and developing and promoting financial mechanisms and instruments to this same end,
- (3) In terms of the type of forestry activity engaged in, and particularly its sustainability, the private sector's operations generally respond to, and are channeled by, structural conditions in the forestry sector. Currently, the investment environment framed by government policies and institutions in the developing world predominantly favors UnSFM *relative to* SFM,
- (4) Qualitative changes are thus required *both* to redress market and policy failures so as to facilitate private sector investment flows *and* to improve the revenue generation capacity and hence financial sustainability of the forestry sector,<sup>13</sup>
- (5) In this light it would seem appropriate for the international donor community to adjust its priorities so as to target financial and technical resources at the removal of structural barriers to SFM investment at both national and international levels, and at boosting the capacity of the forestry sector to manage private sector financial flows. In this way ODA forestry budgets, which ultimately comprise a relatively small slice of the estimated required financial resources for SFM, can fulfill an essential leveraging function.

80. The basis of these conclusions lies in the fact that they highlight the different quantitative and qualitative aspects of SFM financing. They refute the traditional argument that the panacea for forestry lies in additional resources being made available from the international donor community, for redressing shortfalls in the levels of SFM financing will fall largely to the private sector. This requires, however, an investment environment that both enables private sector involvement, and ensures such involvement is channeled into SFM rather than UnSFM. This is

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<sup>13</sup> Although undeniably optimistic, there is also the possibility that structural reforms oriented towards promoting private sector investment in SFM could develop into a virtuous circle as increased returns to the state through appropriate valuation, fiscal and incentive regimes permits further structural reforms in the sector, etc.

equally true at both a global and national scale and is the principal role for concessionary public sector finance.<sup>14</sup>

81. The above basic assumptions will doubtlessly be challenged. It should, however, be made clear that they form the basis of much of the research findings and analysis that follows in the remainder of this report, which can therefore be regarded as a comprehensive set of answers to the following two key questions:

- How can private sector investments in the forestry sector be most effectively leveraged, and what role could the donor community play?
- What conditions are needed to ensure that such investments are channeled into SFM rather than UnSFM activities?

82. As a final note, it should be recognised that this research focus is inherently limiting in so far as it looks at different types of activities within the forestry sector as a whole, and in particular at the many factors influencing UnSFM over SFM (and vice versa); it does not, to the same degree, look at the relationships between forestry and other forms of land use. There are many extensive studies of this issue by the World Bank, FAO, and others, particularly with regards the root causes and economics of forest conversion. However, as the underlying remit of this study is to examine ways of improving the attractiveness of investments in SFM as a land use type, any conclusions drawn should also be relevant to the mitigation of forest conversion.

## **3.2 Characterisation of Financial Needs**

83. In this section the assumptions on SFM financing described above are characterised in more detail. In particular, attention is paid to delineating the respective roles of the public and private sectors at both the international and national levels. It should be recognised that the basis of the analysis is very much what ‘could’ be happening as opposed to what ‘is’ realistically likely to happen. The central objective is to identify and classify the main factors constraining financial flows into SFM and to suggest possible solutions and funding targets for both the donor community and national public sector actors.

### **3.2.1 Overview**

84. Creating an ‘enabling environment’ for SFM investment is synonymous with removing barriers to the implementation of SFM. The process of removing barriers, in and of itself, requires financial resources and hence is the principal ‘financial need’ characterised in this section.

85. Components of the enabling environment for SFM investment can be broadly classified as structural or operational:

- Structural components can be either prerequisite, facilitative, or complementary to direct investment in SFM activities ‘on the ground’. In essence, their objective is to

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<sup>14</sup> This has been both explicitly and implicitly accepted by much of the donor community, including the development banks (ODI, 1996).



establish an environment conducive to the development of SFM and to provide an appropriate framework for attracting investment.

- Operational components relate more specifically to the project level and are thus more relevant to the forestry operators and managers themselves. Generally, they ensure that these actors can realise their objectives, be they profit, subsistence, or whatever, through SFM activities. They cover the whole lifecycle of a typical forestry investment from project identification and preparation, through implementation and management, to post-project monitoring.

86. This structural-operational distinction is somewhat arbitrary; inevitably there is substantial overlap. Indeed, in many cases, operational components form a specialised subset of the structural whole.<sup>15</sup>

### 3.2.2 Structural Requirements

87. Developing the many structural components of an appropriate framework for SFM investment represents a considerable challenge but is a prerequisite for ensuring the widespread adoption of sustainable forestry, particularly if there is a need to attract outside investment to promote the development of this sector. Significant resources – financial, social, and technological – are required over the long-term, and returns are often indirect and unrecoverable. By their very nature, therefore, many of these structural requirements must be met by public-sector or some other concessionary funding.

88. Typically, structural requirements will comprise the following:

- **Policy** – an effective and appropriate policy and regulatory framework; i.e., a clearly defined forest policy, integrated with other sectoral policies, especially with regards land use allocation issues;
- **Legal** – clear legal framework, particularly with regards land tenure rights and allocation; including effective enforcement procedures and structures;
- **Political** – stable political arena; transparent, participatory and democratic decision-making processes;
- **Institutional** – functioning institutions, i.e., streamlined public-private sector interface, ongoing capacity building to increase efficiency of public bodies, and effective organisation of private sector actors to represent and promote their interests;<sup>16</sup>
- **Market** – adequate market infrastructure, including appropriate level of government intervention (generally low);
- **Fiscal** – well-conceived objective-led tax/subsidy regime (i.e., incentives/disincentives); and
- **Macroeconomic** – stable macroeconomic horizon conducive to investors.

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<sup>15</sup> This particularly applies to the commoditisation argument in Section 3.2.3.

<sup>16</sup> Interface refers to the institutional point at which public sector and private sector interact – this could be a government investment promotion agency, appropriate fiscal or regulatory bodies, development or planning offices, etc.

89. Specific examples of these structural requirements are listed in Table 3.1. For clarity, the categories listed above have been grouped into policy (which includes legal and political components), institutional, and market (which includes fiscal and macroeconomic components). As mentioned above, many such requirements absorb often significant financial resources. In cases where these resources are not available, the requirements listed below are unmet and become barriers to SFM investment. Table 3.1 also includes some possible solutions as to how these barriers can be overcome.

90. The implementation of these structural components falls predominantly to the national level, although will of course depend on individual countries' sovereignty settlements in relation to both sub-national and supra-national bodies. The principal role of foreign finance, particularly ODA, is in supporting national-level structural development processes such as nfps. Those measures that can be directly addressed at the international level are specified.

91. A further subset of structural requirements relates to facilitating involvement of small-scale noncommercial forest users and stakeholders such as subsistence farmers, rural communities, and NGOs, all of which represent or can mobilise local people, provide and disseminate information, and be involved in SFM research, training, and implementation activities. Barriers in this case tend to be more conventional than financial. This is because centralised institutions are accustomed to dealing with large-scale forestry investors and operators - often unwittingly demanding conditions that cannot be met by small-scale interests. Removing such barriers, therefore, relates closely to changing perceptions (see below). Other options include:

- project funding windows within existing institutions to deal specifically with NGO/CBO project proposals;<sup>17</sup> and
- promotion of mechanisms to facilitate partnerships between small-scale operators and large-scale investors.

92. In addition, there is an informational requirement for SFM whose importance is constantly reinforced by key actors including forest users and managers, potential investors, and relevant government departments.<sup>18</sup> Often available information is inappropriately presented, misinformed, misdirected, or simply not well researched. This dearth of 'good' information, particularly regarding investment opportunities, constitutes a major barrier to SFM (Gentry 1996) and should be addressed at both global and national scales. Possible solutions include:

- integrated research, e.g., inventories of forest resources and economic analyses of how they can be sustainably managed;
- creation of information clearing-houses, effective dissemination, and extension services, e.g., within the structure of the nfp; and
- support for project packaging and presentation to match investors' interests.

93. The lack of appropriate information on SFM relates closely to another major barrier to investment, which is the investors' own perception of SFM, and indeed of forestry in general, which tends to be one of a high-risk, long-gestation, low-return investment opportunity. In many

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<sup>17</sup> Community-based organisations.

<sup>18</sup> Including multilateral organisations such as the World Bank, IFC, and UNDP contacted as part of this research.

cases, such concerns are misplaced. In other cases, they may be valid, but can be addressed through information and awareness campaigns targeted at, for example, institutional investors or the capital markets in general.

**Table 3.1 General Examples of National Level Structural Requirements for SFM**

Category	Requirements	Possible options for meeting requirements
Policy  (including legal and political)	appropriate strategic investment framework	mainline investment strategies within sectoral development plans (e.g., nfp); inclusion of sectoral financing facilities within generic development plans (e.g., NEAP, NSDS)
	secure land tenure arrangements	Consultative reform / long-term stabilisation of property rights regime ensuring open access to land for local populations where necessary
	clear and enforceable forest policy	multi-stakeholder awareness campaigns; streamlined judicial process for forest policy infringements; enforced penalties
	clear definition of public and private sectors' roles and responsibilities	Public-private consultative process leading to: consensual definition of roles, corresponding investment agency structure, criteria for private sector forestry investments, and defined scope of public sector interventions
	improved rent capture for public-sector forestry operations	appropriate valuation (see under market requirements), hypothecation of forestry revenues for reinvestment in removing structural barriers
	forest accounting methodologies to value full range of forest resources	user/service fees, e.g., water, carbon sequestration, support for incremental costs of initial transition to SFM, and of global externalities (e.g., via objective-led revolving funds)
	appropriate national accounting systems	changes in natural capital stocks to be recognised
Institutional	dynamic and efficient public-private sector interface	creation of autonomous investment and forest management agency with private sector expertise; staff recruitment from private sector
	improved absorption capacity for concessionary funding (e.g., ODA)	reduce bureaucracy, consolidate/harmonise relevant rules and regulations, streamline project approval cycle, increase involvement of local operators, and autonomise/decentralise implementation bodies
	coherency between relevant policy departments	strategic coordinating policy body; systematic meetings and information-exchange between departments
Market  (including fiscal and macro-economic)	emerging market and forestry-related risk mitigation mechanisms	strategic planning, e.g., nfps, market development and capacity-building, provision of investment risk guarantees; longer grace periods for concessionary funding (to meet perception about long-gestation period), and conditions to promote value-chain investing
	incentives for SFM / disincentives for UnSFM	identify perverse subsidies; reform / restructure tax and subsidy regime to encourage shift from undesirable UnSFM activities to desirable SFM activities; provide appropriate indirect subsidies, e.g., contractual supply guarantees
	adequate market infrastructure	e.g., public sector investment in processing, distribution, and storage infrastructure for forest products where appropriate (see section 3.2.3); also relates to capital market infrastructure, e.g., stock market category for forestry

Sources: Chandrasekharan 1996b, Richards 1998, Frumhoff et al. 1998, Laarman 1997, Gentry 1996

94. However, negative perceptions cut both ways. In many countries government departments and small-scale forest users tend to be skeptical and thus resistant to the motives of private sector investors and operators. Again, in some cases this is justified, in others not. Amongst other things, removing these perceptual barriers requires an appropriate regulatory framework, including operational and investment criteria, so that private sector interests act within acceptable bounds as defined by policy-makers through widespread consultation with stakeholders.

### **3.2.3 Operational Requirements – SFM vs. UnSFM**

95. To understand the operational requirements of SFM, it is first necessary to identify the different components of SFM activities in comparison to UnSFM and then, to determine which components represent costs and which benefits. Such an analysis should provide an indication of the incremental implementing costs, and their effects on profit margins, of sustainable forestry operations.

96. Table 3.2 provides a comparison between the principal cost components of a typical unsustainable and sustainable medium- to large-scale forestry operation. It should be stressed that this is an example only, and it is not intended to represent all forestry operations, particularly not those at a smaller scale. However, Table 3.2 illustrates types of operation which are likely to attract private sector investment - a focus of this study. Also included are the principal benefits (in a broad sense) of the two types of operations, over both the short and long terms.

97. As Table 3.2 clearly shows, there are a wide range of additional costs that must be met by the sustainable forest manager. These incremental costs constitute a key barrier to SFM, particularly as many are incurred in the pre-operational phase of the investment. Removing this barrier is an area where public sector concessionary funding could exercise substantial leverage, particularly in ensuring the market and non-market-based valuation of the full range of forest goods and services. In this regard, market “commoditisation” and the structural conditions it requires are discussed at length in the next section. Financing mechanisms to derive non-market-based values are considered in Chapters 5 and 6.

98. Some of the key operational requirements needed for the widespread adoption of SFM practices, including those relating to commoditisation, are summarised in Table 3.3. It should be noted that some – particularly those relating to market infrastructure – substantially overlap with some of the structural requirements described in the previous section. As discussed earlier, most of these requirements relate to pre-operational investments in planning and training, and access to technical assistance. Operational-phase requirements depend much more on the specific circumstances of the forestry operation in question. Following the same argument outlined in Section 3.2.2, since most of these requirements are not being met at present, they can be regarded as barriers to SFM. Options for their removal are therefore also shown in Table 3.3.

**Table 3.2 Comparison of Activities in Typical Large-scale Sustainable and Unsustainable Forestry Operations**

		Unsustainable forestry	Sustainable forestry	
Costs	Pre-operational	land or forest rights acquisition	land or forest rights acquisition	
			develop information base – e.g., forest inventory, surveying, mapping	
		management plan – cursory	management plan – strategic	
			integration/consideration of forest services other than timber production, including: biodiversity protection, carbon storage, soil and watershed protection, landscape beauty	
			participatory involvement of stakeholders	
			environmental impact assessment of planned activities	
			fire prevention and control measures	
		roads and infrastructure – unplanned	roads and infrastructure – planned	
		Equipment procurement	equipment procurement	
	Operational	Labor		labor
				training
				work scheduling and supervision (e.g., quality and volume of inputs and production outputs, impact on residual stand and the environment, etc.)
				implementation of activities in management plan not directly related to timber production (biodiversity protection, carbon storage, soil and watershed protection, landscape beauty)
		Marketing – general	marketing – general / specialised	
		certification		
Post operational	Sales	sales		
		short- and long-term monitoring of forest status and environmental conditions, research		
Benefits	Short term	timber	timber – might include lesser known species	
		fuel wood and charcoal	fuel wood and charcoal	
		some NTFPs	NTFPs	
	Long term	Reduced service provision due to slower recovery rates, higher soil erosion, higher mortality, etc.	forest services – e.g., watershed protection, soil conservation, Carbon storage, biodiversity protection, landscape beauty/amenity value	
			social benefits and stability, positive economic benefits	
			better residual stand for future operations/activities	
			ongoing stakeholder consultation and involvement	

**Table 3.3 Examples of Operational Requirements for SFM**

CATEGORY	REQUIREMENTS	POSSIBLE OPTIONS FOR MEETING REQUIREMENTS
Pre-operational	Research, e.g., multiple-objective forest inventories	Dissemination mechanisms (e.g., extension services) for existing information and research methodologies; collaboration with research bodies / NGOs
	Additional capital investments, e.g., in comprehensive management plans	Incremental cost support for transitional phase to SFM, particularly for global benefits of forests; packaging of different financial investments streams (concessionary/commercial, etc.); credit facilities for micro-investors; investment guarantee facilities
	Technical assistance	Extension services; identification and facilitation of appropriate knowledge and skills resources; technology transfer
	Participation of local stakeholders	Development of appropriate methodologies for private sector operators
Operational	Training and technical assistance	Extension services; identification and facilitation of appropriate knowledge and skills resources; technology transfer
	Stand regeneration and tending	Ensuring that appropriate silviculture systems are established and that they are made financially viable.
	Marketing and sales assistance	Brokerage/package of project outputs for sale (e.g., through public sector forest investment agency); price guarantees for noncommercial investors
Post-operational	Monitoring	Collaboration with local communities; established dispute resolution procedures; secure land tenure arrangements and enforcement regimes (see Section 3.2.2)

### 3.3 Commoditisation of Forest Benefits

99. An effective mechanism for removing barriers to SFM, in line with the assumptions underlying this report (see Section 3.1.6), is for the incremental cost barrier to be internalised and accounted for within the investment itself. This can only be achieved through the creation and development of a structural framework, which ensures that SFM activities offer higher rates of return in relation to UnSFM.

100. The incremental costs of SFM generally relate to its more comprehensive treatment of the forest resource, which in turn requires a wider range of activities and management components. It is reasonable to assume that additional benefits in the form of financial remuneration should stem from this same comprehensive treatment, which is derived from the recognition of the multiple goods and services provided by forests.

101. As discussed in Chapter 2, an implicit component in this recognition is valuation. Much recent research has focused on calculating and comparing the various costs and benefits of sustainable and unsustainable forestry operations (see Table 3.2, and Box 3.1) in the context of internalising environmental externalities. The terms of these analyses, however, are often economic, in the broadest sense of the word, recognising values which may accrue to the global or national economy but which often do not generate recoverable financial returns to those who are directly responsible for providing these services – forest owners and managers.

### Box 3.1 Cost Comparison between Uncontrolled and Reduced Impact Logging

Much controversy has focused on the costs of sustainable selective logging activities in natural forest systems. Considering that harvesting is often the most damaging (and expensive) activity in a forestry operation, improving logging practice is a vital component of any sustainable management plan. Some advocates of reduced impact logging base their arguments on the evidently healthier residual stand following logging, and thus the higher future crops that can be expected. This argument, however, is often undermined if the net present value of these future crops is calculated using the discount rates prevalent amongst commercial concerns. Over a 30-to-60-year rotation (typical of tropical moist forests), consideration of the forest's health for the second rotation is at least controversial in a conventional cost-benefit analysis (Richards 1998, Boscolo et al. 1998).

Any economic rationale for good forestry practices should thus focus on those benefits that accrue within a shorter time frame. An analysis of the costs and benefits of reduced impact versus uncontrolled logging operations often provides enough subsidies to justify the use of reduced impact harvesting techniques on the grounds of operational costs alone.

It has to be pointed out, however, that during the transition phase between one logging system and the other, there are higher costs associated with the uncertainties and lack of familiarity with the new system. Although this may result in higher costs during this transitional phase, these costs should not be attributed to the use of low impact harvesting techniques themselves for after the initial transition, it can be expected that logging operators will be as efficient in the new system as they were in the previous one. Operations will then profit from the additional benefits accruing from carefully planning and optimising harvesting activities.

TIMBER		NONTIMBER	
OPERATIONAL COSTS Uncontrolled logging	COMPARATIVE COSTS Reduced-impact logging	OPERATIONAL COSTS Uncontrolled logging	COMPARATIVE COSTS Reduced-impact logging
Planning	Higher	None (however costs might be incurred through lack of compliance with regulatory regime, etc.)	Higher – implementation of comprehensive ecosystem-wide management plan including planning, monitoring, and implementation of additional operational activities.
Machinery	Similar		
Equipment maintenance	Lower – due to optimisation of use		
Other operational costs (e.g., training, monitoring, stand tending, etc.)	Higher		
Labor – tractor drivers	Lower – due to better extraction plans		
Labor – chainsaw operators	Higher – due to directional felling requirements		
BENEFITS Uncontrolled logging	COMPARATIVE BENEFITS Reduced-impact logging	BENEFITS Uncontrolled logging	COMPARATIVE BENEFITS Reduced-impact logging
Timber – (in some cases a significant percentage generally wasted as broken trees, split trees, high stumps, unrecovered/lost trees etc.)	Timber – in some cases fewer trees harvested, due to introduction of harvesting restrictions (riverine buffer zone, slope limits, etc.)	None	Less damage to residual stand, with associated long-term benefits of, e.g., higher future crop.
	Timber – in other cases higher volumes may be achieved due to reduced waste and inefficiencies		Potential revenues from extraction of lesser known timber species
			Higher biodiversity
			Higher carbon storage
			Better soil and water protection

Sources: Moura Costa & Tay 1997, Barreto et al. 1997, Pinard et al. 1997, Boscolo et al. 1998.



102. Although government-mediated transfer payment schemes have been introduced to this end, their scope and efficacy is limited (see Chapter 6). The result is more unsustainable forestry centered on timber production, for “*forest managers will not change their practices until they either recognise the benefits of non-timber forest benefits (NTFBs) or can capture additional forest values. This change can come through:*

- *market forces,*
- *direct regulation and prohibition of forest destruction,*
- *government intervention to purchase and protect lands in the name of larger social benefits.”* (Lampietti & Dixon 1995; see also World Bank 1998)

103. Using the market is increasingly being seen as the most effective and enforceable way to fully engage the private sector and other forest users alike with the objectives of SFM. Regulation and government intervention, however, have a crucial role to play in creating an appropriate structural environment for SFM activities (see Section 3.2.2). Integral to such an environment are mechanisms to harness market forces to ensure that those who benefit from forest services pay for them and that these payments reach the forest owners and managers who often provide these benefits at a financial cost (often as an opportunity cost in terms of lost timber revenue).<sup>19</sup>

104. Establishing these market-based mechanisms is equivalent to ‘commoditising’ the full range of forest goods and services so a financial ‘sale price’ can be recovered by their suppliers, either through bilateral contractual deals or through multilateral commodity markets. It should be noted that in the case of some bilateral transactions relating to, for example, water resource use charging or bio-prospecting (see Annex 4 for details), these ‘sale prices’ have been negotiated or fixed arbitrarily rather than being determined by the balance between the demand or WTP for environmental services and the marginal costs of supply.

105. The first step in the commoditisation process, exemplified in Table 3.4, is to identify which goods and services represent potential commodities, and whether their benefits are accrued at the local, regional, or global level (which should then determine the scale of the commodity market).<sup>20</sup>

106. The second step is to develop the legal, policy, and institutional architecture to enable the creation and transferability of the commodity and the subsequent development of a market for it. Pertinent issues include:

- legal definition of the commodity,
- clarification or establishment of ownership or property rights over the commodity,
- consistency or fungibility of the commodity if supply is from diverse geographic sources or project types, and
- allocation of responsibility for market regulation to appropriate government department or agency.

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<sup>19</sup> This has been termed ‘the winners pay the losers’ principle.

<sup>20</sup> One obvious criteria that makes a forest good or service ‘commoditisable’ is that it can be valued by the market. Non-use values, such as existence value, challenge these criteria through a range of competing methodologies and so have not been included here.

**Table 3.4 Identifying Potential Commodities in a Natural Forest**

Likely scale of market	Established commodities	Potential commodities* (generally tend to be externalities at present)	
	Goods	Goods	Services
Primarily local or national	Timber, NTFPs, e.g., resins, game	'New' NTFPs, e.g., medicines, materials, nuts, etc.	Watershed protection, water flow regulation
	Wood for fuel, charcoal		Landscape beauty / amenity value
Primarily global	Timber	Lesser known timber species	Carbon sequestration and storage
	NTFPs, e.g., rubber		Biodiversity and habitat protection / conservation

\* Those goods that are used locally for community or individual subsistence (e.g., wood for fuel), or whose value lies in their cultural or spiritual significance and which will inherently resist financial valuation (e.g., some medicines, or materials for artifacts or adornments) have been omitted.

107. The third and final step in the commoditisation process is market development. This should focus particularly on information dissemination to overcome perceptual barriers that might restrict buyers' and sellers' awareness and confidence in the commodity. Initially, in any new market, demand and supply will inevitably be thin, forcing up transaction costs that risk becoming major barriers to further market development. In some cases, this can serve as justification for the public sector to take a proactive role in market stimulation through, for example:

- The promotion and publicisation of successful 'demonstration' transactions;
- running a pilot phase market to gain experience and establish necessary protocols; and
- buying down risk by channeling concessionary finance into early stage sustainable resource use operations.

108. Table 3.5 uses the forest goods and services identified in Table 3.4 above to illustrate this commoditisation process; the various components of which will fall to different actors either in the public, private commercial, or noncommercial sectors. The shaded areas indicate predominantly structural requirements that, as discussed, are largely the preserve of national governments. However, as potential commodity markets for carbon sequestration and biodiversity conservation are global, much of the required policy and market developments will be mediated by international fora. The role of different actors is discussed further in Section 3.4, and Chapter 4.

109. The 'commoditisation' argument could be criticised for being overly focused on the need to cash-in on forests' multiple roles, highlighting the financial above the environmental, the social, and the economic. In essence, however, what commoditisation should achieve is to ensure that the profit-motivated financial logic of commercial forestry coincides with the widest possible valuation and recognition in the marketplace of the multiple roles played by forests, thereby enhancing the financial incentives for SFM as compared to UnSFM.

**Table 3.5 Forest Commodities: Examples of Necessary Steps for Commoditising Forest Goods and Services (pre-operational and operational barriers to investment)**

*PLEASE SEE FOLLOWING PAGE FOR TABLE*

**Notes:** Shaded areas indicate where operational requirements overlap with structural requirements (see Section 3.2.2). However, in the terms of the above analysis, they should be considered as predominantly structural.

\* It is assumed that the principal mechanism for recovering the incremental costs of managing a forest for landscape beauty is through ecotourism.

Goods		Services				
Timber	Lesser known timber species / some NTFPs	Some NTFPs	Carbon sequestration	Watershed protection	Biodiversity protection	Landscape beauty*
Financial return	Research (science) – wood science, technology, characteristics of species	Research (social / science) – identify characteristics of products	Policy definition – CoP to the UNFCCC	Research (science) – impacts of management strategies on watershed	Research (science) – impacts of management strategies on biodiversity	Research (economic) – valuation of landscape beauty
	Research (market) – viable end products	Research (market) – viable marketable commodities	Ratification of international law	Research (economic) – valuation of water protection role	Research (economic) – valuation of biodiversity protection	Identification of beneficiaries / demand
	Marketing/ market adaptation, e.g., identification of buyers and sellers	Resolve outstanding legal issues on property rights, etc.	Implementation of policy via national and international mechanisms and law	Identification of beneficiaries (e.g., downstream water companies)	Identification of beneficiaries (e.g., global community, bio-prospectors, local peoples, agricultural interests) <sup>21</sup>	Appropriate policy / mechanisms to recover financial benefits
	Financial return	Business organisation (suppliers)	Market structuring, e.g., transaction accounting and tracking procedures	Mechanisms to recover financial benefits, e.g., fiscal policy, user charges, etc.	Appropriate intellectual property regime	Capital investment, e.g., tourism infrastructure
		Extraction and processing infrastructure	Institutional reform/creation, e.g., national interfaces to CDM	Mechanisms to subsidise incremental costs to managers, e.g., direct payments, agreements with water companies	Global incremental cost support mechanisms	Market development
		Formation of distribution networks	Dissemination of information to market actors	Dissemination of information to market actors – market awareness	National interfaces/rules to mediate foreign interests (where applicable)	Marketing
		Market development	Research (science) – quantification of Carbon benefits	Transaction facilitation / brokerage	Enforcement mechanisms	Financial return
		Marketing	Identification of buyers and sellers	Financial return	Dissemination of information to forest operators	
		Financial return	Market development		Project packaging and presentation	
			Project and investment packaging and presentation		Transaction facilitation / brokerage	
Marketing / transaction brokerage and facilitation	Financial return					
Financial return	Financial return					

<sup>21</sup> Probably the largest global service provided by forests in the context of protection and conservation of biodiversity and genetic resources is that of agricultural germplasm (D. Pearce, personal communication.)

110. It should be made clear that commoditisation does not necessarily comprise distinct individual processes for each of the forests' potential commodities. Many of the steps outlined in Table 3.1 are interrelated and should be addressed jointly. As Figure 3.4 illustrates, commoditisation of one particular forest service (e.g., carbon sequestration) must not simply replace timber production as the dominant consideration to the continuing detriment of other forest functions (e.g., NTFPs). Box 3.2 explains the concept of integration in further detail.

111. Concluding, the goal-setting process to operationalise SFM in site-specific conditions involves the market and non-market valuation of a range of goods and services that can then be converted into specific management objectives. Commoditisation offers a market-based approach to this end. Non-market valuation requires appropriate financing mechanisms, which are discussed further in Chapter 6. Both strategies rely on enabling structural frameworks whose development falls largely to the public sector.

### **Box 3.2 Integrating Forest Values**

Integral to SFM is the recognition of the full range of goods and services provided by forests, applied across both space and time, as compared to UnSFM's strong bias towards regarding forests solely as short-term timber factories. What is less clear is how management strategies can implement this recognition. Most examples of SFM have been based on the assumption that within a large forest area, riverine segment A should be managed for watershed protection, wildlife-dense segment B should be managed for biodiversity conservation, easily accessible segment C should be managed for ecotourism and landscape beauty, leaving segment D to be selectively logged. However, such a management strategy, although a significant improvement on unsustainable logging operations, fails to genuinely integrate the various different forest values. There is a danger, therefore, that if and when these values are commoditised (see Table 3.4), forests again come to be regarded as resources to be managed for single end-products, but this time scaled-up to the landscape level to create a semblance of multiple end-product sustainable management.

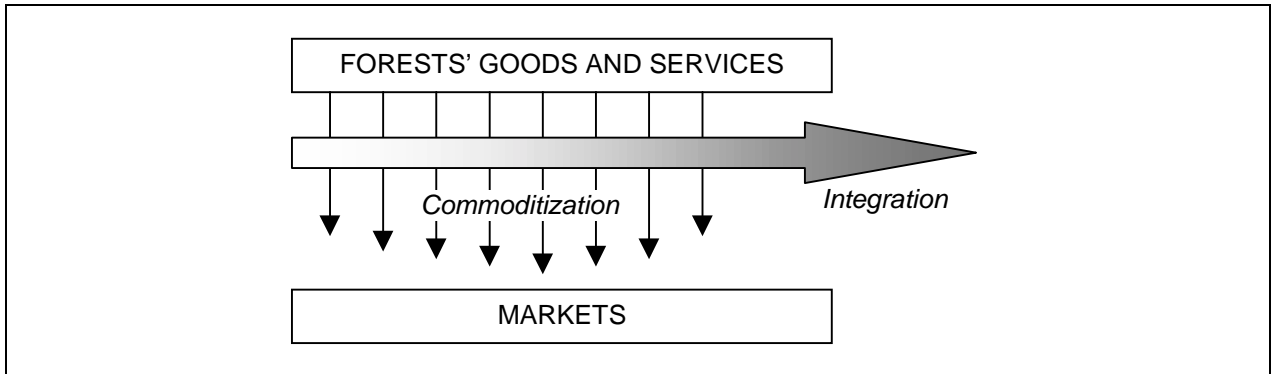
Avoiding this scenario is what is meant by 'integration' during the commoditisation process and is represented in Figure 3.1. If the 'sale' of forest commodities is packaged in such a way as to avoid an overt focus on one forest good at the expense of another, integrated forest management will be best ensured. Much of this depends on the commoditisation process itself. Much also depends on a greater understanding of how the various goods and services interrelate, and the degree to which they are interdependent, in different forest systems.

It seems likely that these interactions will be positively correlated: for example, managing a forest for carbon sequestration will likely also benefit biodiversity conservation. However, it is vital that more research be carried out in this area to develop our understanding of how multiple end-use SFM is most viable in practice. Potential foci of such research include:

- the tradeoffs in terms of production possibility boundaries inherent to a multiple end-use management regime;
- the different timings, scales and forms of financial or economic returns from the different forest goods and services; and
- the pros and cons of a segmented versus an integrated application of multiple end-use management strategies.

Source: Spears 1997, Fischlin 1996, Price et al. 1996

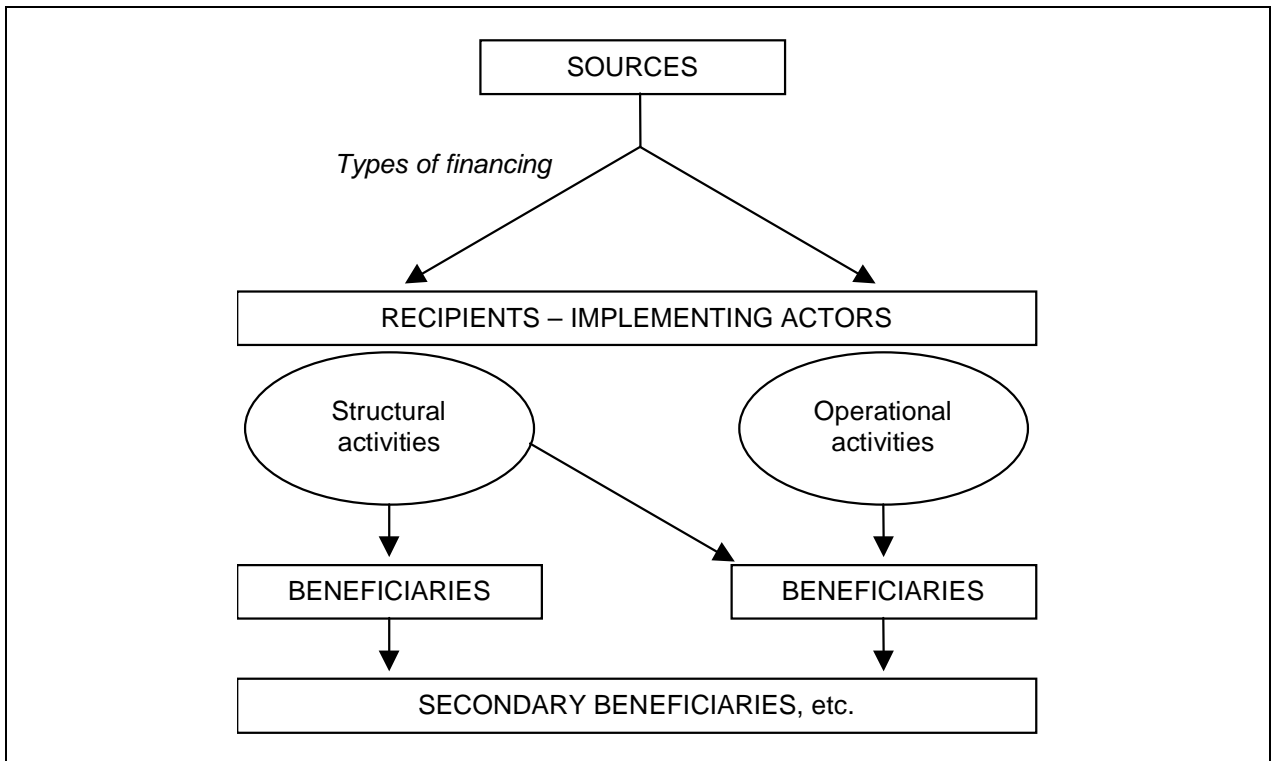
**Figure 3.4 Integrating Multi-purpose Forest Management**



### 3.4 Beneficiaries and Recipients of SFM Financial Flows

112. The previous section provided an overview of the types of activities requiring funding for the widespread implementation of SFM. This section seeks to complement that overview by briefly analysing the main actors involved in these funding activities, in terms of recipients and beneficiaries (see Figure 3.5). Also examined are the different types of funding commonly used by these actors. The objective of this section is to provide the necessary context for the more detailed analysis of financial mechanisms in Chapters 4, 5, and 6.

**Figure 3.5 Financing Flows**



### 3.4.1 Types of SFM Financing

113. The public-private, domestic-foreign typology commonly used for describing SFM financial actors (e.g., UNDP 1997) was mentioned briefly in Section 3.1.4. For the purposes of this analysis, the private sector category is further subdivided into commercial-noncommercial. This allows a distinction to be made between ‘commercial’ enterprises primarily interested in profitable investments (e.g., logging companies, large-scale landowners), and ‘noncommercial’ entities whose primary motives for investing in forestry are other than or are in addition to profit. Such motives might include subsistence (e.g., poor farmers, rural communities), providing technical or developmental assistance (e.g., NGOs, community-based organisations (CBOs)), or fulfilling environmental or social mandates (e.g., NGOs, private foundations). It is important to stress that none of these motives exclude profitability. Indeed, they can be regarded as constraints within which noncommercial actors (or ‘civil society’) operate to maximise profit.

114. Table 3.6 lists the main examples of investors in the forestry sector according to this typology. In this context, the term ‘capital flows’ is used in its broader sense to include human, social, and natural capital, as well as financial capital. An important distinction can thus be made between (adapted from Chandrasekharan 1996b):

- *implicit investments* – transfers of/investments in skill, technology, knowledge, and labor (‘financing-in-kind’) – applies particularly to the skills and knowledge-based institutions in the public and noncommercial private sectors; and
- *explicit investments* – monetary transfers/financial investments in, e.g., capital goods, equity – applies particularly to the commercial private sector.

**Table 3.6 Examples of Institutions Providing Sources of Capital to the Forestry Sector**

Source of funding	Beneficiary/recipient		
	Public sector	Private sector	
		Commercial	Noncommercial
<b>Domestic</b>	<ul style="list-style-type: none"> <li>• government departments</li> <li>• government agencies (national and decentralised, e.g., forest corporations)</li> <li>• research institutions (sectoral, e.g., forestry institutes and general, e.g., universities)</li> </ul>	<ul style="list-style-type: none"> <li>• forest companies</li> <li>• sectoral investors</li> <li>• general direct investors</li> <li>• large-scale landowners</li> </ul>	<ul style="list-style-type: none"> <li>• subsistence farmers</li> <li>• rural communities (including indigenous communities)</li> <li>• CBOs or looser affiliate community networks</li> <li>• NGOs (mostly implicit investments, in kind)</li> </ul>
<b>Foreign</b>	<ul style="list-style-type: none"> <li>• Bilateral donors</li> <li>• multilateral donors (including funding institutions of international conventions)</li> <li>• research institutions (sectoral and general)</li> </ul>	<ul style="list-style-type: none"> <li>• international forestry companies</li> <li>• sectoral investors</li> <li>• specialist direct investors (e.g., revolving environmental funds)</li> <li>• general direct investors (e.g., TNCs)</li> <li>• institutional equity investors (e.g., banks, pension funds, insurance companies)</li> </ul>	<ul style="list-style-type: none"> <li>• foundations</li> <li>• specialist concessionary funds (e.g., sinking environmental funds)</li> <li>• philanthropists, benefactors</li> <li>• international NGOs</li> </ul>

Sources: Chandrasekharan 1996a & 1996b, Joshi 1997, UNDP 1997.

115. Table 3.7 relates financial actors and funding types with their associated activities in the forestry sector. Such an integrated analysis should help to create a clearer picture of the qualitative dimension of implementing SFM, in terms of the type of activities currently underfunded (thereby constituting barriers to SFM), and the likely sources from where funding can be mobilised to remove these barriers. Table 3.7, however, offers examples only by way of illustration, as for most SFM-related activities, a wide variety of possible funding streams exist.

116. In many cases, different activities may be jointly funded from a variety of sources. This can either be in a coordinated fashion such as in joint ventures or some form of public-private partnership (objective-led) or, in a more fragmented way, with each source providing financial inputs for certain components of an activity according to their own specific interests (interest-led approach). This fragmented interest-led approach is illustrated by the duplication of certain activities in Table 3. This duplication and fragmentation can itself represent a major barrier to SFM and suggests the potential benefits of better coordination and targeting of financial flows into both the structural ‘enabling environment’ for SFM investment, and into project-level operations themselves.



### 3.4.2 Recipients and Timings of SFM Financing

117. As illustrated by Figure 3.6, the recipients (or direct beneficiaries) of SFM investments (financial or otherwise) are defined here as those who directly implement the activities financed (including structural reforms). These investments, however, may lead to secondary benefits accruing to other parties not directly involved with the implementation of these activities. In this way SFM investment can generate a cascade of direct and indirect benefits.

118. Table 3.7 shows the temporal progression of the development of a forest sector framework leading to commercial forest enterprises, as well as the likely sources of funding available for each stage. Forest sector activities can be divided into structural and operational, as discussed in Section 3.2. In this context, operational activities were divided according to their stage in the business cycle, as follows:

- early stage – identification of business opportunities, develop business concept;
- mid-stage – startup business, pre-profit operations;
- late stage – operations reach profitability and become self-sustaining, opportunity for expansion and new developments.

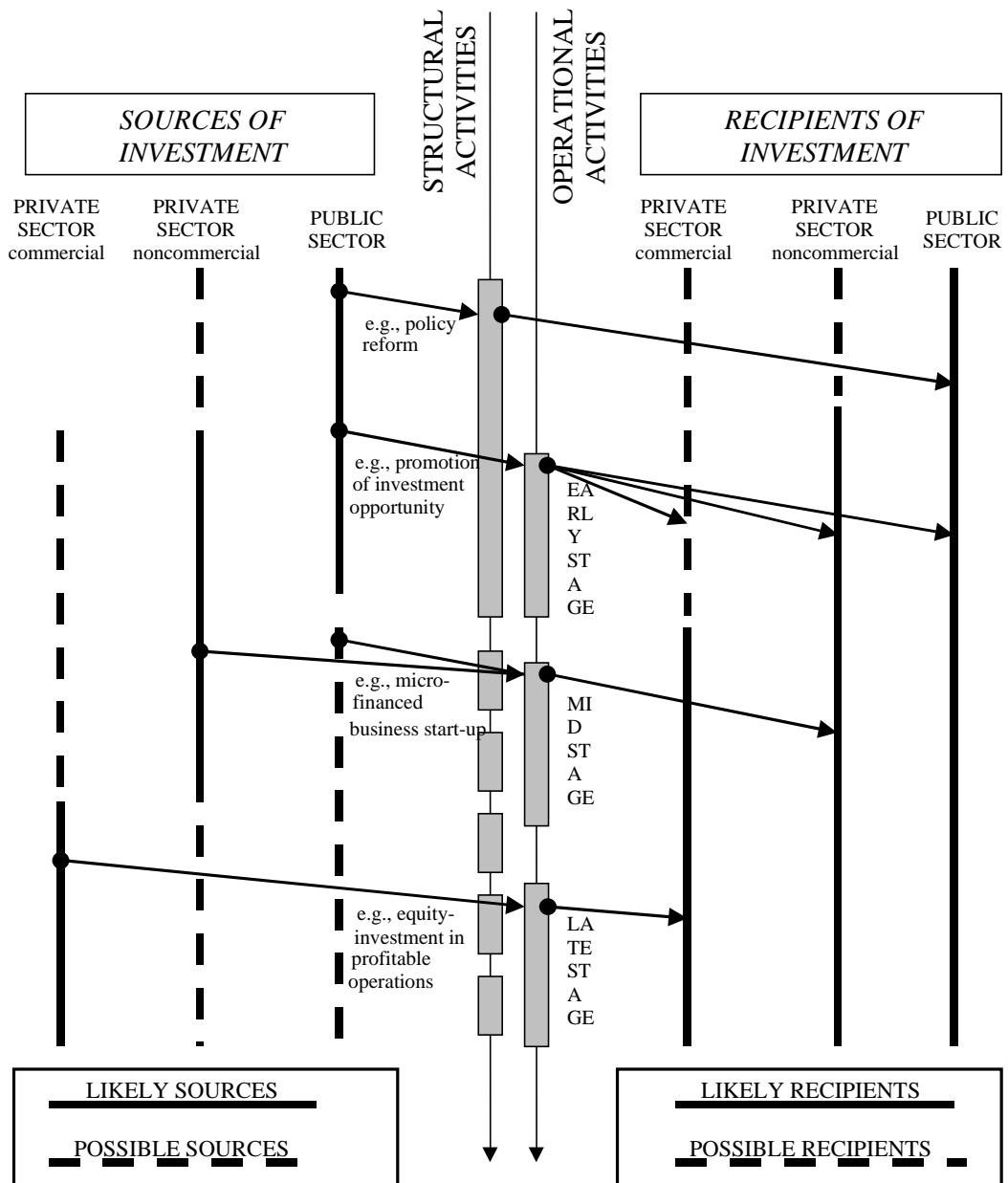
119. Investments in structural development are usually financed on a concessionary basis, principally by domestic public sources. ODA funding can also often play a significant role in structural activities through initiatives such as the development of nfps, institutional capacity building, etc. The main recipients of funding for structural activities are usually developing countries' public sectors, with some participation of NGOs and specialised consultancies. If properly targeted, investment in structural development activities may result in leveraging of private sector investment into operational activities.

**Table 3.7 Examples of Activities Funded (in non-italic font) and Types of Investments (in italics) According to Sources of Finance**

Category of activity funded		Sources of funding		
		Public sector	Private sector commercial	Private sector noncommercial
Structural	Policy	consultation process and policy reform to secure land tenure arrangements – <i>general government budget deployed through appropriate ministry (im)</i>	proposal / consultation / lobbying on public-private interface, e.g., SFM investment criteria and rules – <i>human resources (im)</i>	facilitation of and engagement with consultation process on land tenure – <i>technical assistance and human resources (im)</i>
		implementation of international law (e.g., Kyoto Protocol) through structuring and development of new markets (e.g., Carbon offsets) – <i>policy development using general budget (im)</i>	development of trading systems and bodies for emerging forest commodities – e.g., <i>administrative costs of pilot phase self-financed through transaction charges (im/ex)</i>	dissemination of information on policy and investment opportunities to small-scale operators – <i>human and administrative resources (im)</i>
	Institutional	establishing autonomous agency to promote forest investment – <i>securitised earmarked revenue from state forest operations / concessions (ex/im)</i>	operating costs of forest investment agency – <i>project facilitation charge / success fees (ex), secondment of personnel (im)</i>	decentralised institutional structures / affiliate organisations to mediate commercial investment – <i>human and administrative resources (im)</i>
	Market	mechanisms to compensate operators for incremental costs of SFM from provision of national/global benefits – e.g., <i>broker financial contracts between beneficiaries and operators (im)</i>	market development, e.g., modernisation of processing, distribution, and storage infrastructure for NTFPs – <i>debt (ex)</i>	project development and presentation for investment sourcing – <i>technical assistance including marketing and grant funding (ex/im)</i>
		reform tax/subsidy regime – <i>administrative costs financed by treasury or from improved rent capture (im)</i>	business organisations / information networks to facilitate identification of potential buyers of forest services – <i>informational resources (im)</i>	project-financing windows for small-scale operators – <i>concessionary microcredit facility capitalised by bond issue (ex)</i>
Operational	Pre-	research on impacts of different management strategies on different forest values (see Box 2, Section 3.2.3) – <i>technical and human resources (im)</i>	scoping for / identification of business opportunities in emerging markets – <i>informational resources (im)</i>	financing and technical assistance for development of SFM plan – <i>early stage venture capital fund (ex/im)</i>
		incremental cost support for transition to SFM (e.g., training) – <i>environmental funding facility (ex)</i>	development of emerging commodity markets – <i>private-public partnership investments in SFM demonstration projects for experience-building (ex)</i>	SFM knowledge / experience sharing network or centralised body (e.g., RIL academy) with extension services – <i>human resources / capital investment (ex/im)</i>
	During	infrastructural SFM investments in the context of economic development plans, e.g., roads / access points – <i>debt-financed capital investments (im)</i>	Marketing / sales / transaction brokerage for non-timber forest commodities – <i>from operating budget (ex)</i>	market organisations / collectives to mediate sales of national / global benefits – <i>human resources (ex)</i>
	Post-	information clearing-house and experience-gathering from SFM activities – <i>informational and human resources (im)</i>	site preparation / replanting for second rotation – <i>debt, profit-financed (ex)</i>	monitoring / protection of resource / land tenure enforcement – <i>human resources (ex)</i>

N.B. (ex) and (im) indicate whether the capital investments meet explicit (financial) or implicit (natural, social, human) costs.

**Figure 3.6 Sources and Recipients of SFM Investments in Relation to Investment Cycles**



*(arrows indicate sample investment)*

Many forestry operations typically require investment from multiple sources depending on the stage of the business cycle. SFM activities, in particular, often need early stage concessionary finance from public or noncommercial private sources to leverage later stage private sector investment. Running parallel to this operational financing is the need for investment in structural activities to build capacity and create 'enabling environments' for SFM operations. Again, such investments can potentially come from a variety of sources. Figure 3.7 attempts to illustrate these complex multiple-source financing requirements for SFM. It also uses various examples to show that the recipients,

or direct beneficiaries, of SFM investments are not necessarily the same as the sources, depending on the type and timing of the investment in question. This disjunction between investment source and beneficiary can act as a major barrier to private sector involvement in SFM if catalytic public sector financing and mechanisms to facilitate its application are unavailable.

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120. Operational activities at the early stage of the business cycle may attract funding from either public sector or noncommercial private sector sources, in the form of concessionary grants or loans, or the provision of technical assistance for development of appropriate business and management plans. In many cases, there is a shortfall of capital available for the start up phase of forestry enterprises. This is because the commercial private sector is generally reluctant to invest until there is evidence of financial profitability of businesses. At the same time, the public sector often is unwilling to subsidise commercial ventures of the private sector. This Catch-22 associated with early-stage operational investments can often represent a weak link in the forest enterprise cycle.

121. As ventures reach the middle of the business cycle, they become more likely to mobilise financial resources. These can come from private sector commercial sources, public sector, or a combination of both (adapted from EA Capital 1998):

- private – e.g., own capital, ‘angel’ investors, joint venture partners, strategic investors, early-stage venture capital funds, commercial loans;
- public – e.g., extension, research, training services, loans; and
- public/private – e.g., enterprise development facilities, microfinance facilities / SME concessionary loans.

122. Mature enterprises, at the late stage of the business cycle, can attract capital from more established private sector commercial sources, through debt and equity transfers. The required roles for public and non-commercial private sector investors therefore diminish.

123. Figure 3.6 graphically represents how different sources of investment specialise in financing different types of activity with the involvement of different recipients at different stages of the operations’ business cycle.

124. Two main observations can be drawn from this analysis. First, there is the potential need for a variety of complementary funding streams for the different stages of the forestry sector development or of the forestry business cycle. The complexity of such multi-sourced investments may become a barrier to SFM. Such a barrier could be addressed through investment and informational facilities designed to bring together and package appropriate financial resources in the context of this ‘life-cycle approach’ to the forestry sector (see Chapter 8). This has the potential to reduce investment liabilities and risk, facilitate strategic management, reduce project uncertainties, and ensure long-term commitments and involvement from relevant stakeholders.

125. Second, as Figure 3.6 illustrates, there is a strong reliance on public sector finance in the start up phase of forestry sector enterprises. This can be problematic if the current trend of diminishing public sector resources continues (see Section 3.1.3). Additionally, this reflects the current lack of involvement of the private sector in SFM, due to both real and perceived barriers

and risks associated with this activity, preventing investment until later stages of the business cycle.

126. A conclusion that can be drawn from this cursory analysis, and in support of the assumptions described in Section 3.1.6, is that it is clearly necessary to involve private sector actors in earlier stages of the forestry financing cycle. The public sector could play a role by targeting their increasingly scarce resources on investments with two clear intertwined objectives:

- (1) to create a structural environment that ensures profit-seeking private sector resource flows are channeled into SFM rather than UnSFM; and
- (2) to leverage private sector resources by removing investment barriers to SFM.

These twin objectives are inseparably intertwined, and form the basis of the proposals made in this chapter, and in the remainder of this report.

## **SOURCES OF FORESTRY FINANCING**

**4.1 Domestic Financing; 4.2 Official Development Assistanc**

**4.3 Private Financing and Globalising Forest Sector**

## 4. SOURCES OF FORESTRY FINANCING

127. Financing arrangements for forestry vary greatly depending who finances (the source), for whom and what (the utility), and how much funding is involved. There are direct and indirect, individual and institutional, and loan and grant mechanisms. In terms of sources they can be classified into domestic and foreign, and public and private (see Table 3.6). These broad categories tend to get mixed with each other through various combinations and joint financing arrangements (Chandrasekharan 1996b). The focus of this chapter is sources of forestry financing.

### 4.1 Domestic Financing

128. In The importance of domestic investment has been emphasised as one of the main channels for forestry financing (UNDP 1996). *Public domestic financing* falls into two categories:

- (i) those which are directly managed by public institutions for productive purposes on state-owned lands or enterprises; and
- (ii) financial support to the private sector.

129. In general terms, public sector financial flows are implicit through, for example, incentive/disincentive regimes, policy reform, institutional development, and strategic planning. Domestic public sector flows are frequently difficult to classify due to the wide range of activities financed, which are mainly structural (see Section 3.2.2) but can also be operational through state-funded agencies or research bodies.

130. Governments apply several instruments to raise funds from the private sector (royalties, user fees, taxes, etc.) but their assessment is not part of the scope of this study. Several reviews have been carried out which can be referred to (e.g., Karsenty 1998, Richards 1998).

131. In general, public sector forestry institutions have lost many of their directly productive functions to the private sector, due to widespread changes in macro policies. Their revenues and expenditures are usually controlled by national treasuries, and rarely is anything approaching an adequate share of the income from forests reinvested into the sector. The possibilities for increasing public sector self-financing for forestry is based not only on the potential of the forest resource base but also on the level of political willingness. In recent years, self-financing has been declining in many countries (UNDP, undated).

132. Due to financing capacity constraints, the public sector can only play a supporting role in SFM, which is ultimately the responsibility of the private sector in most countries in the developing world. The public sector's investment can take the form of cash outlays or in kind

(farmers' labor input, farmland, etc.). Public funding is often necessary but, alone, is not a sufficient condition for achieving SFM.

133. It has been pointed out by Repetto and Sizer (1996) that the forestry sector should be self-financing, and it may not need any innovative sources of finance for SFM investments. And were the policies right, and the potential rents effectively collected and transferred to forest managers and owners, no other financing sources would necessarily be required, if forests can reach a minimum necessary productivity. As both intensive and extensive management can be applied, there is a degree of flexibility to choose right approaches in particular situations. In the case of the state-owned forests (and collecting forest related taxes and charges), the problem is that revenues from forestry and biodiversity utilisation are collected by the treasury, and they are not earmarked for reinvestment or recurrent costs of resource management and conservation (Keipi 1998).

134. *Domestic private investments* are constrained by the level of available financing from local and external sources. In addition to large-scale and medium-sized industrial operations, private investment is made by farmers and forest dwellers, small-scale enterprises (SSEs), NGOs, CBOs and private voluntary organisations (PVOs), which all mobilise funds and other resources for forest management and processing of forest products.

135. It appears that small investments by rural people and their organisations are not necessarily recorded and, therefore, their importance tends to be grossly underestimated in official statistics. Chandrasekharan (1996b) points out that recent experience in forestry development shows that if resources of the local populations are mobilised effectively, a great deal of productive and effective forestry investment can take place at a rather low (financial) cost. Conducive policies to provide tangible incentives and clearly targeted support are essential to achieve such results.

136. Domestic financing has been largely dependent on the importance of the forest sector in the national economy, and the preconditions that can make SFM investment profitable for the private sector. The objective of foreign ODA financing has often been to assist in creating the necessary enabling conditions for private investment, be it domestic or foreign.

## **4.2 Official Development Assistance**

### **4.2.1 ODA Sources**

137. As explained in Chapter 3, two main conventional international financing mechanisms have been applied in the past to provide funds for the forestry sector: ODA and private sector investment. Both mechanisms take various forms and channels and are often interlinked.

138. ODA typically supports environmental conservation, social development, infrastructure, capacity building, and the removal of structural barriers, as well as providing technical assistance and other resources to catalyse development. More recently there has been a growing interest in supporting the internalisation of global externalities. In forestry ODA environmental and social



issues tend to have an increasing priority. In addition to such strategic objectives, much ODA still appears to be used for solving temporary or chronic liquidity problems of recipients.

139. ODA flows are generally in the form of debt, grant, or technical assistance. ODA has two main channels:

- (i) bilaterally from the donor agency to the recipient; or
- (ii) multilaterally through international agencies which raise their resources from donor agencies and international financial markets.

140. Actual development activities are carried out by various specialised bodies including public institutions, private companies and NGOs and PVOs. About twenty donor countries and thirteen multilateral agencies are involved in providing ODA for forestry (Chandrasekharan 1997). Donors and multilateral agencies have their own priorities and strategies in terms of regional and sectoral focus and types of intervention. These have not necessarily matched with those of the recipient countries.

#### **4.2.2 Multilateral Development Banks (MDBs)**

141. Multilateral assistance is provided by development banks, UN agencies and specialised organisations, international NGOs, etc. Among the MDBs, the World Bank is by far the largest source of funding, and its policies tend to guide other agencies. Of particular importance has been the World Bank 1992 Forest Policy, which rules out any financing of logging in primary tropical forests. Whether this has had a positive environmental effect or not is unknown. Due to local and international conflicts related to the use of forests, WB and the regional development banks (African Development Bank, Asian Development Bank and the Inter-American Development Bank) have switched their focus from “pure” forestry towards integrated projects where forestry is part of rural development and environmental conservation. The International Fund for Agricultural Development has also been financing some forestry/tree planting activities as part of their agricultural projects. The switch in emphasis has also reflected the need to address development and conservation through a comprehensive approach rather than strictly sectoral interventions.

142. MDBs, and the World Bank especially, have particular comparative advantages in development financing, which are also relevant to forestry. Multilateral banks can often address policy constraints more effectively than, for example, individual bilateral donors. This is particularly the case with structural adjustment interventions outside the forestry sector. These are often macro-level issues and may not be tackled as part of the sectoral policy reform (e.g., within the nfp framework).

143. The World Bank is currently undergoing a review of its Forest Policy and Strategy through a broad-based consultative exercise involving an evaluation of the bank’s operational activities related to forestry. The revised policy will be a major signal to both the donor community and the international financial community on which kind of activities are considered appropriate for financing, and what kind of preconditions should be put in place at country level

to mobilise such financing. The contentious issue of using primary natural forest for timber production will be one of the critical elements to be addressed.

### **4.2.3 International Agencies**

144. Technical assistance in forestry is provided by a number of UN agencies such as FAO, ITTO, ILO, ITC, UNDP, UNEP, UNESCO, UNIDO, WFP, and WHO. The GEF is being managed by World Bank, UNDP and UNEP (see the review of GEF as an instrument for forestry financing in Chapter 5). UNDP is the main funding channel of the UN for development and environment through country programme allocations. In 1993, UNDP, as a follow-up to UNCED, launched the Forestry Capacity Programme to help countries formulate and implement their nfps. In 1998, in order to support sustainable livelihoods, UNDP launched PROFOR to promote SFM and related public and private sector partnerships at the country level. This is to be accomplished through a collaborative approach to SFM, which makes maximum use of the existing instruments and available sources for financing with three specific objectives (UNDP, undated):

- (i) identifying successful strategies for SFM;
- (ii) strengthening nfps, and forest partnership agreements as instruments to promote nfps; and
- (iii) developing innovative financing for SFM.

145. FAO is the principal technical agency involved in forestry, and its scope covers practically every aspect related to forestry, including linkages with agriculture. Its normative activities are funded from the regular budget while field projects are financed by donors and the FAO Technical Cooperation Programme.

146. The ITTO focuses on the promotion of SFM in tropical forests through interventions in reforestation and forest management, forest industries, and economic information and market intelligence. They finance projects through the Special Account to which voluntary contributions are made by donors, sometimes including the private sector. The 1994 International Tropical Timber Agreement made provisions for the establishment of the Bali Partnership Fund (BPF) (see Box 4.1). This facility, which is expected to become operational in 1999, should offer an opportunity for improved decision-making on the use of funds not yet earmarked, based on objective criteria rather than on relying upon donor priorities, as has been the case in the past. Practically all the past contributions to the ITTO Special Account have been earmarked.

### **4.2.4 Non-governmental Assistance Agencies**

147. A large number of NGOs and organisations provide support to SFM in specific fields, based on funds raised from public and private sources. They include international NGOs (such as IUCN, WWF, IUFRO), regional organisations (such as ICIMOD, CATIE, AIFM) and CGIAR institutions (particularly CIFOR and ICRAF). Each of these bodies has their own priorities and programmes, usually designed based on the needs of targeted recipients and the comparative advantages of these bodies. Their role is often research-oriented.

## Box 4.1 ITTO Bali Partnership Fund (BPF)

### **Purpose**

The BPF is established under Article 18 of the ITTA, 1994. The resources of the fund will be used “to enhance the capacity of members to implement a strategy for achieving exports of timber and timber products from sustainably managed sources by the year 2000 – in short to achieve the ITTO Year 2000 Objective.

### **Criteria**

At present there are three sets of criteria to identify projects that may benefit from the resources of the BPF:

1. Article 21(4) of the ITTA

- The special needs of members whose forestry sectors’ contribution to their economies is adversely affected by the implementation of the strategy for achieving the exports of tropical timber and timber products from sustainably managed sources by the year 2000

The needs of members with significant forest areas who establish conservation programmes in timber producing forests

2. Criteria contained in Annex B of ITTC Decision 8(XX)

- To adopt forest policy and enforce legislation
- To establish and secure a Permanent Forest Estate
- To reduce damage done by timber harvesting to the physical and social environments and to the forest ecosystem
- To train the work force to accelerate the use of reduced impact logging thus becomes of the utmost priority and urgency
- To limit harvest levels to the sustained yield capacity
- To raise political and consumer awareness of the fact that timber harvesting can be consistent with the sustainability of the tropical forest
- To concentrate research on the analysis and application of existing data and knowledge so as to ascertain what is or can be made relevant to the operational knowledge of forest ecosystem behaviour and put that information onto preliminary management prescriptions

3. Rule 19, paragraph 2 of the Financial Rules

- The importance of assisting member countries to implement the ITTO C&I for sustainable management of tropical forests

There is a provision for the council to annually review the criteria. Guidelines, however, have not yet been developed for the process and mechanism to apply the above criteria.

### **Sources of funds**

The Agreement defines four sources for BPF:

- (1) voluntary contributions from donor members
- (2) voluntary contributions from public and private sources which the Organisation may accept
- (3) per cent of the interest earned from the ITTO Special Account
- (4) interest earned from the BPF itself

Sources (1) and (2) may be earmarked or un-earmarked, while sources (3) and (4) are un-earmarked. A set of criteria should be developed for prioritising projects to be funded from un-earmarked funds, because ITTO resources have been insufficient to finance all the projects approved by its Council.

### **Current resources**

For the time being, only Japan has committed US\$11.5 million to BPF. Two countries have declared their intention to initially contribute US\$0.1 mill. each.

### **Current status**

The fund is not yet operational but is expected to function in 1999.

Source: ITTO 1998

#### 4.2.5 South-South Cooperation

148. Technical cooperation among developing countries and countries in transition provides an additional source of technology transfer. These mechanisms are already gaining importance, but as a source of financial flows their role is still limited. There are particular areas where South-South cooperation can be especially valuable. A good example is rubberwood utilisation where a few leading countries are spearheading global technological development (notably Malaysia and Thailand). They could be the main sources of technical assistance to about another 20 countries possessing rubberwood resources but lagging behind in wood utilisation (TC 1993).

#### 4.2.6 Lessons Learned from ODA

149. The failure or limited success of project interventions in delivering improvements in forestry and the control of deforestation led to the recognition of the importance of sound policies and the sectoral programmatic approach. Several frameworks have been proposed and tried to address this issue over the last fifteen years, and a consensus has been reached that they can be grouped under the concept of nfps that can be flexibly applied in specific country conditions (IPF 1997).

150. In view of the effectiveness of ODA as a means to support nfp implementation, the following main conclusions can be made based on past experience (Oksanen & Salmi 1996, GTZ 1996, United Nations 1997):

- Donor-imposed programme priorities, concepts and cycles are not in harmony with: national policies and priorities, national planning and programming cycles, and with each other. This discord diverts and distorts national development and perverts government departments into supplicants, aiming not to maximise national well-being and development within their own sector but rather to maximise the inflow of donor funding.
- The international community has not been able to define and agree on concepts for channeling assistance in a way that meet national priorities; do not foster dependence on aid at the national level; do not burden developing countries with a multiplicity of complicated bureaucratic requirements for each donor supported activity (an example of this situation is that each donor or international institution follows its own project planning, monitoring, evaluation and financial management guidelines); and ensure that a large share of the funds are not disbursed by the delivery mechanisms.
- Despite public declarations of commitment to international planning frameworks and the recognition of their importance as effective coordination mechanisms, many donor agencies and development banks appear to continue with “business as usual” in project formulation and negotiation in contrast with public commitments to support to programmatic approaches; pooling of donor financing to adequately address the problems of SFM development has rarely materialised, and there have been institutional barriers to implement such coordinated arrangements as forest partnership agreements.
- Even good donor interventions tend to remain ineffective if the sectoral governance in the recipient country is weak and there is no real political will to implement policy

reforms. There is often lack of full recognition of policy constraints and respective necessary action to remove these constraints. Continuous aid flows in such situations tend to postpone reforms rather than to encourage them, allowing "bad" governance to continue.

- Frequent abrupt changes in donor policies and financial commitments represent an important element of uncertainty for recipients, and there is a general lack of transparency and international scrutiny of donor assistance.
- The quality of donor assistance is weak and is often linked with aid constraints. There is also a lack of systematic efforts to improve effectiveness and efficiency.
- Accountability problems with recipients are a constraint in transferring implementation and financial management to national bodies.
- Recipients seem unable to maintain progress toward implementing policy reforms that would create an enabling environment for SFM.

151. When these constraints are coupled with weak forest administrations, low national priority of the sector, and failure to mobilise domestic and external private sector financing, the result is often excessive reliance on donor financing, which has limited effectiveness. There is a persistent need to redirect ODA to supplement public spending for SFM in a complementary way that provides substantial support in particular for capacity building, technology transfer, and catalysing other sources of financing (Implementing ... 1996). A further problem is ODA allocation between recipient countries: there is too much concentration on some 'popular' countries leaving many others in serious need, without any support. This is exacerbated by the specific efficiency problems of technical assistance delivered through traditional modes of support.

152. In conclusion, the needs and mechanisms for reforming or improving ODA towards supporting SFM are widely known and apparently accepted as well. Incremental improvements can be observed, but institutional failures have proved to be hard to correct, and they act as a barrier to the coordinated and effective use of ODA financing (Simula 1996). Due to resource constraints, some donor agencies have started to carefully look into their strategies and procedures, and it appears that innovative financing mechanisms could gradually lead to true "ODA reform" (see Chapters 6 and 7). Additionally, it needs to be emphasised that ODA will never be adequate to solve the problem of SFM financing, and its role will always remain complementary as a reducer of predominantly structural barriers to private investment.

153. A fundamental question for future ODA in the forestry sector is its effectiveness in contributing to poverty alleviation and to SFM. In spite of its good intentions, aid itself does not appear to exercise much leverage over policy, and over-reliance on conditionality has added to its ineffectiveness. The key constraint is the recipients' lack of capability to implement sound and supportive policies and to exercise good governance. Sectoral reforms are often constrained by lack of supporting reforms at a macro level. Hence the true crisis is dwindling faith in, and political support for, ODA (Killick 1997). While ODA is likely to continue to be justified for low-income countries, global targets for "new and additional" funding appear unrealistic, particularly in such a revenue-generating sector as forestry.

### 4.3 Private Financing and Globalising Forestry Sector

154. *Commercial private sector* flows, both foreign and domestic, are generally categorised as:

- *direct investments* – for supply of capital goods (e.g., equipment, land, etc.) or services (e.g., training), and
- *indirect investments* – as either debt (e.g., commercial bank loans) or equity (e.g., common and preferential stock, portfolio investment, or venture capital).

155. Domestic *noncommercial private sector* flows tend to be implicit investments in the form of labor, equipment, and technical knowledge or assistance. At the international level, however, financial resources are often mobilised through grants or concessionary financing (e.g., sinking environmental trust funds) by the NGO community and private environmental benefactors.

156. As indicated in Chapter 3.1, foreign private capital flows into forest-based investments have been increasing in the 1990s. Three main channels are used for private capital flows:

- (i) *foreign direct investment* (FDI) by companies, often through joint ventures with local firms;
- (ii) *portfolio investment* in which stocks and bonds are purchased on local capital markets by individuals and institutional investors; and
- (iii) *commercial bank loans*.

157. Foreign private capital, particularly FDI, is not only an important source of finance but is also essential in acquiring technology, know-how, and management skill. FDI is less volatile than portfolio investment, and it tends to have a long-term time horizon as regards returns. FDI is also attractive as it does not require fixed repayment and does not contribute to debt burdens. The general problem with FDI is its high concentration on a small number of countries (Jun & Brewer 1997), which can also be assumed to prevail in forest-based activities. In addition, much of the current FDI flows are assumed to be directed at unsustainable forest management ventures.

158. An important precondition for rising private financial flows has been the emergence and expansion of capital markets in developing countries, including (UNDP, undated):

- the formation of national stock markets;
- links to established institutional debt and equity markets;
- regional and international investment and merchant banking; and
- various forms of venture equity capital.

159. In the forestry sector, it is necessary that SFM make more business sense for investors than UnSFM. Indeed, the problem is not necessarily the availability of funding but how to channel funds to support SFM.

160. The shift from public to private sources of capital poses a policy challenge, as the private sector is by definition less accountable to the public interest than are government agencies. This explains why a growing array of “green” international investment strategies have emerged to

ensure that capital is not invested in environmentally damaging activities (French 1998; see also Chapter 6).

161. FDI has been mainly undertaken by transnational corporations, both from developed and developing countries. The driving forces have been the “globalisation” of the markets for products and production factors, as well as changing supply-demand balances for raw materials in traditional exporting countries. The competition for existing forest resources and favorable sites for new industrial plantation establishment, where subsequent processing could be established, has intensified. The current financial crisis has put many projects on hold, but the underlying trends will continue in the long run.

162. The need to monitor transnational corporations has been emphasised by various observers (Dudley et al. 1996, High Stakes 1998) as it is feared that these enterprises will apply lower environmental standards in the developing world than at home. Due to the immobility of forest resources, there are fewer possibilities in the forest industries than in other manufacturing sectors to seek “pollution havens” - where profits can be boosted by exploiting lower environmental standards. Cut-and-run operations are more driven by short-term business opportunities than long-term enterprise strategies. They represent unsustainable forestry practices and are a cause of serious concern. They should be eliminated or discouraged and certainly not aided by special financial arrangements.

163. In the forestry sector “globalisation” is driven by the liberalisation of capital markets and changing ownership patterns in the forest-based industries. It is also linked with trade dependency and local supply constraints. Commercialisation of technology, and the accelerating rate of technical progress and its dissemination are also important contributing factors.

164. International capital markets have started to recognise the potential offered by, and the specific characteristics of, forestry investments (particularly fast-growing plantations). Well-informed investors rightly perceive many such investments as relatively low-risk long-term opportunities with positive real rates of return that complement traditional portfolios. There is a pressing need, however, to educate the international capital markets on the specific requirements of sustainable forestry, and new funding instruments are needed to lower the overall risk of SFM investment (Crossley et al. 1996).

165. Changing ownership patterns in forest industries are characterised by further concentration through mergers and acquisitions, and expansion of Asian logging and mechanical wood processing companies to Africa and Latin America. In addition, new pulp and paper groups in Asia, thanks to their low production costs, are attractive for takeovers or alliances with globally operating companies from developed countries. Local constraints in wood supply leave the industry little other option than to expand elsewhere. This can be observed among European, North American, and Japanese corporations as well. Meeting the future demand for forest products in China, India and other Asian net importing countries will be the main dynamic force in the industry in the medium term.

166. Globalisation is both an opportunity and a challenge in the forestry sector. Theoretically, it offers efficiency gains that will enable the industry to better assume its environmental and social responsibilities. In particular, globalisation offers buffering against regional business

cycles, which have been problematic in the forestry sector. Economic growth and higher income should also help countries take better care of their own natural resources than in the past. As new technologies are generally less harmful for the environment, new investment represents improvement. Easy access to global markets will also lead industries to maximise the returns obtainable from economies of scale. For example, in the pulp industry, the largest modern units are currently producing more than one million tons per year using about 4-5 million cubic meters of wood per year. This means less production units but higher vulnerability to external disturbances. Economies of scale are not necessarily essential in plantation management and small-scale tree farms can be a feasible (often complementary) alternative (e.g. Brazil, the USA).

167. Increasing global economic integration will mean that productivity and efficiency will be the fundamental drivers of competitiveness in forest-based industries in the long run. Low costs, which are mainly achieved through low wages, will not offer more than a temporary advantage. Differentiation as a strategic option offers a tool to compensate some productivity losses but can not secure long-term competitiveness. Successful forest industries will be drawing on mastering their entire business concept and its uniqueness, rather than relying on cost leadership (Simula 1997).

168. The scope of forestry as a business is also changing. The forest company of the Twenty-first century will also be in the business of managing renewable resources, and selling a variety of nontimber services. The sale of these services can help finance and motivate the conservation of natural forests. Forestry companies, environmental organisations, and those who enjoy forest benefits have a mutual interest in creating these markets and should work together to realise this goal. Five principal forest services have been identified by the industry for this purpose: carbon sequestration services, watershed protection and hydrological services, biodiversity-related services, nontimber material forest products, and ecotourism and recreational services (World Bank 1997; see also Table 3.3).

169. In conclusion, conventional private sector financing mechanisms will continue to play their role in production and industrial investment in the forestry sector. They will not be able to solve the problem of raising funding for investment for the creation of new forest resources as well as the sustainable management of the existing ones. Most private investment still flows to unsustainable practices. In order to change this pattern and raise new resources for financing SFM investment, a number of key areas of action have been identified (Crossley et al. 1996):

- educating capital markets about investment opportunities;
- packaging these opportunities in understandable and recognisable formats for the private sector;
- reducing the risks and incremental costs of an emerging industry; and
- covering the incremental costs of internalising environmental externalities.



## **THE GEF AS AN INSTRUMENT FOR SFM FINANCING**

**5.1` Background; 5.2 GEF and Sustainable Forestry;**

**5.3 Key Issues Related to GEF Funding of SFM;**

**5.4 Potential for GEF Funding of SFM-Related Projects**

## **5. THE GLOBAL ENVIRONMENT FACILITY AS AN INSTRUMENT FOR SFM FINANCING**

170. This chapter analyses the GEF as an instrument of financing sustainable forest management, particularly from the point of view of productive SFM or sustainable utilisation. The reason for this emphasis is the fact that a vast majority of world's forests are, and will probably continue to be, sustainably exploitable. Consequently, the potential impact of SFM (or UnSFM) on the forest ecosystems and human communities is therefore assumed to be larger in the forests outside protected areas than inside those areas. First, the purpose, history, and structure of the GEF are presented. Second, the GEF's past contribution to SFM is analysed, based on a review of 50 GEF projects. Several key issues are then discussed, and finally, conclusions on the GEF's potential for SFM financing are drawn.

### **5.1 Background<sup>22</sup>**

171. "The GEF is a mechanism for international cooperation for the purpose of providing new, and additional, grant and concessional funding to meet the agreed incremental costs of measures to achieve agreed global environmental benefits in the areas of biodiversity, climate change, international waters, and ozone layer depletion. Land degradation issues, as they relate to the four focal areas, will also be addressed." (GEF Operational Strategy).

172. Global benefits are the *raison-d'être* of the GEF. They usually overlap with national benefits and vary from project to project (Figure 5.1). Clear distinctions between global and national benefits are often difficult to make.

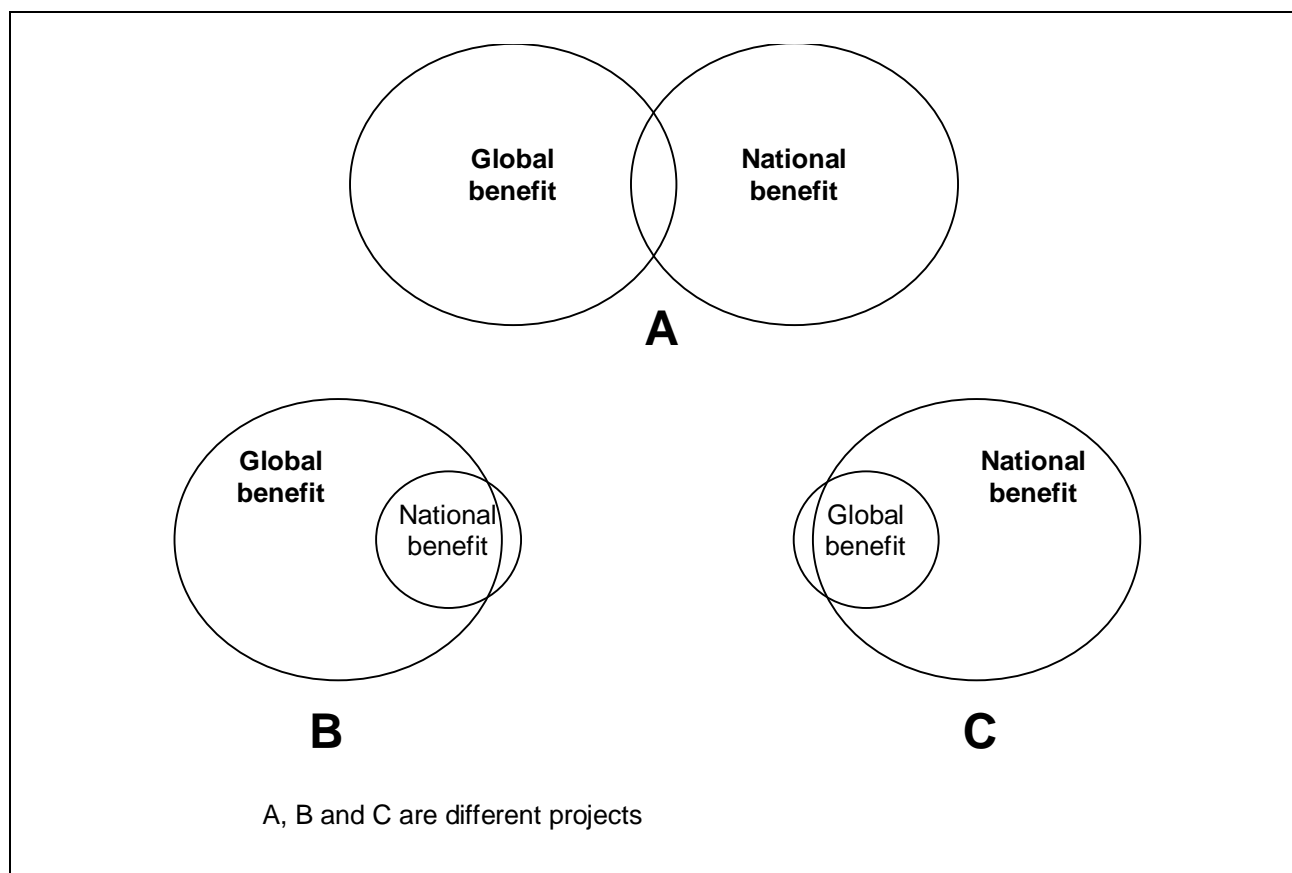
173. The GEF serves as the interim financial mechanism for the Convention on Biological Diversity (CBD) and the UNFCCC. In this regard, the GEF Council receives formal guidance from the Conferences of the Parties of CBD and UNFCCC and is accountable to them.

174. The GEF was established in 1991, for a three-year Pilot Phase. A total of 116 projects with GEF funding of US\$733 million were approved between 1991 and mid-1994. The GEF was restructured in 1994. Thirty-four nations, including 13 recipient countries, pledged US\$2 billion to the restructured GEF's core-fund (GEF-1). A second replenishment of the GEF (GEF-2) will provide new funds for the 1999-2002 period. Pledges for GEF-2 are US\$2.75 billion.

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<sup>22</sup> The main sources of this chapter have been (i) The Study of GEF's Overall Performance, (ii) GEF Operational Strategy, (iii) GEF Operational Programs, (iv) GEF Annual Report 1996, and (v) GEF Corporate Business Plan FY00-FY02.

**Figure 5.1 Global and National Benefits**



175. The GEF governance structure is comprised of an assembly, a council, and a secretariat. The GEF Assembly, which meets every three years, consists of representatives of all participating countries – currently numbering 155 – and is responsible for reviewing GEF’s general policies. The GEF Council is the main governing body. It is responsible for developing, adopting, and evaluating operational policies and programmes. It also approves and modifies projects when it comments on the work programme and when it reviews final project documents. The council comprises representatives of 32 constituencies – 16 members from developing countries, 14 from developed countries, and two from countries with transitional economies. It meets every six months. The GEF Secretariat services and reports to the assembly and council. It is headed by a chief executive officer. The secretariat’s responsibilities include ensuring that decisions taken by the assembly and council translate into effective actions. It coordinates the formulation of the work programme, oversees implementation, and ensures that GEF’s operational policies are followed.

176. The GEF’s Implementing Agencies (IAs) are responsible for developing projects for GEF funding and implementing them through executing agencies in specific countries and regions. The IAs are the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), and the World Bank. The World Bank also serves as GEF’s

trustee. Each agency has created a GEF Coordination Unit in its headquarters office, led by an executive coordinator. In addition, the GEF “family” includes a Scientific and Technical Advisory Panel (STAP) of 12 internationally recognised experts. The STAP is an independent advisory body that provides scientific and technical guidance on GEF policies, operational strategies, and programmes. The STAP maintains a roster of experts, and the GEF projects above US\$750,000 must be reviewed by someone on this list. The GEF’s institutional structure is presented in Figure 5.2.

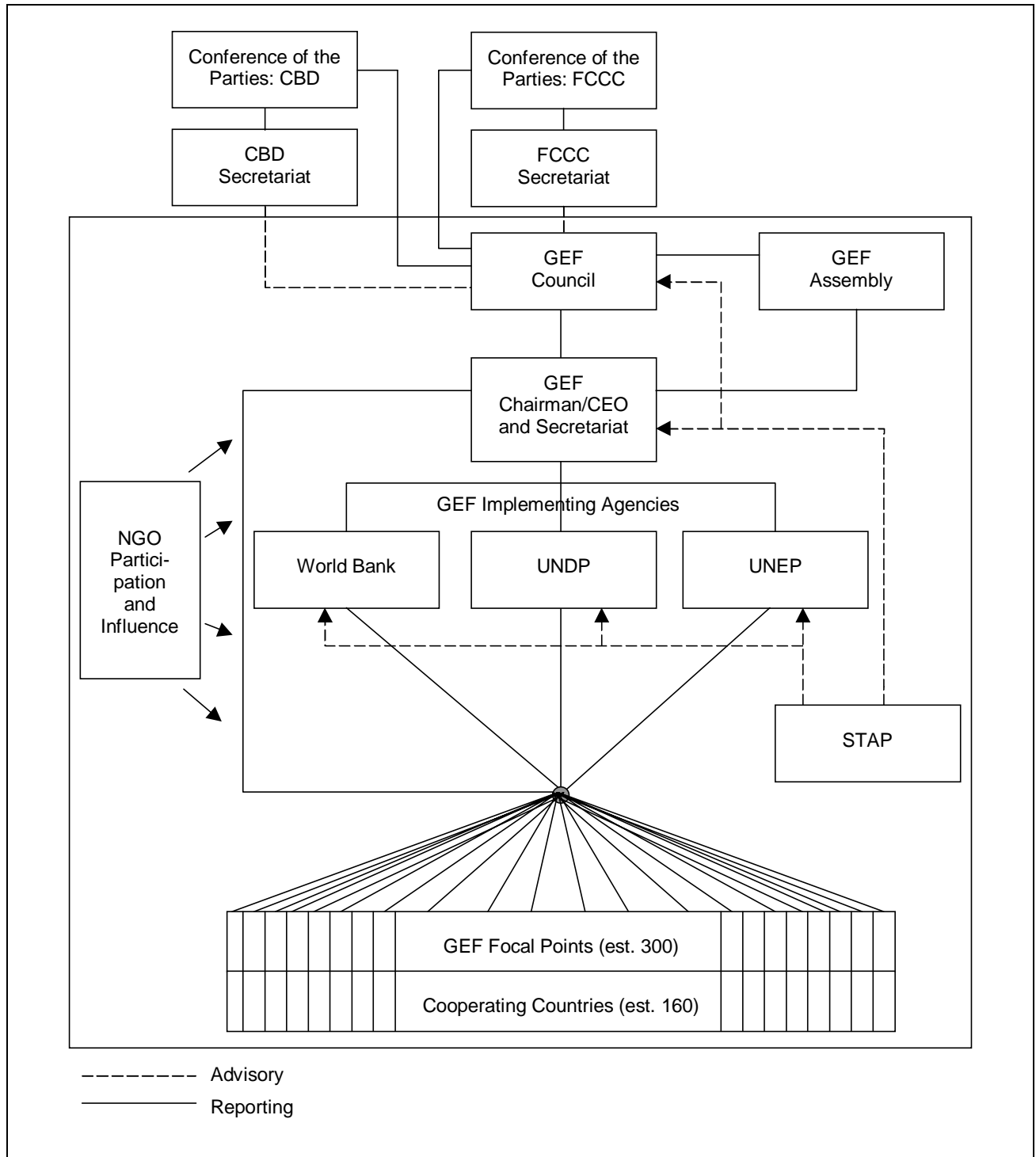
177. Each country participating in the GEF has a Political Focal Point. The Political Focal Point is often the Ministry of Finance or Ministry of Planning. In addition, each recipient country has a GEF Operational Focal Point. The Operational Focal Point is often the Ministry or Department of Environment. The role of the Political Focal Point is to serve as the contact point with the GEF Secretariat. The role of the Operational Focal Point is to identify project ideas that meet country priorities and ensure that GEF proposals are consistent with country priorities and commitments under the global environmental conventions. The Operational Focal Points must endorse all project proposals for GEF in their countries.

178. GEF projects are executed in the field by a wide variety of organisations, ranging from government agencies, international organisations (e.g., FAO), private sector institutions, and international, national, and local nongovernment and civil society organisations.

179. A variety of coordination mechanisms have been developed within the GEF structure. The chief executive officer meets annually with the heads of the IAs, and more often with the executive coordinators in the IAs. The GEF Operations Committee (GEFOP) is the forum through which members of the GEF family regularly discuss major policy issues. The GEFOP meets at least quarterly and includes representatives of the secretariat, IAs, and STAP. In addition, representatives from the biodiversity and climate change conventions participate in the GEFOP. Focal area task forces in biodiversity, climate change and international waters, comprising specialists from the secretariat, IAs’, and GEF coordination units are fora for discussions of technical issues presented by the secretariat. Finally, the GEF conducts an annual Project Implementation Review to examine the status of GEF projects that have been in implementation for at least a year and to identify lessons learned.

180. The GEF funds three broad types of activities in its four focal areas. The GEF Operational Strategy reflects programme guidance from the biodiversity and climate change conventions, and currently defines ten long-term operational programmes. The vast majority of GEF resources are allocated to projects under the ten Operational Programmes. The GEF also finances enabling activities in the biodiversity and climate change areas including compilation and assessment of existing country information, as well as development of strategies and action plans. Finally, the GEF funds a limited number of short-term response measures (STRM) that do not fall within the parameters of long-term programmes or enabling activities but are high priorities and yield immediate benefits at low cost. There are also specific instruments under the main financing mechanisms, such as the Small Grants Programme (SGP) and various types of trust funds (see Chapter 6). The SPG is a UNDP-GEF project with current activities in 46 countries. In each of these countries a national screening committee periodically allocates small grants. The GEF trust funds are usually one of the mechanism used to ensure the sustainability of interventions and thus to secure flows of global benefits beyond the life of projects.

**Figure 5.2 GEF's Institutional Structure**



Source: Study of GEF's Overall Performance, and UNDP

## 5.2 GEF and Sustainable Forestry

181. In implementing the CBD, the GEF contributes to protection and sustainable use of biodiversity and equitable sharing of benefits. Sustainable utilisation is one of the means to protect globally significant biodiversity. According to the GEF Operational Strategy “sustainable use of biological resources is a prerequisite for their long-term conservation”. The focus is given to the removal of barriers and demonstration.

182. “Forest ecosystems” under the Biodiversity Focal Area, is one of the ten Operational Programmes (OP) of the GEF. It has been the largest OP with cumulative resource allocations of US\$311 million by the end of June 1998 (GEF Corporate Business Plan 1998). This is equivalent to 16 percent of the total GEF allocations. The annual resource allocation for this OP (number 3) is presently US\$60 million, and it is projected to grow to US\$75 million by the year 2002. In the GEF Corporate Business Plan the relative share of the projected resource requirements for OP3 will fall slightly to 12 percent of the whole GEF. OP3, however, is said to have a strong pipeline. Most of the focus of OP3 has been in tropical humid forests with some projects including parts of dry tropical, subtropical, and temperate broad-leaved forests.

183. In addition to OP3, GEF is supporting forest-related projects or components under other operational programmes, with special reference to mountain ecosystems (OP4) and arid and semi-arid ecosystems (OP1), both under the Biodiversity Focal Area.

184. It is notable that carbon sequestration has not been made eligible for GEF financing as yet. There is, however, a new OP being developed under the Climate Change Focal Area to cater for carbon sequestration (OP12). It will take still some time before this OP is accepted and becomes operational.

185. Many observers have argued that in the past the forest ecosystems-related projects of GEF have mainly focused on protected areas management, and much less on sustainable use of the resource. This was also one of the key findings relating programming issues in biodiversity focal area by the Study of GEF’s Overall Performance:

186. “The GEF biodiversity portfolio has been concentrated heavily on protected area conservation projects. Of the twenty-seven biodiversity projects funded in the GEF-1 work programme, only the Central African Republic Bangassou Dense Forest project and Sri Lanka Conservation and Sustainable Use of Medicinal Plants project are wholly or primarily for sustainable use. In addition, the Guyana Iwokrama Rain Forest project funded in the pilot phase is a demonstration project on guidelines for sustainable use of tropical forests. However, at least nine of the GEF-1 projects that are primarily for protected areas also have sustainable-use components. Fifteen protected area projects do not have a sustainable use component.” (GEF 1998d).

187. In interviews conducted in preparation for this report, several of the UNDP and World Bank GEF specialists were of the opinion that the number and quality of project proposals relating to SFM, including SFM in production forests, submitted by recipient countries, have been increasing. Whereas earlier projects focused more on institutional and capacity

strengthening of environmental administrations and conservation areas, currently there are more site-specific project proposals that include sustainable resource use components.

188. In this report, 50 projects were analysed. They were purposefully selected for their potential to address SFM issues. Most of the selected projects were under OP3 (Forest Ecosystems). However, projects from other focal areas and operational programmes, and several STRM projects were analysed as well. Based on the available project documents and other information, the project components, activities, and budgets were reviewed. All forestry-related inputs, except those relating purely to protected-area management, were summed up. The omission of protected-area management activities does not mean that they are not considered part of SFM; nevertheless, they were omitted because of the special focus on the productive SFM of the present analysis. The complete list of projects reviewed is presented in Annex 3. Details of the analysis are explained in the footnotes of same annex.

189. It is emphasised that the figures of the following analysis should be considered only as indicative. The assessment of conservation and sustainable use in GEF's work is not easy as these activities are closely interlinked and often indivisible - in the sense that many inputs (e.g., capacity building, participatory planning, and other removal of barriers) contribute to both.

190. The total volume of the projects analysed was US\$365 million, which is some 20 percent of the total volume of GEF projects under GEF focal areas (see Table 5.1). The productive SFM contribution of the analysed projects was estimated at US\$65 million or 18 percent of the total (4 percent of the whole GEF). The total volume of the GEF pilot phase projects was US\$93 million out of which US\$16 million (17 percent) was allocated to productive SFM. The volume of GEF-1 projects was US\$271 million, and the respective productive SFM allocation was US\$49 million (18 percent). GEF accounts for a few percent of the total ODA for forestry.

**Table 5.1 Summary of Analysed Projects<sup>23</sup>**

	US\$	percent GEF	percent of analysed projects
Total GEF under focal areas	1,802,545,000	100	
Projects analysed	364,343,278	20	100
- Pilot phase	92,901,000	5	26
- GEF-1	271,442,278	15	74
Their SFM contribution*	65,116,997	4	18
- Pilot phase	16,029,000	1	17**
- GEF-1	49,087,997	3	18***

\*forestry related inputs other than protected area management, \*\* of pilot phase; \*\*\* of GEF-1.

191. According to this analysis, of those GEF projects that have forest components, 17-18 percent of the project budgets have actually contributed to productive SFM. There is no

<sup>23</sup> The figures refer to the GEF contribution only, excluding any co-financing.

significant difference between pilot phase and restructured GEF projects in this respect. A vast majority of the inputs of the forest-related projects focus on protected area management and strengthening of national or local conservation administrations and organisations. The productive SFM activities included mostly community participation and SFM management components in the buffer zones of protected areas.

192. In addition to the main operational programmes and STRMs, the UNDP-managed SGP has financed a considerable amount of SFM-related projects. As the maximum budget of a SGP project is US\$50,000, the total volume of project financing through this window remains rather modest. It is beyond the scope of this report to carry out a detailed analysis of SGP vis-à-vis SFM.

193. While GEF has focused on the management of protected areas (including the related sustainable use of biodiversity), it appears to be moving to provide support to “biodiversity overlay”, i.e., incorporating conservation requirements in the management of nonprotected areas. This could include such activities as monitoring of the conservation status of species, establishing set-aside areas, ecological corridors, etc. As stated in section 5.3.3., the GEF has not engaged itself in providing support to sustainable management of forests that are primarily used for timber production. This represents a significant constraint for the GEF to contribute to achieving SFM at global or national levels, neither of which is an explicit goal of GEF.

### **5.3 Key Issues Related to GEF Funding of SFM**

#### **5.3.1 GEF Strategy Relating to Forests**

194. The forest-related goal of the GEF is to protect globally significant biodiversity in forest ecosystems. The present GEF strategy for eaching this goal focuses on the creation and strengthening of protected areas: “protecting a representative sample of the Earth’s biodiversity” (UNDP-GEF 1998). The GEF strategy addresses the symptoms of biodiversity loss, deforestation, and forest degradation through its own inputs, while the root causes are to be addressed through national or other inputs (see para 5.3.2 on the discussion on incremental costs). The GEF strategy so far has focused on a “last resort” approach of rescuing remaining biodiversity hot spots. Protected area management is vital for the conservation of biodiversity, but it does not really relieve the pressure on the vast majority of forest ecosystems (and the biodiversity in those areas) which resides in poorly productive agricultural systems, poorly defined land and resource tenure, and the high profitability of unsustainable resource exploitation versus the high initial investment costs of sustainable use systems. The GEF explicitly leaves these issues to be addressed by recipient countries and other sources of funding, and the solutions are often found in national-level policies and their enforcement.

195. The GEF addresses global benefits that overlap with national benefits in the Biodiversity Focal Area (Figure 5.1). Their separation on a scientific basis is not always easy, and both are difficult to define. Therefore, there is a degree of flexibility in defining GEF’s contribution - leaving it subject to negotiation. The relevant steps in the project preparation during which the discussions are carried out between the recipient country and GEF experts are identification of threats to the biodiversity; determination of necessary interventions required to remove the



threats (GEF alternative); definitions of activities which would occur regardless of GEF involvement (realistic baseline); and the definition of national development responsibility (sustainable development baseline) (UNDP-GEF 1998).

196. It should also be noted that land degradation (see Paragraph 153) is only eligible in projects where the entry point is one of the GEF's focal areas (e.g. protected area management). In view of the magnitude of the problem of land degradation, the GEF's role is therefore bound to be limited. SFM should be seen as a similar crosscutting issue in combating land degradation and contributing to all of the three main focal areas of GEF: biodiversity, climate change, and international waters. SFM is a major tool in combating land degradation, which in turn is one of the main threats for biodiversity, climate change (in the form of reduced carbon sequestration), as well as water availability and quality, particularly in arid and semi-arid areas.

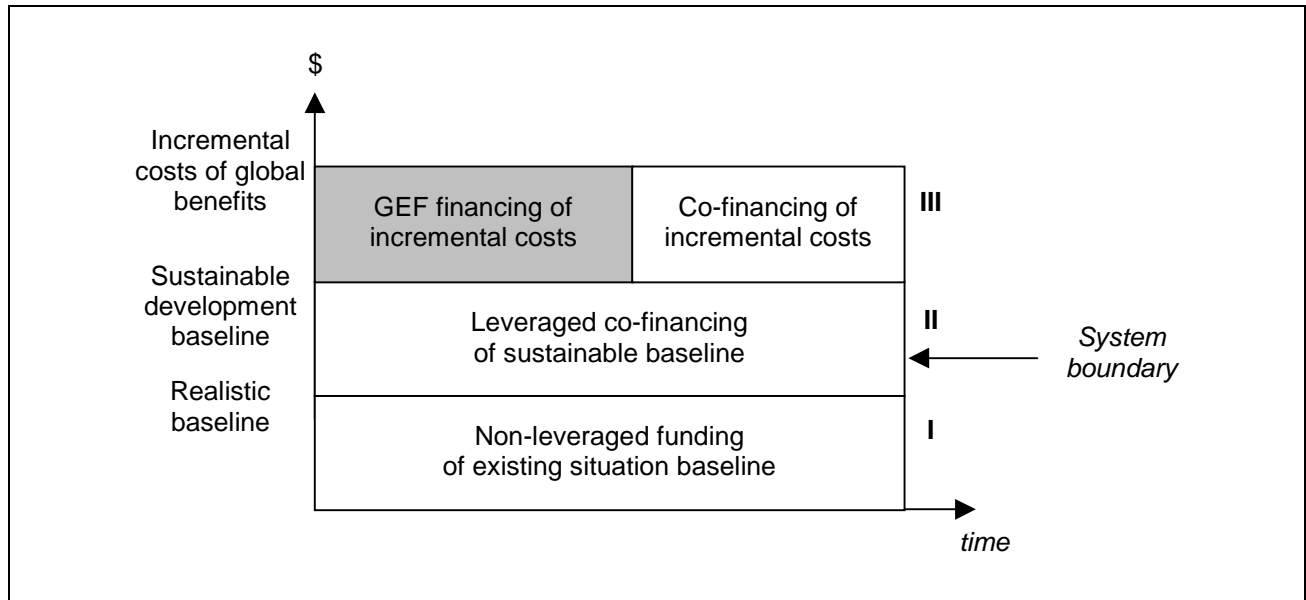
### **5.3.2 The Concept of “Incremental Cost”**

197. The incremental cost “may be interpreted as the costs of achieving global environmental objectives over and above the costs of national sustainable development” (UNDP-GEF 1998). The incremental cost is the difference between the GEF alternative and the sustainable development baseline (Figure 5.3). The GEF has put forth considerable effort in developing and making the concept operational in different types of projects. However, according to many observers (interviews carried out for the present study) the incremental cost concept is poorly applicable for sustainable use projects, in which decision-making criteria tend to be extremely complex. Decisions are not made purely on ecological grounds, as social, cultural, and economic criteria are also considered when countries formulate their projects for GEF financing or co-financing. This is demonstrated also in the incremental cost calculations of ongoing forest-related GEF projects. The difficulties in making such calculations are expressed in many of the project documents.

198. In practice, in the past the baseline cost has been simply defined as the total cost of all ongoing projects by other donors in many of the reviewed projects (see Annex 3). The GEF alternative is the sum of all ongoing projects plus the estimated project costs of the planned GEF project, and the incremental cost is the difference between these two. In some other cases, the incremental cost (or what is accepted as the incremental cost and what is not) is apparently defined through judgements by the project formulation team.

199. Similar observations on incremental cost calculations were found by the Study of GEF's Overall Performance based on the views expressed both by IA task managers and recipient countries. The “Overall Performance” study did not, however, recommend its abolition but did urge further streamlining with simpler and more straightforward guidance on calculation methodologies. This has now been done (e.g., Kumari 1997, Kumari & King 1997, UNDP-GEF 1998). The improvements, however, have not completely solved the problem of addressing overly complex cases of sustainable use projects where local, national, and global benefits are produced in concert, and these benefits (and responsibilities) are often indivisible.

**Figure 5.3 GEF Financing of Incremental Cost**



### 5.3.3 Sustainable Logging and Sustainable Use

200. Although the GEF Corporate Business Plan (1998) emphasises the importance of sustainable forest management, the plan explicitly states that sustainable logging cannot be financed by the GEF because the “scientific debate on the matter is still ongoing.” It is worth pointing out that the ongoing scientific debate has not prevented GEF from financing projects related to climate change. This is probably due to the fact that there is a convention on climate change but none on sustainable forest management.

201. As with the Study of the GEF’s Overall Performance, the research conducted for this report found that GEF has not yet fully succeeded in addressing sustainable use issues in biodiversity conservation. Only some 18 percent of the GEF inputs to forest-related projects have contributed to SFM in production forests. Discussions with World Bank and UNDP staff revealed that protective conservation is still considered as the main objective of GEF interventions. Some GEF experts, however, would like to see more support to barrier-removal type demonstrations of how logging can be done in a biodiversity friendly manner in primary forests that would otherwise be logged in a destructive manner. In some projects the GEF is addressing harvesting by setting aside (conserving) sub-areas in production forests of high biodiversity in order to make logging operations less destructive to globally significant biodiversity, found in the area. The GEF also funds sustainable uses of non-timber forest products, mainly under buffer zone components. Some observers are of the opinion that such projects have increased in number recently. The possibilities of achieving conservation, however, through sustainable-use components have not yet been fully utilised by the GEF. Sustainable use is possibly considered more risky than protective conservation.

202. Clearly, the *raison-d’être* of the GEF is generation of global benefits in focal areas. The GEF serves as the financial mechanism for the CBD and the UNFCCC. The GEF operational

focal points are often ministries or departments in charge of the environment. The GEF Secretariat and the coordinating units in the three IAs are mainly, but not solely, staffed by specialists in environmental protection. For these reasons, sustainable use may have remained weakly developed in GEF. This was also clearly pointed out in the Study of GEF's Overall Performance.

203. A quick review of the composition of the formulation/appraisal teams of the projects reveals that in most cases there has been limited or no sustainable use expertise. In many cases, this expertise has been provided by a co-financing agency, and the sustainable use component(s) of the projects have ended up in the co-financed component of the project (under the "Sustainable Development Alternative"). In almost every GEF project reviewed for this study, the sustainable use components were non-GEF financed if there was any co-financing at all in the project. This would be justified if such components fall under the priorities of the other sources of funding. From the GEF's point of view, the sustainable use components apparently have not usually passed the incremental cost analysis, and the national benefits have been considered to be greater than the national costs.

204. One specific reason for the absence of sustainable use forest projects/components in GEF, and GEF/World Bank projects in particular, may be the World Bank policy forbidding any support for logging/timber utilisation in primary natural forests (see Chapter 4). This policy has prevented the World Bank and GEF/World Bank from carrying out even pilot projects or technological development in this field. The ongoing World Bank forest policy and strategy review process is likely to reassess the rationale of this policy. Many observers are of the opinion that the policy has been counter-productive.

205. By comparison, the French Fund for the Global Environment (see Box 5.1), a bilateral financing mechanism similar to GEF, has adopted a more open stance on SFM and sustainable use. The French Fund has allocated 14 percent of its total financing (vs. 3 percent of GEF) to sustainable forest management.

#### **5.3.4 Project Preparation and Approval Process**

206. According to the Study of GEF's Overall Performance, the GEF's project preparation and approval process is considered lengthy and cumbersome, especially in view of the size of the grants awarded. Unexpected and unexplained delays are also reported to be common. The cumbersome project cycle is common to all GEF operational programmes, and no additional evidence was found that forestry projects would have been treated any differently. It is clear, however, that the institutional and stakeholder complexities of SFM projects do not make the preparation process any easier than average, probably on the contrary. This may discourage countries to submit SFM-related project proposals on production forests to GEF.

### **5.3.5 Programme Approach and Ownership Issues**

207. Genuine national planning processes or existing plans have not been always used as a starting point for project planning. In GEF forest projects, only rarely is a reference made to existing nfps or other sectoral strategies (e.g. Tropical Forest Action Programme).

## **Box 5.1 French Fund for the Global Environment (Fonds Français pour l'Environnement Mondial – (FFEM))**

### **Objective and Beneficiaries**

In addition to its contribution to GEF, France has created FFEM to serve as a bilateral instrument to assist those countries that are poorest or that face serious problems in meeting their obligations of international conventions.

### **Description**

The eligibility criteria allow financing projects aimed at the protection of the global environment in four areas: (1) the reduction of greenhouse gas emissions, (2) biodiversity protection, (3) the protection of international waters, and (4) maintenance of the ozone layer. Actions aimed at combating deforestation and desertification are equally eligible if they fall under any of these four areas.

FFEM projects must have the following characteristics:

- a sustainable and significant effect on global environment;
- projects must be developmental - preferably investments;
- projects must be mainly financed from other resources; FFEM pays only incremental costs and complements traditional sources of funding; and
- emphasis on innovative and pilot projects which can be replicated in other zones or sectors.

### **Organisation**

Decisions are made in a steering committee, which is supported by a scientific and technical committee that has a consultative role. The French Development Agency acts as the FFEM secretariat.

### **Project Cycle**

There are two main phases in the project cycle:

- (1) identification, which is achieved when an agreement in principle has been made by the steering committee which in turn authorises the secretariat to proceed with preparation; and
- (2) commitment made by the committee for funds to be disbursed.

### **Extent and Example of Application**

FFEM has a budget allocation of FRF 440 million for the period of 1994-1998. There are eleven projects contributing to sustainable forest management amounting to FRF 60 million (14 percent of the total).

### **Assessment**

As a bilateral instrument, FFEM's operation is simpler than the multilateral GEF. However, similar problems of definition related to the additionality of FFEM components have been experienced. This complicates the meaningful formulation of projects to address global environmental problems.

Source: FFEM

208. The local ownership of GEF projects appears to be somewhat controversial. According to the Study of GEF's Overall Performance, the degree of ownership depends on the project design and development process. In many cases, this process has been dominated by foreign experts and consultants. Some recipient country representatives are of the opinion that international priorities and obscure global concepts dominate the project formulation discussion. This issue is particularly important in forest-related projects in general (chapter 4.2).

### **5.3.6 Private Sector Involvement**

209. The GEF was conceived as a financing mechanism mainly for public sector projects. Private sector representatives are not included in the GEF institutional structure. There are, however, several GEF trust fund projects which can finance or which are specifically targeted to private sector projects, most notably the GEF/IFC Small and Medium Scale Enterprise Programme, the Central American Fund for Environment and Development, and the Terra Capital Fund (which became operational in October 1998). Details of these GEF instruments can be found in Chapter 6.

210. It is notable that none of these trust funds has yet financed a private sector forestry project. According to the fund managers, the reason has been that no forestry proposals have been submitted. It is likely that potential private sector investors/operators active in forestry do not know about the availability of such financing, or these trust funds are perceived as conservation funds. This indicates that the GEF could take special efforts to inform the private sector of the availability of these instruments. The GEF is currently preparing a paper on modalities to engage the private sector in its operations without subsidising it.

### **5.4 Potential for GEF Funding of SFM-related Projects**

211. Based on the above analysis, it is concluded that, in its present form, the GEF's potential for financing productive SFM-related projects will remain limited to addressing the problem of sustainable forest management at global and national levels. The institutional and "cultural" changes that are needed within the GEF would be substantial and are not therefore likely without an international agreement on such changes.

212. A key issue to be addressed is the broadening of the base of representation and staffing in all the GEF institutional organs, including the council, beyond the present emphasis on conservation. Adequate private sector involvement would be an essential prerequisite in this. Such a broadening of representation would also possibly require splitting some of the organs into sub-organs, which would deal with projects only in their fields of expertise. From here, it would be only a short step to Ecosystem Specific GEFs (Forest-GEF, Atmosphere-GEF, Water-GEF, and Urban-GEF). It is well understood, however, that currently the GEF fulfills its present mandate, and the above changes would require substantial revision of this mandate. For example, when the UN Convention to Combat Desertification and Drought asked the GEF to become its financial mechanism, the proposal was declined. The reason was that preventing desertification was considered to be an issue which should be addressed by the countries' own sustainable development programmes. The fate of productive SFM may be similar.

213. Nevertheless, the GEF is and will continue to be an important financing mechanism for forest conservation. What appears to be beyond the GEF's current possibilities, is playing a major financing instrument for solving the complex problems of deforestation and forest degradation, not to mention the sustainable development of forest-dependent human communities, in required scale.

214. A legally binding global convention on forests, and a possible concomitant high-level policy decision to use GEF as (one of its) financing mechanism(s), could bring about the policy changes required for mobilising large-scale financing of SFM in production forests as well through GEF. The experience on the financing arrangement for the Convention on Combating Desertification and Drought suggests that this GEF-based option may not be politically feasible (chapter 7.4.3).

## **INNOVATIVE FINANCING MECHANISMS**

- 6.1 Typology of Innovative Financing Mechanisms;**
- 6.2 Overview of Innovative Financing Mechanisms;**
- 6.3 Innovative Financing for Specific SFM Activities;**
  - 6.4 Forest-based Carbon Offsets;**
- 6.5 Innovative Financing – Preliminary Conclusions**



## **6. INNOVATIVE FINANCING MECHANISMS**

215. Innovative financing mechanisms tend to fall into one of two categories. Either they are designed, applied and developed for a specific purpose (often to remove a specific investment barrier) related to the financing of environmental projects and enterprises, or they are conventional financial vehicles used widely in other sectors but that have been adapted and applied to the specialised requirements of SFM or other emerging investment areas. They are also referred to as IFIMs (innovative financing and incentive mechanisms), which have been defined as “(innovative) mechanisms which result in new or increased finance and/or influence the flow of private costs and benefits in a way that stimulates sustainable forestry” (Richards 1998). This definition highlights the point that innovative financing mechanisms are often designed to address the problem of environmental externalities (see Section 3.2.2).

216. In this chapter, innovative financing mechanisms of direct relevance to SFM are considered. Reference is also made to several “structural mechanisms” (e.g., tax and subsidy regimes) that could be aptly termed ‘economic instruments’, as they tend to have more overt political and social considerations beyond the strictly financial. Although a clear line cannot be drawn between financial and economic mechanisms, the focus of this analysis is on the former.

217. It should be stressed that the financing mechanisms considered here do not necessarily entail entirely new and additional resources being made available for forestry. Often innovative financing mechanisms can constitute a reallocation of priorities, a qualitative enhancement of existing flows, or changes in the financial incentives prevalent in the forestry sector. In this sense, they are often designed to be catalytic, barrier-removing, sector-defining, or otherwise enabling of substantial and sustained private sector investment in SFM.

218. In total, 18 innovative financing mechanisms are considered. These were selected to be indicative of the available and emerging investment vehicles for SFM and should not be taken as an exhaustive review.<sup>24</sup> In Sections 6.1-6.3 they are classified and briefly assessed according to a typology developed from the arguments and terminology used throughout this report. The bulk of the analysis, however, is contained in Annex 4, where each mechanism is considered through a standardised “Fact Sheet” format. The one exception to this is forestry-based carbon offsets, which, by virtue of their potential importance for SFM, are considered in greater detail in the main body of the text (Section 6.4), with further material, including case studies, presented in Annex 5.

### **6.1 Typology of Innovative Financing Mechanisms**

219. For purposes of clarity, the innovative financing mechanisms reviewed in this report have been categorised according to the following typology, which seeks to describe the fundamental nature of the mechanism in question:

- A. direct commercial financing mechanisms

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<sup>24</sup> An excellent, more exhaustive, and recent review of IFIMs related to tropical forestry can be found in Richards (1998).

- B. direct concesssionary financing mechanisms
- C. market development mechanisms
- D. structural development mechanisms

220. The first two groups of direct financing mechanisms (A and B) are clearly closely related. Both involve the direct transfer of financial resources from source to beneficiary, usually for a specific purpose. Such transfers can be direct investments, or through debt, or equity, or a combination of both. The means by which the financial transaction occurs is unique to each mechanism. A distinction is made, however, between those mechanisms that seek to channel commercial-rate investments characteristic of the private sector (e.g., from conventional capital markets) and those that rely wholly or to a degree on concesssionary or sub-commercial financing, such as grants or below market-rate loans.

221. Mechanisms that mediate indirect financing or financing in kind, for example, through training or technical assistance, play extremely important roles in removing or mitigating barriers to SFM investment, but their detailed consideration lies outside the remit of this chapter. Many such mechanisms are briefly considered however in Chapters 3, 4, and 8.

222. The third category of mechanisms (C) are those that seek to create, promote, or develop new markets for services provided by SFM activities, and which are not recognised as tradable commodities or services by conventional markets. These mechanisms are direct manifestations of the commoditisation argument presented in detail in Section 3.2.3 and summarised in Table 3.4. Their principal aim is to provide forest users and managers with a means of recovering the incremental costs of providing these services through the market, foregoing the need for less effective subsidy or compensation arrangements. As SFM is inherently concerned with valuing the full range of functions played by forests, these market development mechanisms ultimately seek to provide a direct market-based incentive for forest users to make the transition from UnSFM to SFM.

223. The fourth and final grouping (D) consists of mechanisms that do not fit neatly within the other three categories. They have been termed “structural mechanisms” in so far as they address structural barriers to SFM investment (see Section 3.2.2) which are themselves largely based on widespread policy failures (such as perverse incentives for UnSFM built into fiscal regimes). Indeed, the same argument could be made for the market development mechanisms that seek to redress endemic market failures. Thus, market development mechanisms can be regarded as a specialised subset of structural mechanisms.

224. As the typology described is based on the nature of the financing mechanism in question, each of the four categories will contain mechanisms that source and supply finance at different scales. The question of scale is particularly important for national-level mechanisms and the degree to which they can support or form part of ongoing structural development processes such as nfps. This issue is considered in more detail in the next section.

225. As a final point, it should be stressed that the typology described here is intended to be descriptive rather than analytical. Furthermore, it does not pretend to neatly divide the mechanisms reviewed below, as in any abstractive classification system there will always be substantial overlaps (Borges 1956).

## 6.2 Overview of Innovative Financing Mechanisms

226. Table 6.1 summarises the key characteristics of the innovative financing mechanisms reviewed in this report. These are:

- *Barriers addressed* – these refer to investment barriers to SFM and are either structural or operational (see Section 3.2).
- *Main sources* – the principal, actual, or potential sources of the SFM financing flows channeled through the mechanism in question; these sources are categorised by sector as public, private commercial or public noncommercial (see Section 3.3.1).
- *Main recipients* – the principal actual or potential recipients of the SFM financing flows channeled through the mechanism in question. These sources are categorised in the same way as the sources (see Section 3.3.2).
- *Timing* – this refers to the principal stages of the business cycle in which investment mediated by the financing mechanism in question is likely to be targeted, and is divided into early, mid and late stages (see Section 3.3.2); as is evident from Table 6.1, structural and market development mechanisms could potentially be accessed at any stage of the business cycle (see Table 3.7 and Figure 3.6).
- *Scale* – this provides an estimate of the likely scale of application of the mechanism in question and can be either local, national, regional (includes sub-regional), or global.

227. Table 6.1 is intended to serve solely as a point of reference for the more detailed descriptions and assessments of the innovative financing mechanisms that can be found in the fact sheets in Annex 4. Its treatment of each mechanism's defining characteristics is therefore simplistic so as to enable a brief comparative evaluation of the available innovative means of channeling financial resources into SFM.

228. In this regard, certain correlations are immediately evident. First, the direct financing mechanisms tend to address operational barriers to SFM. They provide a means for commercial and noncommercial forest users and managers in the private sector to mobilise financial resources for operational activities at all stages of the business cycle. Generally, these resources will not be forthcoming from existing conventional sources such as capital markets or banks, particularly regarding early and mid-stage investments. The purpose of such mechanisms is thus to overcome this barrier to SFM.

229. Second, direct concessionary financing mechanisms tend to operate at local or national levels. As discussed in detail in Chapters 4 and 5, this is principally due to inefficiencies (e.g., high transaction costs) inherent to globally managed financial transfers. Often, however, such mechanisms provide a channel for foreign financing and particularly ODA within the context of sectoral development strategies such as nfps. The need to mainstream financial management as a core component of national-level capacity building in the forestry sector similarly applies to the structural mechanisms that also (inherently) apply predominantly at national levels. Both these types of financing mechanism should be tightly coupled to ongoing structural development processes aimed at removing barriers to SFM investment.

**Table 6.1 Summary of the Key Characteristics of Innovative Financing Mechanisms Applicable to SFM**

Innovative mechanism	Barriers addressed	Main sources (by sector)	Main recipients (by sector)	Timing (stage)	Likely scope	
<b>A. DIRECT COMMERCIAL FINANCING MECHANISMS</b>						
1	portfolio equity instruments	Operational	private commercial	private commercial	Late stage	national global
2	public-private instruments	operational	public private commercial	public private commercial	Early stage mid-stage (late stage)	local national global
3	private sector forestry investment funds	operational	private commercial	private commercial	(midstage) late stage	national global
<b>B. DIRECT CONCESSIONARY FINANCING MECHANISMS</b>						
4	national environmental funds	operational (structural)	public private commercial	public private commercial private noncommercial	Early stage midstage late stage	local national regional
5	debt-for-nature swaps	operational (structural)	public private commercial	public private noncommercial	midstage late stage	local national
6	Conservation trust funds	operational (structural)	public private commercial private noncommercial	public private noncommercial	Early stage midstage late stage	local national regional
7	biodiversity venture capital funds	operational	public private commercial private noncommercial	private commercial private noncommercial	early stage midstage	local national regional
8	small and medium scale enterprise credit lines	operational	public private commercial private noncommercial	private commercial private noncommercial	early stage midstage late stage	local national
9	micro-credit	operational structural	public private noncommercial	private noncommercial	Early stage	local
10	small targeted grants	operational	public private noncommercial	private noncommercial	Early stage midstage	local
<b>C. MARKET DEVELOPMENT MECHANISMS</b>						
11	forestry-based carbon offsets	structural (operational)	public private commercial private noncommercial	public private commercial private noncommercial	Early stage midstage late stage	global
12	bio-prospecting fees	structural (operational)	(public) private commercial	public private noncommercial	Early stage midstage late stage	global
13	water resource use charges	structural (operational)	public private commercial private noncommercial	private commercial private noncommercial	Early stage midstage late stage	local national regional
14	tradable development rights	structural	public private noncommercial	private commercial private noncommercial	Early stage midstage late stage	national global
15	marketable forest protection and management obligations	structural	public (private commercial & noncommercial)	public	Early stage midstage late stage	global
<b>D. STRUCTURAL MECHANISMS</b>						
16	fiscal instruments	structural	private commercial (private noncommercial)	public private commercial private noncommercial	Early stage midstage late stages	national
17	national forest funds	structural operational	public private commercial	public private noncommercial	Early stage midstage late stage	local national
18	environmental performance bonds	structural	private commercial	public	midstage late stage	local national

230. By contrast, the market development mechanisms are predominantly global in scope. This can be attributed largely to the disjunction between the demand or willingness to pay for forest services such as carbon sequestration or biodiversity protection, which is manifest in developing countries, and the supply of these services, which is principally in developing countries in the tropics. One implication of this observation is the need for international regulations to facilitate the development of these increasingly globalised market structures (see Chapters 4 and 5)<sup>25</sup>.

231. Third, many of the mechanisms reviewed rely on mixed public and private sector financial sources, a generalisation that conceals a wide array of different funding arrangements. Prevalent amongst these is the use of catalytic public sector concessionary financing to leverage more substantial resources from the private commercial sector. Often, the allocation of public sector resources in this way offers reassurance or guarantees to private sector investors, particularly related to risk mitigation. In addition, such resources can be used as transfer payments to subsidise the incremental costs often incurred by forest managers implementing SFM in the early stages of operations.

### **6.3 Innovative Financing for Specific SFM Activities**

232. As described throughout this report, SFM comprises an extremely wide range of activities. In this section, the applicability of innovative financing mechanisms to different SFM activities is considered. For this assessment, SFM activities are grouped into four types:

- *production* – multipurpose natural or semi-natural forest management that includes extraction of timber (includes activities such as: reduced impact logging, enrichment planting, forest rehabilitation or reforestation for subsequent production management, and agroforestry).
- *conservation* – is defined as multipurpose natural or semi-natural forest management, which excludes extraction of timber and generally focuses on biodiversity protection (includes activities such as preventing deforestation, forest rehabilitation or reforestation for subsequent conservation management, and small-scale extraction of NTFPs).
- *plantation* – refers to the establishment or management of plantations (includes the provision of services such as carbon sequestration and watershed protection that can be integrated into plantation management strategies).
- *product industries* – includes all industries, of whatever scale, dedicated to value-added downstream processing, manufacturing, distribution, marketing, and end-use of extracted forest goods (includes both timber and NTFPs).

233. Again, such categorisation is intended only for simplicity's sake and is far from prescriptive. More detailed assessment of the SFM activities potentially eligible under different financing mechanisms can be found under the "Replicability for forests" heading in the appropriate fact sheet (see Annex 4).

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<sup>25</sup> This is most clearly illustrated by the Kyoto Protocol to the UNFCCC that makes provision for the setting up of the Clean Development Mechanism (CDM). Effectively, the CDM represents a new market for greenhouse gas mitigation services provided at the project level, including carbon sequestration and storage in forests.

234. Table 6.2 assesses each innovative financing mechanism's applicability to these four SFM categories as: definitely yes, possibly, unlikely, or definitely no. The possibly and unlikely categories imply that the mechanism's applicability is conditional on the way the mechanism is developed or managed; the circumstances of the investment in question; the requirements of the financing source; or a range of other factors. Further details can be found in the appropriate fact sheets (see Annex 4). Also included are very approximate estimates of each mechanism's funding potential for the range of eligible SFM activities. No attempt is made to quantify this potential. Instead a three-point scale of low/medium/high is used. This scale is intended solely to be used for comparative purposes within the context of Table 6.2. It should be stressed that because many of the mechanisms considered are either as yet unimplemented, or implemented in non-SFM sectors, this estimate of funding potential is again conditional on a whole range of issues. These are also considered in greater depth in the appropriate fact sheet.

235. Again, certain observations can be made from the cursory comparative assessment provided by Table 6.2. First and foremost, it is immediately apparent that conservation activities have the greatest potential access to innovative financing. This is unsurprising, as many of the innovative mechanisms were explicitly designed to address the lack of conventional financing available for conservation and biodiversity preservation. Some commentators, however, argue that greater attention should be paid to NFM activities that include timber extraction, exemplified by the need to convert logging operations onto a more sustainable footing through the widespread introduction of reduced impact logging techniques. This implies the need to consider new innovative financing mechanisms designed to this end, or the broadening of the objectives or scope of existing or proposed mechanisms considered here.

236. This point is further reinforced by the evidently different focus of commercial and concessionary direct financing mechanisms. Innovative market-rate financing from private commercial sources (see Table 6.1) is largely targeted towards extractive operations in plantations and natural forests managed for production, as well as the downstream forest product industries. Conversely, concessionary financial sources tend to be designed for conservation activities. The obvious implication is that, by choice or by design, commercial interests in the private sector will remain largely oblivious to the range of concessionary financing mechanisms, particularly those managed or developed by international institutions (see Chapters 4 and 5). It has been made clear that the focus of this report (and indeed the focus of the international community) should be on finding ways to engage the private sector in SFM. As Table 6.2 suggests, many of the innovative financing mechanisms available are inherently inappropriate for this objective.

237. Second, although market development mechanisms offer perhaps the most significant potential for ensuring the widespread implementation of SFM by providing financial incentives for forest users and managers to provide a range of services (other than timber production), their funding potential is more limited than the other categories of mechanisms. This is with the notable exception of forestry-based carbon offsets, which are addressed in greater detail in section 6.4. This heightens the imperative to ensure that ongoing market developments based around these mechanisms are structured in a way that streamlines transactions (which translates into ease of recoverability of incremental costs incurred by forest managers). It also ensures the

market is accessible to all types of forest users, particularly at the small-scale. A similar argument is applicable to the structural mechanisms considered here (category D).

238. Third, as described in Chapter 3, SFM activities often require a combination of different types of financing from different sources. Table 6.2, taken in conjunction with Table 6.1, reinforces this point, particularly with regards funding requirements at different stages of the business cycle. It is essential therefore for effective ways to be developed of combining both innovative and conventional financing mechanisms, to access different scales of financing flows from a range of domestic and foreign sources. Such considerations should be incorporated a priori into the earliest possible design and implementation phases of these and other financing mechanisms. In addition, easily accessible investment packaging and finance structuring facilities should be developed at global, national and local levels. This is developed further in chapter 8.

**Table 6.2 Applicability and Funding Potential of Innovative Financing Mechanisms for SFM**

Innovative mechanism		Funding potential	Categories of SFM activities			
			Production	Conser- vation	Plantation	Product industries
<b>A. DIRECT COMMERCIAL FINANCING MECHANISMS</b>						
1	portfolio equity instruments	Medium	yes	possibly	yes	yes
2	public-private instruments	High	yes	yes	yes	yes
3	private sector forestry investment funds	Medium	yes	unlikely	yes	yes
<b>B. DIRECT CONCESSIONARY FINANCING MECHANISMS</b>						
4	national environmental funds	High	possibly	yes	unlikely	possibly
5	debt-for-nature swaps	High	unlikely	yes	possibly	no
6	conservation trust funds	Low	no	yes	no	unlikely
7	biodiversity venture capital funds	Medium	unlikely	yes	no	possibly
8	small and medium scale enterprise credit lines	High	yes	yes	unlikely	possibly
9	micro-credit	Medium	yes	possibly	yes	yes
10	small targeted grants	Low	possibly	yes	unlikely	possibly
<b>C. MARKET DEVELOPMENT MECHANISMS</b>						
11	forestry-based carbon offsets	High	yes	yes	yes	unlikely
12	bio-prospecting fees	Low	unlikely	yes	no	possibly
13	water resource use charges	Medium	yes	yes	yes	no
14	tradable development rights	Low	possibly	yes	unlikely	no
15	marketable forest protection and management obligations	Medium	yes	yes	no	no
<b>D. STRUCTURAL MECHANISMS</b>						
16	fiscal instruments	High	yes	yes	yes	yes
17	national forest funds	Medium	yes	possibly	yes	unlikely
18	environmental performance bonds	Medium	yes	unlikely	yes	unlikely

## 6.4 Forestry-based Carbon Offsets

### 6.4.1 Background

239. As mentioned earlier, the potential of forestry-based carbon offsets to influence SFM financing warrants their consideration in greater detail. This section can thus be regarded as an extended Fact Sheet C/11. The text included here is further expanded in Annex 5.

240. It should be noted that while the term “carbon offsets” embodies the concept of commoditisation of carbon sequestration and storage services provided by forests, the actual mechanisms for creating this market are joint implementation, and the CDM. “Forestry-based carbon offsets” is thus used as a generic term encompassing these specific financing mechanisms.

241. During the last ten years, forestry-based carbon offsets have evolved from a theoretical idea into a market-based instrument for accomplishing the global environmental objectives of the UNFCCC, signed in Rio in 1992 during UNCED. A major step forward in this process was the signing by 170 countries of the Kyoto Protocol to the UNFCCC in December 1997. The most important aspect of the Kyoto Protocol is the adoption of legally binding commitments by 37 developed countries and economies in transition (collectively called the “Annex 1 countries”) to reduce their GHG emissions by an average of 5.2 percent below 1990 levels (the “baseline”) by the years 2008-2012. Crucially, forestry and land-use change activities were included amongst the recognised strategies that countries could use in meeting these GHG reduction commitments.

242. The protocol also provides for the use of three “flexibility mechanisms” designed to facilitate the attainment of these commitments, principally (in theory) by reducing the implementation costs of the GHG reduction targets. These mechanisms are:

- *QELRO trading* – the international transfer of national allotments of emission rights or Quantified Emission Limitation and Reduction Obligations (QELROs);
- *Joint Implementation* – the creation of emissions reduction credits through transnational investments between Annex 1 industrial countries and/or companies;
- *The CDM* – a new mechanism resembling joint implementation that allows for the creation of Certified Emission Reduction credits in developing countries, regulated by a newly formed central authority.

243. The CDM’s purpose is to assist non-Annex I parties (developing countries) in making progress towards sustainable development and contributing to the UNFCCC objective. It also assists Annex I parties (developed countries and economies in transition) in achieving their QELROs. Non-Annex I parties will gain the economic, developmental, and environmental benefits from implemented projects that generate Certified Emission Reductions for export. Annex I Parties may use the certified reductions to contribute to compliance with part of their emission reduction targets, as determined by the Convention.

244. The CDM will act as an international body to oversee emission reduction projects that take place in developing countries not under emission restrictions. Like joint implementation, projects must be shown to be additional to what would have occurred otherwise and to have the express approval of the host government. In addition to the joint implementation requirements,



projects must also be certified by an independent third party. In effect the CDM, therefore, is a hybrid mechanism that brings together joint implementation and emissions trading with voluntary developing country participation.

245. One important facet of the CDM is that its resulting Certified Emission Reduction credits will apparently be bankable from inception (probably 2000). What this means is that credits granted by the CDM up until the first reporting period (2008-2012) will be cumulatively available for “spending” during the reporting period (though project credits may also continue throughout the reporting period). This creates a strong incentive to engage in CDM projects as early as possible, as each year of emissions reductions adds to the transaction value at the point of “spending” (i.e., 2008-2012). Other major components of the CDM include:

- project activities must be additional to policy actions that may cause the same outcomes;
- the CDM is open to participation by either private or public entities, or combinations of the two; and
- the CDM also has a mandate to use a portion of its proceeds to assist countries that are particularly vulnerable to climate change.

246. The recent CoP to the UNFCCC in Buenos Aires, Argentina, November 1998, agreed a timetable for finalising the necessary rules, structures, and methodologies for the implementation of these flexible mechanisms. The deadline has been set for CoP6, which is scheduled for October 2000.

247. In relation to forestry, both joint implementation and the CDM can be seen as important financial mechanisms based on the valuation of an externality of global importance. Both, though particularly the CDM, have the potential to mobilise significant financial resources for SFM activities.

## **6.4.2 Financing Potential**

248. Flexibility mechanisms provide a variety of opportunities for investments in pursuit of clean and sustainable development. Most estimates indicate that a global market in emissions trading could be in the tens of billions of dollars annually by the first commitment period (2008-2012), if there was full and free trading with developing countries through the CDM (see, for instance, a recent study carried out by the Massachusetts Institute for Technology (MIT) for the World Bank (Ellerman et al. 1998). While a portion of such theoretical sums will consist of transfers between industrial countries, particularly the Economies in Transition of Eastern Europe, a substantial percentage will also flow to developing countries. How these sums are apportioned, which countries will be best positioned to take advantage of these new capital flows, and the degree to which regulatory mechanisms can control emissions trading remains to be determined. It is vitally important, however, that investment priorities be set by the developing countries themselves rather than by the outside buying parties who are less likely to appreciate the secondary positive (or negative) values which different investment tracks can bring in different socioeconomic situations.

249. One of the major advantages of trading in carbon offsets through joint implementation/CDM is that it could represent a new source of capital which is targeted towards sustainable development ideals, but which is project specific. Potential capital flows to these types of projects could be very large, if industrial nations make a concerted effort on climate change. With the continuing reductions in ODA from the OECD to the G-77, this could be an important facet in encouraging investments down environmentally appropriate paths.

250. Besides representing a new source of capital, extensive utilisation of project-level carbon trading mechanisms could lead to technological leapfrogging for developing countries. This can occur by accelerating the adoption of clean and efficient technologies. In this context, biomass energy can bring a new dimension to forestry (see Annex 5). The opportunity for an outside concern to earn Certified Emission Reductions for providing or financing the best available technologies – rather than outdated or used equipment – could help overcome the higher capital costs and lack of information that disadvantage such technologies in many developing countries. Once in place, developing countries can begin to establish their own competence with various new technologies or techniques, which can catalyse new service and trade opportunities in their own right.

### **6.4.3 SFM and Carbon Offset Financing**

251. Biomass energy comprises one of a wide range of carbon-oriented project-scale interventions, which include direct preservation, reforestation, and the reduction of the negative impacts of forest management and harvesting (Brown et al. 1996, Moura Costa 1996a). It remains uncertain, however, which forestry activities will be accepted as means to implement the objectives of the Kyoto Protocol. The IPCC is currently working on a “Special Report on Land Use, Land Use Change and Forestry,” which will provide the information required by decision-makers to decide on this issue. A final position is expected to be agreed upon during the COP6 of the UNFCCC, in the second half of the year 2000.

252. Tropical countries rich in forest resources have the potential to implement a series of project based activities with positive carbon benefits. Other less forested countries in the tropics can also benefit through rehabilitation; stopping degradation; establishing new forest-cover; including plantations and integrated agroforestry systems; as well as (possibly) efficiency improvements in wood processing and manufacturing industries.

253. In the context of forestry and conservation practices, however, it should be recognised that not all projects that appear to have positive GHG effects are conceptually valid as carbon offsets. For example, existing national parks may not be considered to generate carbon offsets; these forests were already in existence when the concept of carbon sequestration arose. Therefore, simply renaming them as “carbon offset projects” does not involve any active removal of CO<sub>2</sub> from the atmosphere.

254. Worldwide, several million hectares of forests are currently under forest management regimes related to GHG mitigation funding. To date, more than twenty-five forestry projects have already been funded through joint implementation mechanisms (see Annex 5). These projects have taken place in more than fifteen countries, financed by government, NGO, or private sector

concerns and implemented by community organisations, NGOs, and private sector companies. Four case studies, including the well-known Costa Rican programme, are profiled in depth in Annex 5.

#### 6.4.4 Issues

255. Despite potential advantages, there are objections legitimately raised against the concept of trading in carbon offsets through joint implementation/CDM. Chief among these objections is the fear, among developing countries, that agreeing to an emissions trading system will lead to mounting diplomatic and economic pressure to undertake emissions commitments themselves. Other issues being raised include: potential aid reduction; emissions slippage; industrial countries cornering the offset market; marginal cost pricing of offsets; and increased conditionality on investments (Stuart & Sekhran 1996). Furthermore, lobbies from within both the developed and developing world communities are demanding that OECD countries should not be allowed to avoid their own domestic emission reduction responsibilities.

256. In addition, optimistic predictions of the CDM's potential (such as those noted above) are increasingly being questioned. Issues cited in this context range from the limited permanence of carbon stored in land-use projects, the declining cost-effectiveness of carbon offset forestry investments, and conflicting investor and host country interests (e.g., Smith et al. 1999).

257. If structured properly, however, trading in carbon offsets through joint implementation/CDM could be advantageous to both public and private sectors in developing countries. Advantages could include:

- the injection of new capital, additional to current aid funding and traditional trade sources;
- access to new sources of funding, technology, and expertise to assist in the implementation of national priorities;
- carbon offset investment in the forestry sector could be directed to: implementation of national land use plans, forest conservation efforts, consolidation of national parks, rehabilitation of degraded areas, development of plantations and farm forestry, strengthening of forestry sector institutions and systems for improved management; and
- Investment in the energy sector could be directed to reduce dependence on fossil fuels, including the utilisation of renewable biomass energy sources.

258. If such actions were carried out concertedly, increased employment generation and economic growth would result. Countries might gain better access to external markets through the use of Best Available Technologies, potentially associated with independent certification (through ISO, ITTO 2000, or FSC). Forestry initiatives to mitigate GHG emissions would also probably have positive effects on the objectives of other UNCED commitments, notably the Biodiversity Convention and Agenda 21.

259. It is becoming apparent that a flexible CDM is important to future acceptance of the Kyoto Protocol by many countries. At this stage, however, the CDM remains poorly defined and

it seems clear that a large number of countries and interest groups have their own interpretations of it. Developing country governments want to use it to improve financial flows in their direction. Certain social and environmental advocates see it as a redistribution mechanism against historical development inequity. Other environmental groups see it as a way to enhance capital flows to forest conservation and sustainable forest management.

260. A further question involves the operational structure of the CDM. While some see it as a fairly simple regulator of emission transaction projects, others view it as a direct financing participant in projects, much along the lines of the GEF. While some industrial countries clearly prefer the former model, many developing countries prefer the latter, as it would seemingly give them far greater control in spending priorities. The nature of the institution(s) or organisation(s) that will be in charge of the CDM is also under debate. As noted above, the CDM has a mandate to use a portion of its proceeds to assist countries particularly vulnerable to climate change. It remains to be seen, however, how the CDM will make priorities, how the transfers will occur, and the degree to which added transaction fees (the presumed source of proceeds for vulnerability abatement) may impair market efficiency.

## **6.5 Innovative Financing – Preliminary Conclusions**

261. The repeated assumption underlying this report is that efforts should be focused on mobilising private sector financing for SFM operations. However, for new resources to be channeled into SFM rather than “business-as-usual” UnSFM, structural barriers must be addressed, particularly those key policy and market failures discussed in Chapter 3 which provide “perverse incentives” for forest users (Richards 1998). Generally speaking, such structural activities have been the preserve of conventional public sector financing mechanisms such as those discussed in Chapters 4 and 5. Such conventional sources of finance, however, have been, and are likely to continue to be, insufficient for this broad purpose. Attention should be paid to how innovative financing might “step into the breach,” and in particular how combinations of mechanisms might be used to remove outstanding operational and structural barriers on both case-specific or widespread bases. Inherently this will require greater collective efforts from both public and private sectors.

262. In summary:

- Existing financing mechanisms are, for the most part, inadequate or inappropriate as a means to facilitate private sector investment in SFM (particularly productive activities). This is largely because the requirements and disbursement conditions are too complex, cumbersome, or slow, or because they are mostly focused at promoting forest conservation, rather than multipurpose forestry integrating conservation with other productive activities.
- This said, private sector investors in SFM could make better use of emerging innovative financing mechanisms as a means of complementing their investments and/or removing barriers that prevent larger capital flows.
- In this light, innovative financing mechanisms designed to channel concessionary financing must be targeted towards removing key structural barriers to private sector SFM investments.

- Compatibility and coordination of market-rate and concessionary financing mechanisms is necessary to provide catalytic and operational support for the investment cycle of private sector SFM activities; this is particularly the case for the market-based and non-market financing mechanisms designed to internalise the incremental costs of providing the full range of forest goods and services.
- Greater awareness of the possibilities of public-private sector partnerships is needed, based on whatever innovative financing mechanisms, tailored to country-specific conditions can be designed.

263. One emerging innovative financing mechanism relating to forestry-based carbon offsets, which is based on the commoditisation (or market creation) of the carbon sequestration and storage function of forests, goes some way to responding to these conclusions and criticisms. At the same time, it represents what might potentially be a significant new financing resource for SFM activities. There is a strong case for trying to replicate this model for other forest goods and services.

## **FINANCING STRATEGY FOR SUSTAINABLE FOREST MANAGEMENT**

**7.1 Goal; 7.2 Objective; 7.3 Elements of Financing Strategy;**

**7.4 International and Regional Level Financing Strategies;**

**7.5 National and Local Level Financing Strategies**

# **A PROPOSED NEW FINANCING MECHANISM TO PROMOTE INVESTMENT FLOWS INTO SUSTAINABLE FOREST MANAGEMENT**

**8.1 Overview of the IPA; 8.2 The IPA's Activities;  
8.3 Operationalising the IPA; 8.4 the IPA's Structure and Funding Requirements  
8.5. Conclusions**

## PART III. PROPOSED MECHANISMS FOR SUSTAINABLE FORESTRY FUNDING

### 7. FINANCING STRATEGY FOR SUSTAINABLE FOREST MANAGEMENT

264. In this chapter an attempt is made to map out a comprehensive strategy for financing sustainable forest management based on the analysis of previous chapters. The strategy is addressed at both international and national levels. First, the general goal and objectives are defined. Second, the main elements of the proposed strategy are considered. Strategic interventions at international, regional, national, and local levels are then identified. Finally, the need to address international policy constraints is recalled. The core component of this international level strategy is an *Investment Promotion Agency* as a new body to focus efforts in this field. It is presented in detail in Chapter 8.

#### 7.1 Goal

265. The ultimate *goal* of the financing strategy is to raise the necessary resources for achieving SFM worldwide, including revenue generation of the sector itself, as well as private and public investment from domestic and international sources. Of particular importance is the role of public sector financing in addressing structural constraints and in leveraging private investment.

266. It is recognised that deforestation and forest degradation can only partly be addressed by sector-specific measures, as their root causes often lie in policies and actions outside forestry. The respective broader structural problems are frequently linked with poverty in rural areas. Forestry can contribute to subsistence livelihoods and poverty alleviation, but in sector-specific interventions, structural problems can be addressed only to the extent in which they are directly related to the management and utilization of forest resources. Therefore, multisectoral integrated financing measures are required to address the overall needs for achieving SFM in developing countries.<sup>26</sup>

#### 7.2 Objective

267. To reach the above goal, three key questions need to be answered (United Nations 1997):

- (i) How do we raise the *level* of financing to achieve the transition from unsustainable to sustainable practices as it is recognised that in many cases initial investment outlays will be necessary?
- (ii) How do we change the pattern of financial flows from UnSFM toward SFM?
- (iii) How do we improve the efficiency and effectiveness of available finance thereby reducing the need for additional finance for SFM?

268. The focus of the international debate has traditionally been on the mobilisation of new and additional resources from concessional sources. This remains an important target, but, recog-

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<sup>26</sup> These lie outside the remit of this analysis.



nising the difficulties with development financing under a changing paradigm , the emphasis is increasingly moving towards:

- using the existing sources and mechanisms more efficiently, and
- tapping emerging new sources and instruments, in particular private capital flows.

269. This overall shift is linked with new global realities that are all relevant to the forestry sector. These include the globalisation of markets, decentralisation of developmental responsibilities, privatisation of natural resource management and utilisation, new market-state relationships, globalisation of environmental and developmental problems and related inequity, as well as the strengthening of civil society in policy and implementation (UNDP 1997, Pearce & Steele, undated).

270. Any global strategy that addresses these realities is bound to be general in its approach, drawing on a mixture of mechanisms and instruments that would be applicable in specific country or project conditions.

271. An overarching *objective* can, however, be identified:

*To mainstream sustainable forest management in the investment strategies of the public and private sector at national and international levels, based on the recognition that SFM is a profitable and ethically attractive investment target.*

272. The concept of profit is understood broadly in this context to include various net benefits derived at local, national, or global levels from sustainably managed forest resources. Mainstreaming is seen from two perspectives:

- (i) raising the level of SFM financing so as to correspond with its potential contribution to socioeconomic development and environmental conservation; and
- (ii) integrating SFM considerations and components into investments in sustainable agriculture, biodiversity conservation, mitigation of climate change, rural development, etc.

### **7.3 Elements of the Financing Strategy**

273. The proposed financing strategy is comprehensive in its approach including strategic interventions at both international and national levels (see Sections 7.4 and 7.5). A number of common features which are applicable in a large number of countries can be identified including revenue generation within the forestry sector itself, removal of structural and operational barriers, commoditisation of environmental and social benefits of forests, tying financial support with performance and aid reform, and the development of mechanisms for leveraging private sector investment and public-private partnerships. These elements are discussed in some detail below.

274. It should, however, be recognised that national situations vary extensively from forest rich countries to countries with low forest cover. Each situation requires its own specific solutions considering environmental socioeconomic and institutional conditions. These differences are re-

flected in how various mechanisms can work and how funds can be raised from different sources in national situations.

### 7.3.1 Revenue Generation

275. Financing can only be effective in achieving SFM if it can be used in an enabling environment. Unless policy and market failure problems have been tackled, it is unrealistic to expect private capital flows to stimulate SFM (Richards 1998). In view of the magnitude of resource requirements needed to address policy and market failure (cf. Section 3.1), the key issue is not financing *per se* but how positive financial incentives can be created for SFM. The focus should therefore be two-fold:

- (a) revenue generation within the sector and ensuring adequate reinvestment into SFM from that revenue; this includes increased capture of resource rents from publicly owned forest resources to finance SFM, and various fiscal instruments which are targeted at restructuring tax and subsidy regimes to provide financial incentives for socially desirable activities and disincentives for undesirable ones<sup>2728</sup>; and
- (b) high productivity in the use of land, labor, capital, and other production factors.

276. When operations are profitable, they can be financed from traditional sources. Absence of market and policy failures is an essential precondition for reaching efficiency (cf. Pearce & Steele, undated).

### 7.3.2 Removal of Structural and Operational Barriers

277. It has been strongly argued that SFM should not need any additional resources from outside the forestry sector (e.g., Repetto & Sizer 1996). Some of the structural and operational barriers preventing investment in SFM, however, often require targeted interventions from the public sector. In addition, the environmental and social benefits of forests may not be forthcoming if they cannot be recognised by those who produce them. Private sector decision-making on resource management and utilization must be motivated by appropriate incentives, so that the overall goal of SFM can be achieved. Enabling structural frameworks are key. Market-based instruments are also essential vehicles in this process, complemented by targeted financing mechanisms. The key issue is not the volume and sources of existing and potential financial flows, but how various financing mechanisms contribute to incentives for SFM (cf. Richards 1998).

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<sup>27</sup> The discussion on mechanisms related to increased rent capture is not included in this study as they are being analyzed in detail as part of an on-going World Bank study for IFF.

<sup>28</sup> See Annex 5, D/16 for details.

### 7.3.3 Commoditisation of Environmental and Social Benefits of Forests

278. Recent trends towards the commoditisation of forest benefits at global, national and local levels offer for each forest, through its owners and managers, new possibilities to capture the value of at least part of the environmental and social benefits that have not been recognised by markets in the past. In this way, the objective function of forest management is expanded to cover not only timber and non-timber forest products but also hydrological services, carbon sequestration, ecotourism, and other biodiversity benefits. Each type of benefit will require its own market instruments. These will need to be tailored to specific local conditions, as environmental and social benefits vary extensively according to the type and location of the forest resource.

279. While offering new possibilities to create revenue for investment, there are two kinds of concern to be addressed in their implementation:

- (i) *Unequal treatment.* Similar forests may not be treated in the same way due to site-specific factors, particularly location with regard to possible beneficiaries. For example, forests that are located in watersheds supplying fresh water for big cities will be valued differently from forests in watersheds around agricultural zones.
- (ii) *Limited contribution to SFM.* Each instrument emphasises a particular aspect of forest benefits. This is likely to limit their contribution to SFM, or even impede it, if investment decisions are guided by a single goal. This problem is particularly associated with global benefits (cf. Chapter 5), and, for example, raises the unfounded specter of carbon sequestration leading to the clearing of natural forests for fast-growing plantations.

280. The concerns related to global benefits can be duly addressed through the development of appropriate ground rules at the international level, which should consider both the direct and indirect impacts of various single-issue instruments on forest management. The use of national-level policy frameworks (e.g., within the context of nfps) and local-level participatory decision-making on forest management goals will ensure that such single-issue goals are adequately considered in the context of national and local priorities before investment decisions are made.

### 7.3.4 Tying Financial Support with Performance and Aid Reform

281. Conditionalities have been widely used as part of concessional financing mechanisms. These conditionalities have usually been linked with the necessary preconditions for effective implementation at the project level. Less attention has been given, however, to linking implementation performance with future funding. Such a link would test the absorption capacity and degree of commitment (financial and non-financial) of recipient parties and would also improve the predictability of concessional funding.

282. At the national level, performance assessment can be linked with the nfp and its measurable indicators which cover both the progress of the policy process, input allocation, activities carried out, outputs achieved, as well as changes in forests and their values. The various national and operational-level C&I for SFM are also useful tools for monitoring and evaluating performance, although many of the indicators report on aspects of forest status which changes only over

longer periods of time. At the local level, certification of forest management can in certain conditions be a useful tool for performance assessment.

283. As regards financing, performance assessment should also include necessary aspects of good governance including transparency and accountability in the use of external funds.

284. With this kind of approach, it would be possible to switch from the traditional mode of aid, which is donor-driven and pretends to be donor-controlled, to country commitment and control in implementation. The nfp is a major planning tool in this regard. This is an essential change of approach to improve the efficiency of technical assistance and other development aid (see chapter 7.5 for detailed discussion on nfps).

285. Without a fundamental improvement of aid policies that tie financial flows to national policy reforms and implementation performance, ODA will not be able to create enabling conditions for SFM investment without the risk of delaying necessary structural adjustments.

### **7.3.5 Mechanisms for Private Sector Participation and Public-Private Partnerships**

286. The financing strategy is targeted at facilitating the role of the private sector as investor in, and implementor of, SFM while the role of the public sector is to create enabling conditions and leverage private investment.

287. A major ongoing International Institute for Environment and Development (IIED) study on private sector participation in SFM shows that in many countries there is a shift towards a greater participation of the private sector in forestry. Not only are countries encouraging increased private ownership, but they are also attempting to attract private interest in forest utilisation and management. This is further coupled with a greater reliance on market-based approaches in guiding forest operators towards more efficient and sustainable forest management and industrial utilization (Landell-Mills et al. 1999). These initiatives are a continuation of various forms of public-private sector partnerships, which have become increasingly common in the natural resource sectors, including forestry.

288. Partnerships between the public and private sectors appear to emerge easily when there is a need to address a widely recognised crisis (Gentry & Hernandez 1997). Deforestation and its negative impacts on microclimate, water supply to downstream communities, and soil erosion, qualify under such a definition when “safety thresholds” have been passed, as has recently happened in China and Central America. Forest fires are another example that may kick-start the government into enacting difficult policy measures and engaging the private sector. Under business-as-usual, this would probably not have been politically possible (recent examples include Indonesia and Mexico).

289. Underlying requirements for public-private partnerships are thus twofold:

- (1) The risk for catastrophes starts endangering major private sector interests, such as investments in industrial plants and infrastructure, or forest integrity in concession areas.

- (2) It is recognised that the government alone cannot address these risks, such that it is easier to unite forces through public-private sector partnerships to better allocate available resources.

290. Partnerships may also emerge without crises if broad awareness-raising has taken place for other reasons or there is wide recognition of win-win opportunities.

291. There are many different types of partnerships ranging from informal consultations to contractual arrangements where financial commitments are made by both sectors. Joint forest management in its various forms is an example that allows input provision, benefit-sharing, and participation in ways that can be tailored to meet local conditions. Although increasing rapidly, experience in the forestry sector on public-private partnerships is still limited compared to other sectors (e.g., water).

292. A number of preconditions have been identified for successful public-private partnerships in natural resource-based activities (cf. Gentry & Fernandez 1997, Fry 1998):

- the need for action to be broadly recognised, often due to a crisis in the supply of forest products and services (fuel, watershed protection) or a natural catastrophe (hurricane, fire, etc.);
- the drive and commitment of a few individuals to realise true partnerships of significance;
- acceptance by other interested parties that their individual needs can be met through involvement in the cooperative process;
- credibility and transparency to create and maintain commitment: a high degree of trust and at least predictability is often necessary between the parties involved;
- as partnerships are context-based, there must be flexible ways to implement them in varying socioeconomic and physical conditions;
- the creation of partnerships takes time, from the initial understanding of the problem and its possible solution through to implementation; and
- industry's participation is best secured when either their own interests are at risk, or they can participate in taking preventive action and can see profitability improvements as a result.

293. The development of appropriate partnership mechanisms needs to be tailored to specific country/local conditions. Costa Rica is a good example of how various financing mechanisms targeted at sustainable forestry and particularly related to the commoditisation of environmental benefits can be developed through private-public sector partnerships. Many of these contain innovative elements and are discussed in more detail in Chapter 6 and Annex 5.

294. Public-private partnerships are also becoming increasingly common at the local level. A useful summary of the current situation in company-community partnerships, including out-grower and farm forestry schemes, joint ventures, community enterprises, management and harvesting contracts, forest land renting, etc., is found in Landell-Mills et al. (1998).

295. Investment in SFM offers a whole range of options for public-private partnerships that become realistic when the necessary preconditions are in place (see Chapter 3). Particular attention should be paid to integrating those concessionary and market-rate financing mechanisms which seek to internalise both global and national externalities. Chapter 8 addresses this question in further detail.

## **7.4 International and Regional Level Financing Strategies**

296. With these considerations on the context of financing of SFM, a series of strategic interventions can be identified for application at global, regional, national, and local levels (Table 7.1). In general, they are targeted at creating enabling conditions for SFM, aimed at removal or lowering of structural and operational barriers; raising funds and promoting SFM investments; and development and application of new financing instruments and strengthening of existing ones.

### **7.4.1 International-level Interventions**

297. The following list of principal areas of strategic intervention are suggested at international level:

- (a) Continue to *strengthen policy frameworks* as an important area of barrier removal at the international level, including improvement of the international regime related to sustainable forest management. This would require better coordination between existing instruments and institutional arrangements so as to ensure a comprehensive and balanced approach to SFM, rather than the current tendency to promote single-issue goals such as biodiversity conservation, carbon sequestration, etc.
- (b) Promote *commoditisation or the creation of marketable value* for various forest products and services which are not presently recognised in the marketplace, including carbon sequestration, watershed protection and erosion control, biodiversity, ecotourism, etc. As regards “global” or cross-border benefits, which are expected to play an increasingly important role, *internationally agreed ground rules* and procedures will have to be established to provide the necessary framework which international investors can comfortably rely on.
- (c) *Promote commercial and other investment* in SFM, including awareness raising on investment opportunities and removal of barriers to SFM, through the establishment of an IPA. This activity is **the cornerstone of the proposed strategy and is elaborated in detail in Chapter 8.**
- (d) Carefully target *concessional funding at the* elimination of structural and operational barriers to SFM and at leveraging private investment.
- (e) Develop and apply *new and innovative approaches and mechanisms* and improve their effectiveness as potential instruments for financing SFM. This includes improvement of the GEF as a source of funding for SFM, the implementation of the

CDM for forestry, various other joint implementation mechanisms, co-financing, and other private and public sector partnerships where SFM is the main or ancillary component (cf. point c above).

**Table 7.1 Levels and Areas of Intervention of the Financing Strategy for SFM**

<b>Level</b>	<b>Objective</b>	<b>Intervention</b>
Global	1. Enabling conditions at global level	<ul style="list-style-type: none"> <li>• Agreed global policy framework, including concessional financing and its uses</li> <li>• Ground rules for trading of environmental benefits and for market-based instruments (CO<sub>2</sub>, bio-prospecting, certification, and labeling, etc.)</li> </ul>
	2. Fund raising and investment promotion	<ul style="list-style-type: none"> <li>• Awareness raising about SFM investment opportunities</li> <li>• Concessional funding</li> <li>• Investment promotion (IPA – see Chapter 8)</li> <li>• Country and sector risk mitigation</li> </ul>
	3. Development of globally applicable instruments for SFM financing and related programmes	<ul style="list-style-type: none"> <li>• GEF, CDM, joint implementation, co-financing, etc.</li> <li>• Innovative financing instruments</li> <li>• PROFOR and other international programmes</li> </ul>
Regional	1. Enabling conditions at regional level	<ul style="list-style-type: none"> <li>• Regional-level capacity building</li> <li>• Cross-border trading of hydrological and other services of forests</li> </ul>
	2. Regional financing instruments	<ul style="list-style-type: none"> <li>• Regional instruments of MDBs, regional venture capital funds, etc.</li> </ul>
National	1. Enabling conditions at national level	<ul style="list-style-type: none"> <li>• Policy framework: removal of structural and operational constraints for SFM, regulation of commoditisation of forest benefits</li> <li>• Capacity building, including good governance and transparency</li> <li>• Nfp and its investment programme as coordinating instruments</li> </ul>
	2. Fund raising and investment promotion	<ul style="list-style-type: none"> <li>• Concessional funding and pooling of resources within sector programmes (including fpas)</li> <li>• Investment promotion facilities</li> <li>• Strengthening of financial intermediaries</li> </ul>
	3. National financing instruments	<ul style="list-style-type: none"> <li>• Direct commercial financing (portfolio equity investments, investment funds, etc.)</li> <li>• Direct concessionary financing (national environment/conservation funds, debt-for-nature/development swaps, venture capital funds, Small medium scale enterprise credit lines and micro-credits, small grants, etc.)</li> <li>• Market development mechanisms (carbon trades, bio-prospecting, water use changes, certification, etc.)</li> <li>• Fiscal instruments and other structural mechanisms (public forest funds, performance bonds, etc.)</li> </ul>
Local	1. Enabling conditions at local level	<ul style="list-style-type: none"> <li>• Removal of operational constraints</li> <li>• Capacity building</li> <li>• Participation</li> </ul>
	2. Commoditisation of forest benefits	<ul style="list-style-type: none"> <li>• Valuation and integration</li> </ul>
	3. Local financing	<ul style="list-style-type: none"> <li>• Conventional project financing</li> <li>• Micro-financing</li> </ul>



- (f) Improve *coordination and cooperation* at the international level between various agencies and different types of funding sources, drawing on available mechanisms such as nfps and fpas in cooperation with countries (cf. point a above).

#### 7.4.2 Regional-level Interventions

298. Many of these interventions are relevant also at the regional level where a number of specific items can be added, such as:

- regional level capacity building,
- cross-border trading of hydrological and other environmental services of forests, and
- regional financing instruments of multilateral development banks (e.g., regional environmental venture capital funds, risk mitigation facilities).

299. Experience in Central America suggests a regionally agreed institutional framework, founded on pan-national mutual interests, can contribute to making capacity building and cross-border cooperation more effective. When individual countries are not large enough to provide a sufficient volume base for some national financing instruments (e.g., trust funds, venture capital funds), a regional approach may be viable.

#### 7.4.3 International Policy Constraints

300. The existing *international forest regime* is fragmented, non-comprehensive, and lacks a clear focus on the promotion of SFM; however, views differ as to how to improve the situation (cf. EFI 1996, Skala-Kuhmann 1996, Tarasofsky 1995). Individual instruments emphasise specific and partial roles of forests, rather than supporting a comprehensive approach with a financing component designed to solve the problem of deforestation and forest degeneration. Soft law instruments, such as the IPF Proposals for Action or voluntary certification and labeling, are important but inadequate tools to solve the fundamental problems of sustainable forestry.

301. This lack of commitment to set down a *legally binding obligation* to achieve SFM is also related to insufficient access to financing. An international instrument providing for such an obligation would directly contribute to concessional and non-concessional funding to SFM. Its indirect contribution could, however, be much more significant as it would provide a clear policy framework within which various actors, particularly those in the private sector, are confident to invest and operate. Regarding a financial arrangement that can be attached to such an instrument, experience on the UN Convention on Combatting Desertification and Drought (CCD) should be taken into account (see Box 7.1). The main lesson to be learned is that common understanding should be reached on the financial arrangement before an international convention with financial implications is agreed upon. Further discussion can be found in Section 8.5.

302. Multilateral financing institutions play a key role in development financing, including the forestry sector. Not only do the policies of the institutions influence internal financing decisions,

but they have also become important signals to the entire international financial community on what is considered acceptable and what is not. The multilateral banks' role as a comfort factor for private sector institutional investors is particularly essential in such a controversial sector as forestry.

### **Box 7.1      Financing of the Convention on Combating Desertification and Drought**

The Convention came into force at the end of 1996. It did not include arrangements for financing and only in late 1998 was the Secretariat of the Global Mechanism formally established through voluntary contributions.

Expectations on financing have been divergent:

- The recipient countries expected a global funding mechanism with new and additional resources;
- The donor countries have seen the financial arrangement not as a fund but as a matchmaking exercise between needs of the recipients and the available resources; such matchmaking is mainly to be carried out at national and regional levels.

These clearly opposing perspectives undermine the consensus needed to underpin international treaties. Effective implementation of the CCD is likely to require a global-level financing mechanism that can play a catalytic role, in addition to national and regional level interventions.

303. The World Bank's Forest Policy (1992) and Environmental Guidelines rule out the possibility of providing support to any timber harvesting in primary natural tropical forests. This has left an important caveat for development efforts in those countries where substantial primary forests could be sustainably managed for socioeconomic benefits while ensuring biodiversity maintenance and other environmental conservation. It has not been established whether the policy has had any significant impact on deforestation and forest degradation, and some experts think that it may have been counterproductive. The same policy is also applied by the GEF, which is co-managed by the World Bank (cf. Chapter 5).

304. The World Bank is undergoing an evaluation of its forestry financing and a process developed to revise the current policy. It is not the purpose of this report to foresee what kind of policy the World Bank will adopt. If the current provisions will not be changed, however, it is obvious that the potential of several innovative financing instruments, such as conservation trust funds, biodiversity venture capital funds, etc., will not be able to target natural forest management, except in secondary forests. As several multilateral, bilateral, and private financing institutions tend to apply the World Bank's guidelines, the sustainable management of these forests would be excluded from international support – paradoxically the area where such support could have significant short-term impacts. This point is also highly applicable to the proposed new global financing mechanism for SFM (cf. Chapter 8).

305. What makes this a real dilemma for planning any future financing arrangements for SFM at the global level is the fact that IPF/IFF as an intergovernmental policy forum has not concluded any such constraints for SFM in developing countries. ITTO and FAO as the key international sectoral agencies are actively promoting SFM, including sustainable harvesting in primary natural tropical forests. There is an urgent need to achieve more coherence and coordination in international-level policies related to the forestry sector than prevails at present.

306. There are various ways to alleviate or reduce the concerns related to the conservation of natural forests thereby making SFM an acceptable and attractive investment for MDBs. Third-party certification of forest management can be a useful tool for the dual purpose of mitigating investment risks and communicating to buyers and consumers that forests are well managed from where the purchased products originate. Certification is not, however, applicable in all conditions and, therefore, other less-costly and more effective instruments should also be considered.

## **7.5 National and Local-level Financing Strategies**

307. Investments in SFM are made at national and local levels, which should therefore be the focus of future financing strategies. International level interventions – the focus of this report – can complement such strategies by raising resources through various mechanisms and providing the necessary common ground rules.

308. Each country has its specific ecological and socioeconomic conditions, as well as institutional framework. These conditions represent opportunities and constraints, which are the basis for designing national and local-level financing strategies for SFM.

309. The first step is to develop a common long-term vision on how to achieve the SFM goal. The nfp process is the appropriate tool for this purpose. Specific work on financing arrangements can only become meaningful if there is a political will to implement the sectoral strategy and its underlying structural reforms.

### **7.5.1 Areas of Intervention**

310. Due to country differences, it is not possible to identify a blueprint for areas of intervention in national or local-level financing strategies. Some typical examples, however, can be singled out. At the *national level*, strategic interventions can be targeted at:

- creating *enabling conditions* through the removal of structural and operational barriers for SFM, regulation of commoditisation of forest benefits (identification of beneficiaries and providers, basis for valuation and pricing of services, etc.), capacity building including good governance and transparency, and using nfps as a tool for policy reform and coordination;
- *fund raising* through better access to concessional funding and pooling of resources (e.g., through fpas or other forest partnership arrangements), investment promotion, and strengthening of financial intermediaries; and
- development and application of *national financing instruments* including mechanisms for direct commercial and concessionary financing, market development for forest goods and services based on SFM, as well as fiscal instruments and other structural mechanisms such, as national forest funds, environmental performance bonds, etc. (see chapter 6).

311. At the *local level*, the focus of creating enabling conditions is often on resolving operational constraints, capacity building, and effective participation of interested parties in planning

and implementation. Valuation and integration of various local-level forest benefits must be integrated into planning and implementation. At the local level, conventional project financing mechanisms are likely to remain important and may even become the main source of external funds. Due to the small size of many beneficiaries, micro-financing facilities will often be appropriate, provided that suitable financial intermediaries are available. Small project size will also lead to the need of their bundling to make them fundable from external sources.

312. Strengthening of *financial and other intermediaries*, including NGOs and CBOs, in developing countries is necessary to reach individual farmers, forest owners, and communities living in and around forests. The small size of investment projects and their spreading throughout rural areas make it otherwise impossible to effectively reach these beneficiaries (beyond targeted pilot-type projects), and therefore an effective network of national intermediaries, including commercial and rural development banks, extension agencies, etc., is often a precondition for providing access to financing. Unfortunately, these intermediaries have little or no understanding of the specific characteristics of SFM financing. In addition, special provisions are often needed to overcome difficulties in making this sector a viable business segment for financial intermediaries.

313. The development of national instruments and arrangements for SFM is a rapidly evolving field where the feasibility of various options can be assessed against practical realities. The case of Costa Rica where substantial experience has already been accumulated is reported in detail by e.g., Chomitz et al. (1998). There are a number of preconditions that must be considered when planning the replication of such country experiences (Box 7.2). A very recent example is the investment promotion concept supported by the World Bank (1998b) in Nicaragua (Box 7.3).

### **Box 7.2 Preconditions of Public-private Partnerships in Costa Rican Forestry Sector**

Costa Rica is frequently cited as a success story in the creation of a market value for the environmental services of forests. Public-private sector partnerships are an essential element of this achievement. Apparent preconditions for the possible replicability of Costa Rica's experience include:

- Public opinion is widely concerned about the environment and its impacts on human life.
- The country has a strong tradition of democratic collective action.
- There is a strong tradition of entrepreneurship to develop private business. (In Costa Rica an environmental cluster has been created where various economic activities effectively support each other.)
- Tourism is the most important source of foreign exchange, and the environment has been mainstreamed within this context. Ecotourism is compatible with conservation goals and offers investment opportunities for the private sector.
- International organizations helped conceptualise development opportunities into instruments for trading of environmental benefits.
- Payments made to the rural population are based on services provided and are transfer payments; this has a strong motivational aspect.
- Effective organization of farmers and landowners exists, which ensures due consideration of their interests.
- Secure private land tenure is openly tradeable which has significantly reduced investment risks in forestry.

Sources: Constantino, pers. comm.

### Box 7.3 Sustainable Forestry Investment Promotion Project in Nicaragua

The *development objective* of the Sector Investment Credit is to improve local capacity (private and public) and develop alternatives to address long-term forestry issues in Nicaragua. The establishment of a basis for improved forestry management will be initiated by promoting environmentally sound private sector investments, improving the business environment, reducing the perception of risk in forestry sector activities, and helping to define forest-sector institutional policies and reforms through a participatory process.

The project would be the first phase of a longer-term effort to improve forestry management and private sector development. Subsequent government efforts to implement the programme could eventually be supported by an Adaptable Programme Credit and other donors.

The *project activities* include:

- provide technical assistance to private and communal sector forestry through the creation and operation of the Sustainable Forestry Investment Promotion Office (SFIPO), supported by an International Forestry Advisory Panel;
- provide technical assistance to the newly created National Forestry Institute; to the Ministry of Development, Industry and Commerce; the Ministry of Agriculture and Forestry; and the National Commission for Sustainable Development in promoting investment in sustainable forestry and reforestation; and
- launch an assistance programme to private/communal forestry entrepreneurs through matching grant financing of pilot subprojects.

The three and half year project would be executed in a participatory manner in order to build the capacity, consensus, and constituency necessary for successful implementation of the long-term programme. A monitoring and evaluation system would be established to measure the learning and innovation process and facilitate the incorporation of lessons and experiences into the future investment programme.

Project activities will be based on the following *guiding principles*:

- promotion of public-private sector partnerships;
- use of market-based instruments to achieve sustainable forestry objectives; and
- extensive involvement of civil society in policy reform.

SFIPO will be established by the government, but its goal is to evolve into an autonomous or semi-autonomous and self-financing entity capable of responding to the needs of its clients.

SFIPO's main *areas of action* would be:

- promotion of private investments,
- integration of smallholders into the productive process by developing financial and economic incentives,
- transfer and introduction of appropriate technologies and best practices, and
- promotion of forest certification as a means to achieve improved forest management and reaching new markets.

Source: World Bank 1998b

## 7.5.2 National Forest Programmes and Sector Support Programmes

314. Nfps have been successfully implemented in several countries (e.g. Colombia, Costa Rica, Ghana, Indonesia, and Vietnam). They have assisted the national authorities in analyzing and articulating their development goals in the forest sector. This has increased the feasibility and efficiency of both national and external financing in forest sector development. In particular, those countries which have established a national financing mechanism to mobilise resources for nfp implementation have made good progress in SFM (e.g., FONADE in Colombia, FONAFIFO in

Costa Rica, in Cameroon under planning, and feasibility studies done in Togo and Benin). It is clear, however, that the nfps have not succeeded in attracting sufficient financial flows for truly large-scale implementation of multipurpose SFM. This is coupled with the limited success of nfps in implementing necessary policy reforms but also relevant is the lack of capability to formulate feasible investment programmes and to integrate appropriate financing mechanisms for nfps. A list of developing countries with existing nfps under implementation is presented in Table 7.2.

**Table 7.2 Developing Countries National Forests Programmes Being Implemented**

<b>Africa</b>	<b>Asia and the Pacific</b>	<b>Latin America</b>
Cameroon	Bangladesh	Antigua and Barbuda
Cape Verde	Bhutan	Barbados
Côte d'Ivoire	Fiji	Belize
Equatorial Guinea	Indonesia	Bolivia
Ghana	Laos	Chile
Guinea	Nepal	Colombia
Senegal	Pakistan	Costa Rica
Tanzania	Papua New Guinea	Dominica
	Philippines	Ecuador
	Sri Lanka	El Salvador
	Thailand	Grenada
	Vietnam	Guatemala
		Honduras
		Jamaica
		Mexico
		Montserrat
		Nicaragua
		Panama
		Peru
		St. Kitts
		St. Lucia
		St. Vincent
		Trinidad

Sources: National Forest Programmes, Update No. 33 (FAO 1998); country information

315. Nevertheless, nfps, as perceived by IPF (1997), can act as the major instrument in creating enabling conditions for SFM investment at national level (Box 7.4). They provide a framework for programming and coordination that is needed to ensure that all the key areas where investment is required will be duly covered. Nfps also act as useful tools for the integration of national priorities and programmes with the support and objectives of the international community. Nfps are instruments designed to shift gradually away from project funding from various sources toward coordinated sectoral support - to increase the effectiveness of financial flows.

## Box 7.4 National Forest Programmes

The objective of an nfp is to ensure the conservation, management, and sustainable development of forests to meet local, national, regional, and global needs and requirements, for the benefit of present and future generations.

The nfp is based on the following principles:

- national sovereignty and country leadership;
- partnership and participation of all interested parties in the nfp process;
- holistic and intersectoral approach to forest development and conservation;
- the long-term and iterative process of planning, implementation, and monitoring;
- focus on systematically building the capacity of the country to take full responsibility for the development of the forest sector;
- focus on systematic policy and institutional reforms consistent with the overall national policies and global initiatives;
- focus on systematic raising of awareness on forestry issues at all levels of the society; and
- focus on the systematic building up of national and international commitment to sustainable forest development.

The main elements of an nfp are:

- sector review to establish an understanding of the forestry sector in the context of national development,
- policy and institutional reform processes based on the sector review and dialogue with the stakeholders,
- an investment programme that includes both public investments and incentives for private and non-governmental sectors,
- a capacity building programme to assist the governmental and non-governmental sectors in fulfilling their roles and mandates, and
- monitoring and evaluation system to provide continuous feedback on nfp implementation, impacts and efficiency.

The nfp is a technical process, in the sense that the identification of goals, policies, strategies, and mechanisms for implementation are based on accurate information, and a political process, in the sense that the choices between the available options are the outcomes of debates, negotiations, and compromises on the part of relevant stakeholders.

Source: UNDP 1997b.

316. Two types of *public investment programmes* are formulated in the context of an nfp: (i) those supporting activities that are directly implemented by public institutions, and (ii) those supporting activities that focus on the private sector, NGOs, and CBOs, by providing different types of incentives for forestry and conservation efforts. Even though each country will find its own balance between public and private sector participation, involvement of the sectoral administration in the productive activities of nfp implementation is generally declining. The public sector, however, will probably retain its role in some areas, such as in the provision of extension services, and in the establishment and joint management of conservation areas. Actual investments in the public sector are derived primarily from the capacity building programme (see below). Active involvement of the private sector and local community in forest conservation, management, and sustainable use of forest resources contributes to the decentralisation of development and to a more equitable sharing of the benefits (Oksanen 1998).

317. The emphasis in the investment programme is given to the creation of favorable conditions for and direct support to the private sector, NGOs, and CBOs, because of their comparative advantages as development and conservation agents. These advantages include the capacity to

reach the rural population through participatory approaches, awareness of traditional forest-related knowledge, the ability to mobilise local resources efficiently, independence, flexibility, as well as the capability to represent local interests. The main focus is on facilitating and improving the conditions for investment through a decentralised incentive programme, one that promotes the sustainable management and wise utilisation of forests (Oksanen 1998). In particular, this programmatic approach will be useful for bundling small-scale projects together so as to make them match the financing criteria of external sources.

318. The *capacity building programme* defines the actions that must be taken in order to systematically develop the sectoral planning and implementation capacity of the national institutions and other key actors, as well as to decrease dependence on external assistance. The programme should be based on the definition of new roles and mandates for public sector institutions, the private sector, NGOs, and CBOs.

319. A well-tuned *national coordination mechanism* will benefit the removal of barriers to SFM, investment promotion, and facilitate access to available sources of finance. It will also be capable of facilitating participation and addressing the concerns of the relevant international and national stakeholders. It would create confidence in, and predictability about, the government's policy and support to SFM, thereby lowering investment risks. Such a coordination mechanism can be conveniently built within the nfp preparation and implementation process.

320. The main purpose for the coordination of international partners is, however, to integrate external aid with the nfp process, and thereby coordinate donor contributions, so as to avoid overlapping or redundant programmes. Coordination should enable increased political and financial commitments by all stakeholders, as well as fostering integrated and harmonised planning approaches and cycles. Those elements of nfps for which international support is required can be consolidated into *Sector Programme Support* facility, which the international community can finance through jointly agreed mechanisms (Box 7.5). Such an approach has worked well in other sectors (health, education, agriculture, etc.) for mobilizing international support on a required scale and to improve its effectiveness through a comprehensive approach. There are no fundamental reasons why this approach could not be increasingly adopted in the forestry sector as well.

### **Box 7.5      Sector Programme Support**

Sector Programme Support (SPS) is an arrangement to channel international support into the implementation of nfps and in assisting public and private sector stakeholders' engagement with the process. Preconditions for success include enabling policy conditions and government commitment to lead and implement the nfp. SPS would typically:

- focus on broad-scale capacity development,
- assist in alleviating other structural barriers to SFM,
- provide support to implementation at national, regional and local levels,
- strengthen accountability and transparency,
- promote flexibility and needs-driven implementation,
- reduce local bureaucracy related to international financing, and
- improve coordination and integration.

Appropriate criteria and indicators would be necessary for monitoring and evaluating the success of SPS. These C&I are largely similar to those used for nfps.

Source: Aho 1999



321. Various partnership arrangements have emerged in the forestry sector to pull together resources and efforts from various stakeholders, including the international community (Box 7.6). These partnerships can take various forms and one example is the fpa, which is a relatively recent innovation and still in an experimental stage in a limited number of countries. It has been developed mainly as an instrument to ensure both internal and external commitment to, and coordination of, nfp implementation. The idea of the fpa is based on the assumption that partnership mechanisms at the country level are needed to integrate all the relevant institutions and actors into the nfp process.

### **Box 7.6 Pooling of Resources: Forest Partnership Agreements**

In fpas, the interactions of national and international processes with nfps are defined, so as to promote SFM through country-driven support to enhancing economic, social, cultural, and environmental functions of all types of forests. Partnerships would include all national stakeholders and those international parties supporting SFM in the country. IFF-II made the following preliminary conclusions on promotion and facilitation of the implementation of IPF Proposals for Action:

"creation and/or strengthening, by countries and international organisations, of initiatives, approaches and partnerships, which could include partnership agreements, to encourage: long-term political commitment; relevant, effective, sustained and reliable donor support; participation by the private sector and major groups; as well as to recognise the special role of ODA to meet the needs of developing countries, in particular least developed countries and countries with low forest cover."

Among the actions developing countries could commit to taking are:

- removal of incentives for forest destruction,
- full valuation of marketed natural resources,
- security of property rights for the rural population,
- technically sound land use planning and tangible incentives for sustainable use,
- effective measures to promote human development,
- empowerment of rural women living in forest areas, and
- participatory strategy and capacity building programmes for forests.

Commitments on the part of the international community could include:

- phased debt reduction as the fpa is implemented,
- support for raising agricultural productivity within the country,
- facilitation of market access for forest products produced sustainably,
- incentives for private investment,
- secure sustainable development funding, and
- funding for capacity building.

In an fpa, a developing country and several donor countries and financing institutions negotiate a long-term agreement, through which each side makes commitments and takes specified actions. An fpa can be either legally or non-legally binding, and involves both international and national components. Fpas are initiated by a country-led identification of national and international partners and stakeholders in the forest sector. To institutionalise an fpa as a coordination mechanism for international support, a forest partnership facility can be established and a core support agency selected. Communication strategy and mechanisms between all stakeholders are developed. Monitoring and evaluation systems for nfp implementation are also established.

Fpas could include the establishment of a forest sector consultative group as a body to assist in coordination. It should be country driven and open to all stakeholders.

Sources: UNDP 1997b, Aho 1999

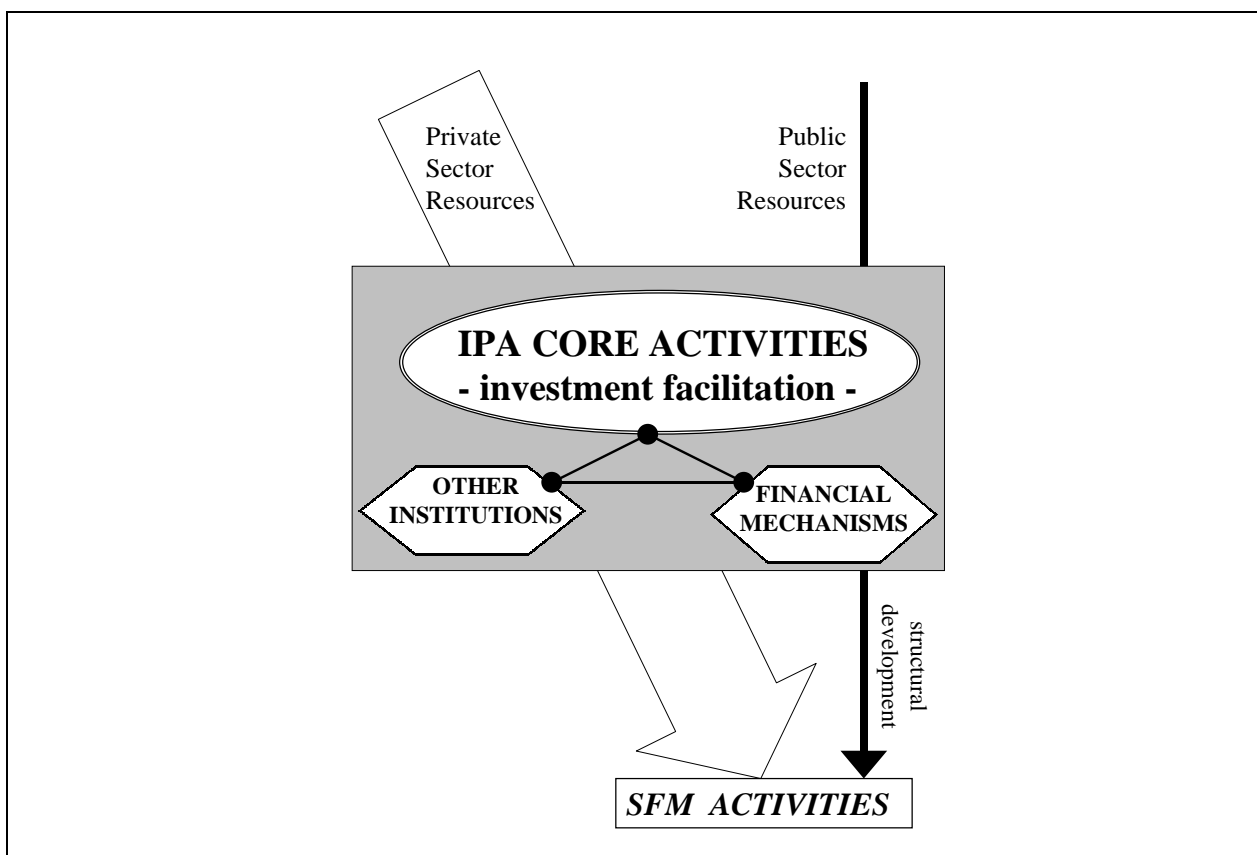
322. Formalised partnership arrangements between the core development partners in a given country aim at providing a mechanism to integrate external aid into the national planning cycles,

and to minimise overlapping programmes. It promotes the efficient participation and increased commitment of all national and international stakeholders involved in the nfp process. It should also ensure that the channeling of funds to development programmes is based on national priorities that are determined through democratic and transparent decision-making processes. A memorandum of understanding between development partners may provide an interim instrument towards more formal coordination mechanisms, such as fpas or similar facilities.

## 8. A PROPOSED NEW FINANCING MECHANISM TO PROMOTE INVESTMENT FLOWS INTO SUSTAINABLE FOREST MANAGEMENT

323. Mobilizing private sector resources has been identified throughout this report as a key component of a global SFM financing strategy. For such mobilization to occur, many of the barriers to investment in SFM activities and operations must be removed or mitigated. Public sector financing, both as bi- and multilateral ODA and from domestic sources, must play an essential catalytic role in this process of barrier removal. In this chapter, a central component of such a role is proposed in the form of an IPA (Figure 8.1). Such an agency would be specifically charged with using public sector resources to leverage private sector financing for SFM investments. Its operations would be primarily at the global level.

**Figure 8.1** An Overview of the Proposed Investment Promotion Agency (IPA)



324. Before describing the IPA in detail, two points are worth stressing. First, the title of an “Investment Promotion Agency” was selected solely so as to represent the main objective of the proposed mechanism (promoting investment into SFM). Use of the word “agency” is intentionally neutral. It should *not* be interpreted as corresponding to any particular structure, size, scope, etc.

325. Second, the IPA is explicitly designed not to play a major role in direct investments of its financial resources at the project level through grants, lending facilities, incremental cost support (cf. the GEF) or any other means. It should not therefore be regarded as a SFM 'Fund' in the traditional sense of the word (see Section 8.5 for further discussion).

326. The ideas and concepts outlined below are intended to provoke thought and stimulate debate and should not be regarded as a definitive model for a global forestry investment promotion body. Indeed, the form and structure of the IPA as presented here are substantially less important than its functions, which are best considered on their own merits and in their own right, and, where appropriate, integrated into existing institutional remits.

## **8.1 Overview of the IPA**

327. The defining *objective* of the proposed IPA will be to mobilise and facilitate financial flows to SFM activities in developing countries.<sup>29</sup> This will be done by capitalizing on existing and potential public and private sector financial resources, primarily at the global level, with a specific view to leveraging higher levels of private sector finance.

328. To this end, the IPA will carry out activities akin to '*innovative investment banking*', using a suite of existing and new innovative financial mechanisms, which are designed to promote investment into SFM (see Chapters 4, 5 and 6). Additionally, the IPA will aim to redirect private sector resources currently flowing into non-sustainable forestry activities, by facilitating access to information and technical assistance, and by promoting the development of necessary financial and regulatory structures. These activities of the IPA, described in detail in Section 8.2, have been identified on the basis of earlier analyses (see Chapters 3 and 7).

329. Inherent to this *private sector-oriented* role is the need for the IPA to be as slim, streamlined, and as efficient as possible, in order to deal with the pace and demands of private sector investors and forest operators, and to avoid large overhead costs. The IPA should therefore have sufficient autonomy to take informed but fast-track decisions that avoid lengthy bureaucratic processes that slow efficiency. At the same time, it should have clear investment guidelines, mandate and remit, so that its activities and decisions are accountable to its constituency and governance structures. These issues will be discussed further in Section 8.3.

330. A menu of three possible *options for the structure* of the IPA is then proposed in Section 8.4 to allow for the preceding discussions on role, activities, and governance to be set within a specific institutional framework. The pros and cons of each of these three options are briefly compared, before a concluding section in which the need for such institutional innovation is outlined as compared to a more traditionally conceived "Forest Fund."

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<sup>29</sup> An interesting development in this regard was the recent announcement that the World Bank was providing technical assistance to Nicaragua in the wake of Hurricane Mitch "to create and operate a Sustainable Forestry Investment Promotion Office for the development of certification of sustainable forestry practices and for the promotion of investment in sustainable forestry and reforestation" in the context of a broader sectoral initiative aimed at building management capacity and reducing market barriers (Nicaragua...1999).

## 8.2 The IPA's Activities

331. To fulfill its objective of facilitating financial flows to SFM activities in the developing world, the IPA will help promote, implement and manage a set of activities which, in combination, will make successful SFM investments possible. These activities are specifically designed to circumvent or remove some of the barriers currently preventing private sector investment in SFM so as to redress the evident paucity of bankable SFM projects.

332. The IPA's *core activity* will be centered on investment packaging and structuring of financial deals for SFM operators, primarily in the private sector. In support of this core activity, the IPA will provide information related to a wide range of SFM investment parameters and identify and promote SFM investment opportunities. The IPA's other main activity will be in providing streamlined access to risk mitigation services and facilities. These four roles, together with the investment barriers they aim to mitigate, are outlined in Table 8.1 and described in detail in following sections.

In addition, there is potential scope for the IPA to play a *contributing role in ongoing structural reforms* in the forestry sector at the international level and at the national level through partner institutions such as UNDP and the World Bank. Its objective in all such structural development activities would be to promote the needs and interests of private sector investors and forest operators. Clearly, there is already a wealth of activity in this field, and the value (if any) that the IPA could add would have to carefully considered. A preliminary analysis is offered in Sections 8.2.5 and 8.4.3.

**Table 8.1 Activities of the Proposed Investment Promotion Agency**

IPA activities	Barriers to SFM investment addressed
Investment packaging and structuring of finance ( <i>CORE</i> )	Incremental costs of transition to SFM activities
	Long-term nature of certain types of forestry investment requiring different types of funding at different stages
	Multiple (disparate) sources of public and private sector funding
	Increasing complexity of financial structures and mechanisms
Information provision ( <i>SUPPORT</i> )	Lack of sector knowledge / misperceptions and misconceptions
	Lack of awareness of available financial services and mechanisms
	Lag-time in commercial response to and awareness of evolving policy agenda
	Paucity of investment experiences in SFM / lack of awareness of investment opportunities
Identification of investment opportunities ( <i>SUPPORT</i> )	Structural difficulties in matching investors and investments, including: divergent commercial attitudes and modus operandi, presentational styles and conventions, language, distance, accessibility, etc.
	Lack of successful partnerships and joint ventures
	Low mutual awareness and interaction between investment community and forest operators (see above)
Risk mitigation ( <i>ACCESS</i> )	Real or perceived country, market, and sector risks
	Risk of negative public perception of forestry investments

333. Although, in this section, the IPA's functions have been broken down and categorised for ease of explanation, in practice they are intended to be carried out as a coherent whole. Indeed, much of the activities described below to an extent rely on their counterpart activities being successfully implemented within the overall IPA structure. This *horizontal integration of mutually supportive activities* within one entity represents the comparative advantage of the proposed IPA, as in this way it will be able to develop a complete understanding of the many facets of private sector investment into SFM and act accordingly using the necessary skills and expertise.

### 8.2.1 Investment Packaging and Structuring of Finance

334. The core activity of the proposed IPA will be to *package investment opportunities and structure financial deals* so as to increase the attractiveness and feasibility of sustainable forestry projects. The rationale for this role lies in the increasing complexity of forestry financing in terms of investment objective, timing, and type, as well as the combination of forest products (or values) invested in. As a result of this complexity, successful sustainable forestry operations will tend to, or often need to, tap multiple financing streams from a variety of sources. This necessity in itself can act as a major barrier to SFM.

335. The IPA would therefore provide streamlined investment brokerage services to facilitate access to the full range of financial resources and incentives available to forestry at the global level, including those channeled through the conventional and innovative financial mechanisms detailed in chapters 4, 5 and 6.

336. Depending on the needs of the investor or the investment, the IPA would bring these various funding lines together as part of a finance structuring service designed to address specific barriers to SFM investment. Such a facility would seek to *attract private sector equity or debt financing* from venture, institutional or portfolio sources, using, where necessary, catalytic public sector or other concessionary funding. In the specialised case of long-term forestry operations, for example, private sector investment might be secured by the IPA through:

- developing innovative mechanisms or investment vehicles to anticipate cash flows (e.g., advanced timber sales, securing timber receivables, carbon offset revenues);
- securing commitments for early, mid, and late stage project investments from a mix of public and private sources, structuring them into a guaranteed project financing package;<sup>30</sup>
- providing streamlined access to appropriate risk mitigation services to facilitate appropriate long-term finance, or equity investments.

337. An integral part of the IPA's investment banking role would be to capitalise on the full range of forest values about which conventional bankers, investors, investees, and investment advisors are often unaware. This particularly applies to values such as biodiversity protection and

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<sup>30</sup> This could be particularly applicable in the context of emerging market commoditization and non-market-based financing mechanisms designed to internalise forest externalities with a view to enhancing and stabilizing the returns on SFM investments. Initial private sector take-up of such mechanisms might be dependent on early stage support from concessionary sources.

carbon sequestration whose benefits are recognised globally and for which accessing the relevant transfer payment mechanisms can be problematic.<sup>31</sup> Such *value added revenue generation for SFM investments* could be carried out through, for example:

- promoting commoditisation or similar approaches (see Section 3.2.4),
- combining finance sourced through market-based and non-market mechanisms,
- optimal marketing strategies such as market niche identification (e.g., through certification), and
- promoting investment in processing infrastructure.

338. In addition, the IPA can mobilise financing for any shortfalls in proposed or potential investments, including those resulting from barriers to SFM not addressed by other IPA activities. This might require the *development of new financing mechanisms*, either for or in collaboration with existing institutions, or using the IPA's own skills and resources. One such mechanism could be an international forestry investment fund with a diversified portfolio, as described in Box 8.1. Other examples include:

- *debt instruments* – e.g., forest bonds, debt-for-nature transactions, securitisation schemes; and
- *equity instruments* – e.g., structuring of specific direct investment deals or joint ventures.

339. More specifically, ways of leveraging additional resources by *addressing obstacles met by existing mechanisms* should be considered. For example, the IPA could promote the development of national-level forestry funds in developing countries, which would be large enough to be publicly listed, and designed to take on ownership of small privately owned companies so as to make available, for example, 'ethical' portfolio investments (Gullison et al. 1998; see also Fact Sheet A/1 in Annex 4).

340. The role played by the IPA in these new developments, or in adaptations of existing instruments, can range from direct in-house management to conceptual development with implementation outsourced to commercial (or public sector) institutions under a franchising arrangement or as a joint venture. 'Softer' alternatives can give the IPA a catalytic role in formulating proposals or recommendations on such issues.

341. In summary, the IPA will *promote, access, co-ordinate with, manage, or create* both conventional and innovative financial mechanisms on a case-by-case basis within an operational framework based on the use of its own in-house information resources, investment banking skills, and other relevant expertise, as well as catalytic concessionary finance to leverage private sector capital and channel it into SFM project implementation and management.

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<sup>31</sup> Project submission requirements can often be complex, laborious, time-consuming, and impractical for forest operators and investors lacking the requisite time, knowledge, or skills. In addition, for many private sector operators, financing mechanisms managed by institutions can have prohibitively long project cycles, whilst market-based mechanisms, especially in the early stages, can carry high transaction costs restricting market access to economies of scale possible for only the major global players.

## Box 8.1 International Forestry Investment Funds

As discussed in the text, a series of real and/or perceived barriers currently dissuade the international investment community from large-scale investment into SFM. These include: lack of liquidity, high risk, low and long-term returns, and the fear of contributing to environmental degradation. An investment vehicle that could address these concerns might have the form of an investment fund listed in stock markets (raising liquidity), investing in a mixed portfolio of different types of forestry projects (spreading market risks), in different countries (spreading country risks), with emphasis in the tropics (increasing overall returns). Such a fund would insist on having inputs on the forest management guidelines and objectives followed by its investments, thereby ensuring its commitment to sustainability. All investments could also be rated for their environmental practices prior to investment.

Investment targets can include undercapitalised companies requiring an injection of capital to shift to more efficient and sustainable forestry practices that can increase profitability and reduce negative environmental impacts. Some such companies might have forest assets either in production or approaching production to ensure early returns.

The fund itself should not have any involvement in the direct management of forest operations. It should, however, facilitate access to technical and marketing assistance. In some cases it may decide to change investee companies' management structure or introduce third party operating contractors.

In order to provide reassurance to investors about the quality of the investment vehicle, such a fund can be sponsored by high profile institutions, which, together, have financial, forestry and environmental credentials. While ensuring commitment to sustainability would be reassuring, investors would ultimately look at the bottom line and the quality of the fund manager in making investment decisions. In this context, the fund should not be dependent on investment by international organizations (such as the World Bank, GEF, etc.) to avoid creating the misconception that profit is not a priority, for the fund's objective would be to provide a profitable portfolio of sustainable forestry operations, attracting the interest of the financial sector. For, only the private financial sector can provide the volume of capital necessary for promoting a real and widespread transition from the current unsustainable to a sustainable forestry paradigm.

It should be noted that the idea for such an investment vehicle has been pursued by, amongst others, Coopers and Lybrand in the UK, and the World Bank with the MacArthur Foundation in the US.

### 8.2.2 Information Provision

342. One of the main deterrents to investment in SFM is the lack of sector knowledge that currently prevails in the investment community. This 'ignorance' about forestry leads to a series of misconceptions which only serve to confuse or discourage investors and those that are trying to promote SFM investment (this is discussed further in Box 8.2). It is therefore essential that investors are informed of the potential rewards that characterise forestry activities and investments, as well as the real risks and issues involved and the range of options for addressing them.

343. One of the key roles of the IPA, in support of its core investment structuring activities, will therefore be to mitigate this knowledge gap by acting as *an information clearinghouse*, providing carefully targeted information to key players in the investment community, including institutional investors such as banks, investment fund managers, fiduciaries, and the insurance industry. The same role could also apply to many direct investors already involved in the forestry sector. Activities to this end might include:

- educational / promotional / awareness-raising campaigns through a variety of media to specific audiences;



- organization and coordination of investors' conferences, workshops, fora, and strategic meetings; and
- collation and dissemination of information on case studies.

## Box 8.2 Perceptions & Misconceptions about SFM Investments

The most basic source of confusion relates to the very type of forestry being talked about, which might be pulp and paper, plantation management, national forest management, conservation, or downstream processing. These and other subsectors that comprise the term 'forestry' may be further qualified by differences between tropical and temperate forestry, sustainability issues, and operators' motives and *modus operandi*.

All these types of forestry can have very different dynamics, investment requirements, and risk : return profiles. However, due to potential investors' lack of specialist knowledge, all forestry activities tend to be lumped together, or unfavorably compared. Exacerbating this confusion are other perceptions relating to different aspects of forestry investments. These include:

- *Long-term nature* – It is often perceived that forestry investments generate returns only over the long-term, which when coupled with the discount rates typically used in the private sector, serve to dissuade investors. However, many resource management and utilization activities, particularly in the tropics, can provide short-term cash flows. Examples include: national forest management agroforestry schemes with a diverse range of products, returns, and time-frames; and fast growing plantations, with rotations as short as 6 years (Ruzicka & Moura Costa 1997).
- *Low financial returns* – Although in temperate regions returns tend to range from 2-8 percent real, much higher returns can be achieved from sustainable tropical forestry operations, reaching up to 20-25 percent return on investment (EcoSecurities, internal document).
- *Lack of liquidity* – This is currently the case with many direct investments in forestry companies but can be addressed by creating investment vehicles with higher liquidity, such as funds listed on the stock market (see Box 8.1), or issuing of forest bonds (Haltia et al. 1997, Mansley 1996).
- *Negative environmental impacts* – Past stock market experience with international logging companies has left the residual perception that all tropical forestry is unsustainable (Campanalle, personal communication). Mechanisms such as environmental due diligence and rating or independent certification of forest management standards (Upton & Bass 1995) can reassure the market and its observers that investments can be done responsibly.
- *Exposure to country and market risks* – A wide variety of risk mitigation facilities and strategies are available, although the problems are often complex and can represent a major barrier to SFM. This

344. The quality of these outputs is entirely dependent on the quality of the IPA's information 'inputs'. These should include: current policy and market developments in different host countries; sectoral financial performance trends (Gentry 1996); current status of global market demand and prices for forest goods and services; commercially successful SFM operations; and available financial mechanisms and investment vehicles characterised by investor needs, risk : return profiles, operational strategies, etc.

345. The magnitude of this informational role makes it imperative that the IPA builds on or dovetails with existing initiatives in this field. With regards SFM case studies, for example, FAO, ITTO and the MDBs (e.g., the World Bank-MacArthur Foundation) have already collated a substantial corpus of knowledge. The IPA might add value to such information, often expressed in

<sup>32</sup> In effect, this would constitute investment pitches but from an independent and highly-respected source.

gray literature, by 'translating' it into a 'legible' and relevant form to the private sector and ensuring its dissemination to a much wider audience via, for example, newsletters, the financial press, and trade associations.<sup>33</sup>

### 8.2.3 Identification of Investment Opportunities

346. Another major factor that limits financial flows into SFM is investors' lack of capacity to identify *appropriate investment opportunities*. This investment barrier is strongly related to the points made above regarding the information shortfall. However, for foreign investors in particular, it has a more specific dimension relating to barriers of distance, understanding, convention, language, and experience. In particular there can often be a perceived disjunction between the investment requirements of an investor and those of a project manager or forest operator.

347. The IPA will seek to address this disjunction, in support of its core investment brokerage role, through a range of *activities* designed: to connect up investors with investment opportunities, and, to ensure the requirements of both the investors and the investment are presented in a mutually compatible way. Broadly speaking, these activities will focus on providing technical assistance for, or working directly with, investors and those managing or putting together potential investments. Specific outputs might include:

- pre-investment feasibility studies,
- packaging and presentation of investment opportunities in appropriate fora, and
- information dissemination and marketing.

348. An interesting precedent for a comparable type of marketing role lies in MIGA's Investment Marketing Services Department whose services include the dissemination of information on investment opportunities, business operating conditions, and business partners through the *IPAnet*, an on-line investment marketplace (MIGA 1998). With this in mind, any additional marketing services should only target those areas where lack of investment knowledge can be identified as a major barrier to investment.

349. MIGA also seeks to build capacity in developing countries to attract and retain foreign investment directly. This relates more closely to a potential bottom-up strategy that should be undertaken by the IPA to inform those seeking investment of the opportunities within the international investor community, and to provide channels through which these opportunities can be realised. Such a strategy could be integrated into strategic sectoral developments such as the nfp process (see Section 8.2.5).

### 8.2.4 Risk Mitigation

350. Perhaps the most significant barrier to investment in the forestry sector is risk (see Box 8.3). Such risks can be either real or perceived. Perceived risks can largely be addressed through the dissemination of information and experience (see Sections 8.2.2 and 8.2.3). Genuine risks,

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<sup>33</sup> In effect, this would constitute investment pitches but from an independent and highly respected source.

however, require mitigation through a wide range of services provided by existing public and private sector institutions operating on the global stage.

### **Box 8.3 Risks in the Forestry Sector**

*Country risks* – Tropical forestry investments in particular can be in countries rated with high political risks.

*Sector risks* – Inherent to forestry activities are a series of risks that are exacerbated by the long time-scales of forest growth and the resultant irreversibility of investments therein. Natural risks include: natural disasters (e.g., fire, droughts, landslides, floods), insect attack, climatic instability, negative environmental impacts through potential conflict between the provision of different environmental services. Anthropogenic risks include: encroachment, illegal logging, conversion to other land-uses, policy shifts.

*Market risks* – demand/supply imbalances and price fluctuations; readily available substitutes for wood products; conflicting policy drivers for forest products; changes in market preference; susceptibility of global and country demand to public pressures (see below).

*Public perception risks* – Although this is really a subset of market risks, negative public perception of certain types of forestry activities, particularly logging in natural forests, can be significant in itself in creating marketing or operational problems. An example is a growing selectiveness of the general public in relation to the source of timber products, such as observed in the FSC process, the creation of timber buyer groups, etc. (Nussbaum et al. 1996, Crossley et al. 1998). This can reduce the attractiveness of forestry projects to the investment community.

351. It is not for the IPA to duplicate these services. However, as risk mitigation must be tightly coupled with and complementary to the IPA's role in investment packaging and finance structuring, the IPA should provide *streamlined access for its clients to the necessary specific and generic risk mitigation and investment guarantee services*, including:

- multilateral risk mitigation schemes (e.g., based on MDBs' collateral);
- bilateral risk guarantees using concessionary finance (e.g., through bodies such as Overseas Private Investment Corporation);
- partial risk guarantees covering debt service defaults on a project loan due to a government's failure to meet its contractual obligations, including forest sector-specific policy guarantees (World Bank 1998);
- commercial risk underwriting;
- risk ratings and due diligences from financial, social, and environmental perspectives (Gentry 1997); and
- certification (to increase project's credibility to the general public and thus, the investment community).

352. In addition to managing access to these existing mechanisms and the risk mitigation service they provide, where necessary, the IPA can also:

- facilitate or mediate multiple objective public-private investment partnerships;
- broker and develop new and innovative investment insurance schemes; and

- create investment vehicles based on diversified portfolios to spread risks (see Box 8.1).

353. As suggested, there are numerous precedents in this field, some of which are directly applicable to forestry, and others that need adapting. In particular, the World Bank Group's potential role should be examined, as well as those of the regional development banks, existing commercial private sector risk underwriters, and insurance companies.

## 8.2.5 Structural Development

354. The importance of removing structural barriers to SFM investment, particularly those relating to systemic market and policy failures at both international and national levels, was addressed in Chapters 3 and 7. The onus of removing these barriers lies predominantly on the public sector, both domestic and foreign, which have a range of funding sources and instruments at their disposal (see Chapters 4 and 7).

355. The *additional structural development role* for the IPA as proposed here would be explicitly designed to complement not substitute for this ongoing process of barrier removal. It should be stressed therefore that the IPA does not represent new financing for policy, legal and institutional development and reform.<sup>34</sup> *When demanded and where appropriate*, however, the IPA could provide targeted input to ensure that the numerous proposed and ongoing structural development activities taking place throughout the developing world are fully attuned both to the rising importance of private sector financing for sustainable forestry operations and to the nature, requirements, and implications of these financial flows.

356. Examples of *IPA interventions* might include:

- an advisory role on private sector requirements in development of nfps or other national-level strategic forest-sector plans;
- training and technical support for institutional and market developments relating to private sector SFM investments, e.g., development of securities markets, and appropriate listing provisions on stock exchanges (Gentry 1996); and
- provision of management or consultancy teams to set-up or streamline public-private interfaces such as national forestry investment offices (see e.g., Nicaragua 1999 among others).

357. There is already substantial work being done in this area at both international and domestic levels. IPA activities (and the additional value they provide) would therefore be implemented through *partner institutions* such as UNDP, the World Bank, FAO, and bilateral development agencies, in those countries where a requisite degree of receptiveness to private sector financing had been prior identified. As an example, the IPA could work with the World Bank, IMF, and

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<sup>34</sup> Implicitly, therefore, the criticisms made by some commentators on the mobilization and application of ODA funding, as well as public sector activities in developing countries, remain equally if not more valid (e.g., Oksanen et al. 1996; Simula 1996; Oksanen 1998).

other development banks, in developing structural environmental adjustment programmes for developing countries' forestry sectors.<sup>35</sup>

### **8.3 Operationalising the IPA**

358. In this section, four main issues concerning how the IPA might be operationalised are addressed. In all cases, resolving these issues would be far more than just procedural. Solutions found could largely define the whole nature of the IPA and how it implements its constituent activities. As before, the purpose of this section is not to prescribe answers, but to raise pertinent issues and, where appropriate, suggest possible options as a basis for further consideration.

#### **8.3.1 Governance**

359. The IPA would be accountable to a governing body comprising representatives from both the donor community and developing countries.<sup>36</sup> Representation would be encouraged from all stakeholders, including governments, private sector and other industry bodies, and the NGO community.<sup>37</sup> The governing body, in turn, could be free-standing, accountable to the CoP of a future Forest Convention, or nested within the architecture of the World Bank group. The governing body would be responsible for developing and adopting overall terms of reference, within which the IPA would operate under autonomous management. These terms would include:

- broad definition of IPA role and activities to be undertaken, including financial and other services to be provided,
- investment guidelines and criteria (see below),
- operational policies and guidelines, and
- administrative rules.

360. Once the IPA is fully operational, the governing body would have the responsibility of carrying out periodic performance-oriented reviews of the IPA's annual reports, and appointing independent auditors. In addition, the governing body would set guidelines for the allocation of future IPA-generated operating revenue, as well as managing the disbursement of the donor community's initial startup budget, ruling on outstanding administrative questions such as location, staffing levels, salaries, etc.

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<sup>35</sup> Such forestry sector adjustment programmes might, for example, constitute conditionalities for the World Bank/IMF lending (and would nest within the broader conditions and terms).

<sup>36</sup> As an example, the governing body might consist of a council and secretariat, headed by an executive director. An advisory panel for technical forestry or financial issues might also be required.

<sup>37</sup> The balance of executive or 'voting power' between developing and developed countries, or between different stakeholder groups lies outside the remit of this report. There are, however, numerous interesting studies on this issue and its implications for the exercise of governing authority (e.g., Yamin 1998).

### 8.3.2 Investment Guidelines

361. One of the key functions of the IPA's governing body would be to adopt a series of strategic investment guidelines and criteria that are flexible enough to evolve alongside changing SFM agendas or investment circumstances. Such guidelines would play a crucial role in sending appropriate signals to the private sector investor community as to the acceptability of different types of forestry activity.<sup>38</sup> In this regard, the full range of forestry activities, including downstream processing, agroforestry, and management of natural forests and plantations should be considered for all forest types.

362. The IPA's investment guidelines should be related to both financial and technical (forestry) matters and should address the following:

- What type of investments and investors are eligible for the IPA's services?
- What types of forestry activities are eligible for the IPA's services?
- Should any type of forestry activity be excluded by the IPA from catalytic concessionary financing?

363. The guidelines should also address forestry, environmental, social and equity issues, drawing on the existing sets of principles, C&I for SFM (particularly those associated with certification), as well as the environmental and social guidelines of the international financial institutions (see also Nussbaum et al. 1996).

364. The investment guidelines must tread a fine line between the opinions and obligations of the public sector which underpin the IPA's legitimacy, and the needs and interests of the private sector whose harnessing to SFM is the IPA's ultimate goal. In this sense, excluding a certain type of activity might, in the end, do more harm than good if private sector involvement remains on an unsustainable footing.

### 8.3.3 Equity Issues

365. Three equity-based issues will likely be raised in the context of the investment and operational guidelines of the IPA. These are:

- (i) *Political equity* – the need to respect the national sovereignty of all parties involved;<sup>39</sup>
- (ii) *Distributional equity* – the need to distribute the IPA's resources equitably amongst all developing countries;<sup>40</sup> and

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<sup>38</sup> As discussed in Section 7.4.3, currently the signals from the World Bank group, and particularly the IFC, create poor perceptions of NFM amongst private sector investors.

<sup>39</sup> The strength of opposition in the developing world to the OECD's proposed Multilateral Agreement on Investment was testimony enough of the need to ensure the IPA's investment facilitation activities are carried out in concert with, and not irrespective of, developing countries own actions in this field.

<sup>40</sup> Foreign private sector investments (both direct and indirect) are concentrated in a select group of 25-30 developing countries, of which 12 have absorbed around 80 percent of total flows since 1990 (ODI 1996). Most LDCs, particularly in Africa, are almost completely excluded.

- (iii) *Societal equity* – the need for the IPA's services to be equally accessible to all investors and investees including small-scale forest users and managers.

366. It is important that the mechanisms and practices which are used to ensure these equity considerations are duly addressed do not themselves become barriers to the IPA's operations which should be primarily concerned with leveraging and channeling private sector finance into SFM, and could be compromised if operational efficiency, based on clear assessments of market and investment opportunities, is constrained by equity requirements.

367. It would be more appropriate for the IPA to address resource distribution issues by promoting suitable investment conditions through partner institutions' structural development work in host countries. This in turn would create positive incentives for developing countries to work towards removing market, policy, and institutional barriers to SFM investment, so as to benefit from private sector resources mobilised by the IPA. In this way, selective targeting of the full range of IPA activities could be used to build long-term capacity in developing countries' forestry sectors so as to redress inequitable resource distribution patterns

#### **8.3.4 Affiliated Institutions – the Bottom-up Complements**

368. The proposed activities and structures for the IPA have been focused almost entirely at the global level as the IPA itself is conceptualised as a global institution. In order to carry out its activities successfully, however, the IPA will have to *access the resources* of affiliated institutions at national and local levels. Such institutions might include chambers of commerce, federations of industry, NGOs, CBOs, investment agencies, local business groups, environmental funds, forestry departments, and local governments. Interactions between the IPA and these decentralised institutions will primarily be information-based, facilitating IPA activities such as the identification of investment opportunities (see Section 8.2.3).

369. However, there is substantial scope for further *collaborations* in the context of forestry financing mechanisms (e.g., environmental funds, and SME credit lines – see Annex 4), structural development processes, marketing fora, investor mobilization, investment barrier identification, targeted catalytic financing, etc. In particular, bottom-up input into IPA activities from national and local noncommercial entities, including financial intermediaries and NGOs, is essential to ensure that the IPA's services are open to smaller-scale investment actors.

370. Interfacing the global remit of the IPA with national and local requirements and characteristics will benefit from *institutional networks* that can provide greater economies of scale. The nature of already existing networks that could support IPA activities will vary from country to country and region to region. In some cases, the IPA will be able to piggyback on well-established information channels. In others areas, the IPA's core activity might be to promote the development of appropriate networks through partner institutions. Clearly, this type of institutional and informational capacity building would not solely benefit the IPA in its work activities but would constitute an important strategic development in the country in question's forestry sector.

## 8.4 The IPA's Structure and Funding Requirements

371. In this final section, a menu of three alternative institutional structures for the IPA is proposed, each with a ballpark estimate of associated funding requirements. The first structure is presented in detail, allowing the descriptions of the remaining structures to focus mainly on their points of difference with the first. This menu format is designed to allow different components of each structure to be cross-evaluated, and then selected or deselected depending on their comparative advantages. A graphical illustration of the three structures is also given in Figure 8.3.

372. Ultimately the IPA's structure will be defined by the international community's conceptualization of the activities the IPA should carry out, how it should operate, and therefore the resources needed for its establishment and operation. With this in mind, the following institutional issues should be considered in the context of the three alternative structures:

- *governance* – degree of influence or control exercised by the different IPA stakeholders (see Section 8.3.1);
- *administrative and management requirements* – related to the size or scale of the IPA and its internal costs;
- *scope of activities* – degree to which IPA activities are carried out in-house, under contract, or outsourced but coordinated and managed internally;
- *agility* – efficiency of IPA in carrying out its activities, particularly in responding to private sector requirements, e.g., in terms of project cycles, transaction costs, disbursement times, etc.

### 8.4.1 Structure I

373. Under structure I, the IPA itself would be a comparatively *small institution* whose in-house expertise and skills would be concentrated in the areas of *investment banking, financial packaging and structuring, marketing, and insurance*. This would be coupled with an information gathering, collation, and distribution facility designed to establish IPA-1 as the hub of a network of information, experience, and expertise on forestry investors and investments<sup>41</sup>, enabling IPA-1 staff to coordinate, mediate, and ultimately manage a wide range of investment promotion activities aimed primarily at the private sector.

374. As IPA-1's size and budget would be fairly limited, it would depend on partner institutions with the necessary resources to provide some of the required financial services. Risk mitigation, for example, could be provided by commercial or multilateral development banks, risk guarantee agencies, or insurance companies. Such services would be carried out under contract to IPA-1, and subject to IPA-1's terms and conditions. Such contractual arrangements could be negotiated in advance and subsequently made statutory (rather than being agreed on a case-by-case

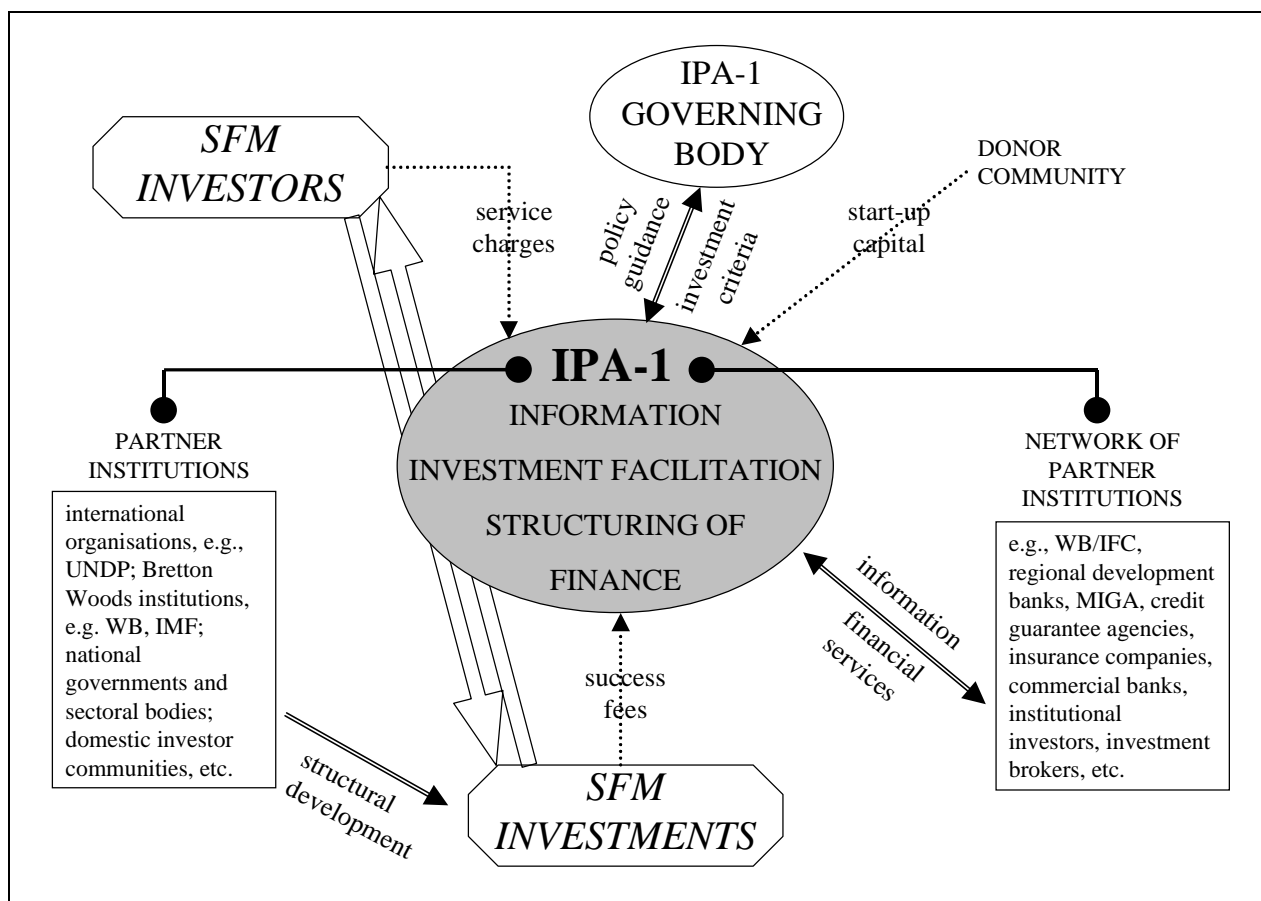
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<sup>41</sup> The IPA-1 database might include information on: past and proposed sustainable forestry projects; financial mechanisms and instruments, with application procedures and criteria; contact people or institutions from global to national levels; possible investment partners or financiers; project-level investment requirements including relevant aspects of policy and fiscal regimes, etc.



basis) so as to provide an optimised 'fast-track' service for IPA-1 clients in partner institutions.<sup>42</sup> However, this would be contingent on the level of correspondence between IPA-1's investment criteria and guidelines, and those of the partner financial institutions.

**Figure 8.3 Proposed Structure for IPA-1**



375. In this way, IPA-1's financial expertise and informational capacity would form the basis of a comprehensive *investment facilitation service*. Its role would be to identify the various components required for any given investment, and then manage the provision of those components from either internal or external sources (including innovative financial mechanisms). IPA-1 would then bring these individual components together into a structured financial package, tailored to the needs of the investors or the investments.

376. Such activities would enable IPA-1 to clearly identify any deficiencies in the SFM financing architecture, and to develop, where appropriate, financial instruments to address those deficiencies. As described in Section 8.2.1, such development could involve anything from con-

<sup>42</sup> This type of arrangement would greatly enhance partner institutions' understanding and experience of sustainable forestry investments. This type of facilitatory role might then become incorporated into the respective institutions' work remit outside and above any contractual arrangements with the IPA.

ceptualisation, to promotion and implementation, and even direct management of investment vehicles.

377. To carry out all its activities under the structure outlined above, IPA-1 would require an initial budget in the order of tens of millions of U.S. dollars to set-up the necessary informational infrastructure and provide working capital to initiate operations.<sup>43</sup> Following this capital outlay, IPA-1 could potentially become self-financing, by charging appropriate investment facilitation fees depending on the extent of the service provided (see Figure 8.2). Such fees could be made conditional on investment success, projected profit margins, or some other formula.

## 8.4.2 Structure II

378. Under structure II, the IPA-2 would be similar in size and scope to IPA-1, but would exist not as a single autonomous unit, but *as a series of franchises housed in existing institutions* with the necessary expertise to promote private sector financial flows into SFM (see Figure 8.3).

379. The terms of the franchise would be defined by IPA-2's governing body as a set of required activities framed by appropriate guidelines and policy criteria. Broadly speaking, the activities comprising the franchise would be similar to those described in the context of IPA-1. The franchises could then be offered as contracts to selected institutions, or could be put out to competitive tender. In this way, institutions could bid for the franchises either individually, or in partnerships or as consortia, thereby pooling the necessary skills and expertise.

380. How the IPA-2 franchises are implemented would be left up to the host institutions, subject to approval and review by the IPA-2 governing body. In effect, IPA-2 would operate as a range of SFM investment facilitation windows that could be added to the financial services already offered by existing institutions in both the commercial and public sectors.<sup>44</sup> These institutions could be focused at global, regional, or national scales, and might include:

- bilateral and multilateral public sector financial institutions – e.g., WB, IFC, MIGA, etc.,
- regional development banks – e.g., IDB, AsDB, AfDB, etc.,
- commercial banks, investment funds / brokers, insurance companies, and
- national forest / environmental investment funds, e.g., FUNBIO, Fonafifo.

381. A small standing *secretariat* supporting the governing body could provide coordination between the various IPA-2 franchises. This coordinating role would focus on exchanging information and experience between the host institutions. In this way, the centralised informational role of IPA-1 would be decentralised over a network, although it is likely that the benefits derived from integrating synergistic investment promotion activities within one body would be lost. In

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<sup>43</sup> IPA-1 staff could be recruited from financial institutions in the private sector, such as commercial banks or investment funds, or alternatively seconded from appropriate multilateral organizations, such as the IFC.

<sup>44</sup> Various institutions such as the WB and IDB already have experience of opening private sector-oriented windows (the IFC and IIC respectively).

addition, the secretariat could provide policy, investment or other guidance as and when requested by a franchise.

382. IPA-2 would require an initial budget similar to that of IPA-1 to finance the development of the franchise, the tendering process, and the setting-up of a small coordinating secretariat. Once operational, the franchises would be run as commercial ventures by the host institutions and would be self-financing according to each institution's preferred strategy. The coordinating secretariat's small operational budget could be met by charging administrative fees to the franchise host institutions for any services rendered. In this way, budgetary demands on the donor community would again be principally confined to the initial capital startup costs.

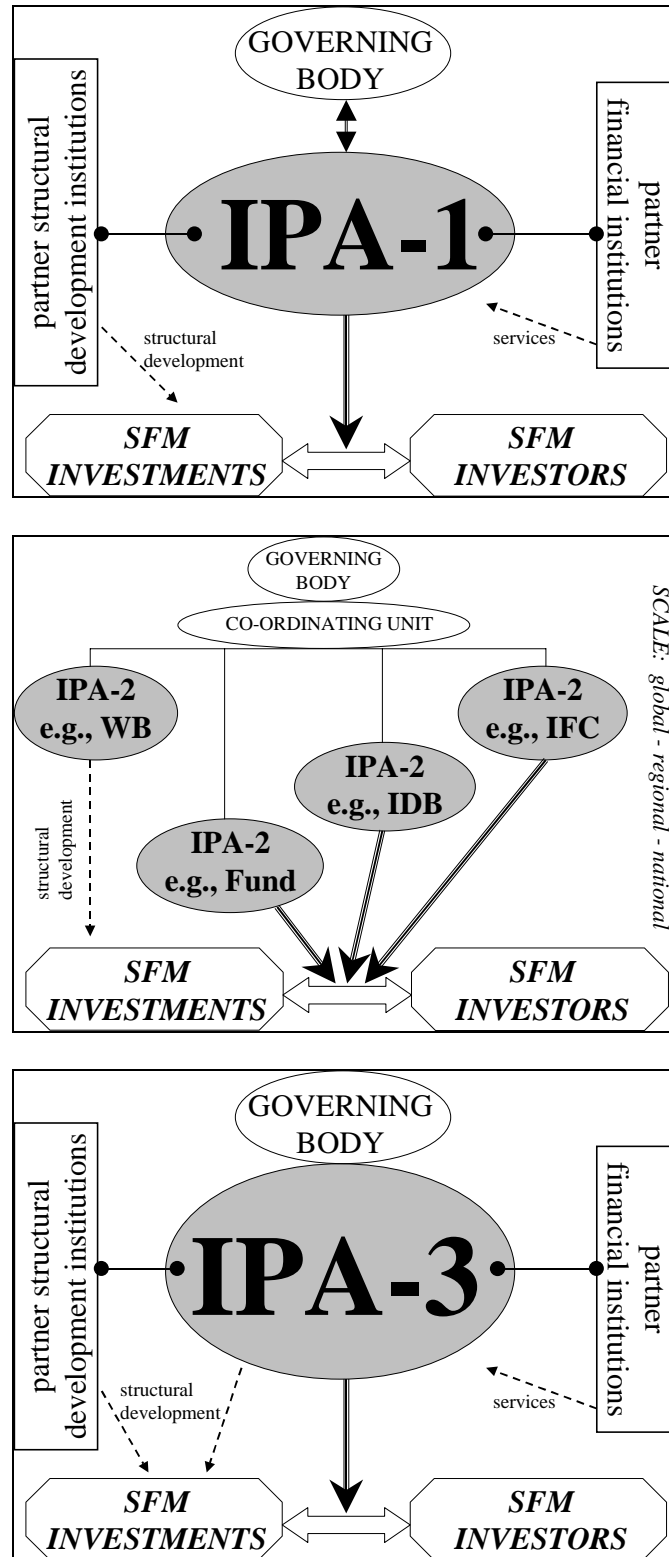
### 8.4.3 Structure III

383. IPA-3's informational capacity, internal expertise, and role in managing the provision of *financial services* (particularly investment packaging and financial structuring) would be comparable to that of IPA-1. However, a more substantial initial capitalization together with a sustained resource contribution from the donor community would allow for an expansion of its *structural development activities*. The limited, reactive advisory role of IPA-1 in this field could become a more proactive management role. IPA-3 could directly interface with national strategic planning, market and policy reform processes in the forestry sector through its partner institutions. For example, IPA-3 might coordinate or host investors fora within the context of an nfp process. But IPA-3's expertise could also be made available on a more ad hoc basis through in-house or contracted management teams, whose role would be to complement other IPA-3 activities by, for example, developing institutional capacity for national forestry investment offices, or providing, at concessionary rates, training, technical assistance, or other advisory services. The experience and information gained by this type of activity would then feed directly into the work carried out in the context of IPA-3's other core activities.

384. In carrying out such activities, IPA-3 would be serving as a conduit for bi- and multilateral concessionary financing for sustainable forestry, ensuring foreign public sector resources were disbursed efficiently for optimal leverage of private sector financing for SFM. The benefits of such a coordinating role would include: avoided duplicated effort; channeled resources into key areas; and streamlined ODA disbursement time and costs, etc.

385. Of the three proposed IPA structures, IPA-3 would most closely resemble that of a financing facility. As mentioned, inherent to such a role are higher initial and operational budgets. The initial capital outlay required for setting up IPA-3 would be in the order of hundreds of millions of U.S. dollars. In addition, resources would have to be guaranteed by the donor community over the long-term to sustain IPA-3's expanded structural development role and other activities. Operating revenue would still be generated, as in IPA-1, through administrative charges and success fees.

**Figure 8.3 Three Options for the IPA's Structure**



#### 8.4.4 Comparative Assessment of IPA Structures

386. Table 8.2 summarises the differences in the scope of activities carried out under each of the three proposed structures (see also Figure 8.1). The IPA-1 structure is used as the point of reference. Table 8.3 provides a brief comparative assessment of the three proposed structures against a range of criteria, which are grouped under:

- *Operational* – relating to how the IPA carries out its activities / day-to-day management; and
- *Administration and governance* – relating to the administrative requirements of the IPA and the relationship between the IPA and its governing body.

387. It is inappropriate to assess in detail three optional structures for a proposed hypothetical institution. The comparative assessment presented in Table 8.3 is therefore only an initial step. A proper assessment can only be made when viable options have been further conceptualised.

#### 8.5 Conclusions

388. To summarise, the IPA's primary purpose is to *leverage global private sector financing* by carefully targeting public sector resources at removing structural and operational barriers to private sector investment in SFM. To this end, the IPA would provide a range of *information-based and financial services*, which include investment packaging and structuring of finance, identification of investment opportunities and information dissemination, and risk mitigation. In terms of the IPA's institutional arrangements, these “investment brokerage” services could either be housed in an existing or new institution, or could be delivered through decentralised “franchises”.

389. It should be stressed that the IPA constitutes but one component of a comprehensive financing strategy required at the international level. This strategy is laid out in detail in Chapter 7. As such, the IPA should not be read as a panacea to the problems of forest financing. In particular, its successful functioning is conditional or even dependent on appropriate investment environments being in place at both international and national levels. In turn, this entails addressing an array of outstanding market and policy failures in the forestry sector, for which the potential direct contributions of the IPA would likely be limited (although this is less so of the proposed IPA-3 structure with its expanded structural development activities - see Sections 8.2.5 & 8.4.3).

390. This logic raises the question of whether an *international 'Forest Fund'* is needed to channel and co-ordinate the disbursement of existing or additional ODA in redressing sectoral failings. This would be particularly pertinent were a legally-binding international agreement on SFM to be signed (see Section 7.4.3). Such a fund would likely be conceived along the lines of a multilateral financing institution (for which many precedents exist), and would be designed to support ongoing national structural development processes embodied by the nfp (see chapter 7.5.2). The sources of financing for such a fund would have to be based on arrangements that are sustainable and not subject to short-term political decisions related to ODA. Appropriate modalities for such an arrangement are difficult to visualise.

391. With regards direct involvement in project-level operations, the *scope* of such a fund would likely be limited, as it is with the IPA. However, the fund might potentially focus on countries and types of activity which are not likely to be covered through the proposed strategies in this study, and the range of existing conventional and innovative financing mechanisms. Such 'niches' may include support to ensure that forest-dependent people are provided with alternative livelihoods and sources of income when needed, the management of protected areas or other non-commercial forests, adequate monitoring of SFM achievements at the national level, or the mitigation of various structural barriers to SFM (Ljungman, personal comment). Another potential role might be to support the initial steps of predominantly privately funded ventures within the framework of national forest utilisation strategies (Gordon, pers. comm.). In particular, such a role could provide the necessary incentives for private sector take-up of those market and non-market-based financing mechanisms which are designed to internalise forest externalities with a view to boosting and stabilising the returns on SFM investments over the long-term.

392. In all these areas, the potential *synergies* of such a fund with the IPA are considerable, especially in those countries where sufficient preconditions for private investment in SFM exist or can be easily created. But such synergies apply more broadly to the existing multilateral financing institutions, and particularly the World Bank group (pending the review of its forest policy - see section 7.4.3).

393. Indeed, the analysis within this report suggests that a traditionally-conceived forest fund would largely duplicate the facilities and roles of institutions and financing mechanisms already active at both international and national scales. As has been stressed throughout, there is a clear need for better *coordination* and more careful *targeting of available concessionary financial resources*, as well as institutional reforms such as those recommended in chapter 7. Whether a new forest fund could add value to this process should be carefully considered with regard to its potential role in mobilising additional funding and in addressing potential caveats.

394. In the same context, the complementary role that could be played by the IPA within the comprehensive global forest financing strategy described in chapter 7 should be recognised. The IPA's private sector orientation and horizontally-integrated financial and information-based services represent a potential *institutional innovation* in terms of how concessionary finance can be more effectively used. This in turn could serve to leverage significant private sector financial flows into acceptable SFM activities and operations.

395. Finally, it needs to be recognised that, if the concept of IPA is further explored, a comprehensive *assessment of actual and future private sector financing needs* in SFM-based activities should be carried out, taking into account the strong promotional effort which is needed to transform current investments in UnSFM into SFM activities.

**Table 8.2 Comparison of the Scope of Activities within the Three Proposed IPA Structures**

Structures ▸ ▼ Activities	IPA-1	IPA-2	IPA-3
<i>Investment Packaging and Structuring of Finance</i>	investment brokerage, packaging, and structuring all managed in-house with partner institutions contracted to provide specific services where necessary (e.g., risk mitigation)	as IPA-1 but possibility that investment brokerage services are spread out amongst franchises according to host institutions' fields of expertise, and coordinated by overarching IPA Secretariat	as IPA-1 but with more scope for development and management of new investment vehicles to address financing shortfalls
<i>Information Provision</i>	comprehensive in-house information gathering, handling, and distribution system encompassing the full range of SFM and investment/financial data	as IPA-1 but scope of data coverage probably limited by terms of reference of host institutions – possibility of specially-designated information resource bodies within a franchise	as IPA-1 but with more institutional network & capacity building at national and local levels (coupled to structural development activities)
<i>Identification of Investment Opportunities</i>	investor-investment linking service coupled with information provision role (see above) and investment presentation / marketing – some scope for technical assistance in pre-investment feasibility studies	as IPA-1 but may be limited to host institutions' own fields of expertise (e.g., in certain types of SFM activity) – limited technical assistance role	as IPA-1 but more extensive bottom-up networking (see above) allows expansion of technical support for pre-investment feasibility studies and investment presentation
<i>Risk Mitigation</i>	provided under contract by partner institutions	as IPA-1 but possibility that franchise holder might offer some of the required risk mitigation services	as IPA-1 but also development of sector specific instruments
<i>Structural Development</i>	largely a reactive (as and when requested) advisory and consultancy role in ongoing processes	contingent on host institutions' role (or mandate), operational policies, and remit	more proactive managerial role – could involve using technical teams to address structural deficiencies identified through other core activities – possibility of playing some coordinating role in ODA disbursement

**Table 8.3 Comparative Assessment of the Three Proposed IPA Structures**

<b>OPERATIONS</b>	<b>IPA-1</b>	<b>IPA-2</b>	<b>IPA-3</b>
Scope of activities	Medium - focus on score investment brokerage services	dependent on host institutions (see Table 8.2)	medium/extensive - structural development through partner institutions
Potential for direct investments	low	low/medium, though IPA activities could complement other direct investments of host institutions	medium - if necessary through new financing mechanisms targeted at specific shortfalls
In-house capacity	medium - predominantly financial expertise	likely to be low for full range of activities but would benefit from existing capacity of host institutions	high - includes advisory or management teams as well as investment brokers
Capacity to develop own financial mechanisms	high	high, but dependent on host institutions	high
Capacity to manage own financial mechanisms	medium - more likely to be outsourced	high, but dependent on host institutions	high
Integration of IPA activities (internal coordination)	medium/high	low/medium – depends on the role of coordinating Secretariat and nature of the franchises	high - significant potential synergies between structural development work and investment facilitation services
Outreach capacity	low/medium	medium/high	high/medium if constrained by the mandate of the host institution
Agility*	high - small compact institution	potentially high but dependent on host institutions	medium/high if addressed in the statutes
Managerial autonomy	high - within operational framework set by governing body	dependent on host institutions	low/medium - due to greater political sensitivity some structural development activities and ODA disbursement
<b>ADMINISTRATION AND GOVERNANCE</b>	<b>IPA-1</b>	<b>IPA-2</b>	<b>IPA-3</b>
Startup budget (public sector)	tens of millions of dollars	tens of millions of dollars	hundreds of millions of dollars
Operational budget (public sector)	low – intended to be largely self-financing through fees/charges for services	low – mainly to support coordinating Secretariat	medium/high – depends on scope of structural development activities - could also serve as conduct for ODA resources
Internal costs (e.g. staff requirements)	low/medium (see under agility)	low	medium/high

**Table 8.3 (con't)**



<b>ADMINISTRATION AND GOVERNANCE</b>	<b>IPA-1</b>	<b>IPA-2</b>	<b>IPA-3</b>
Direct influence of governance on management / financing decisions	low	low but to follow the rules of host institutions	medium/high
Credibility**	to be earned (though if hosted within an existing institution, dependent on its credibility)	high (assuming franchises are granted appropriately)	to be earned (though if hosted within an existing institution, dependent on its credibility)

\* Agility refers to the IPA's effectiveness and efficiency in dealing with its private sector clients and includes, for example, the speed of response or disbursement of funds.

\*\* Credibility refers to the way in which the IPA is regarded by the investor and investee communities, and whether it is seen as a viable or favorable institution with which to become involved or do business. Credibility is usually earned, but can also be bestowed by virtue of a new institutions' associations (as is the case with the IPA).

## REFERENCES CITED

- Aho, M. 1999. *Towards Sector Support to National Forest Programmes*. Discussion Paper 15.1.1999.
- Alves-Milho, Serafin Filomeno. 1996. *Dinámica del Sector Forestal en Nicaragua 1960-1995*. ESECA/UNAN-FARENA/UNA. Managua.
- Anderson, V. 1994. *Paying for the Forests. Proposals for the Abolition of "Ecological Debt"*. London: New Economics Foundation.
- Asad, M. 1997. *Innovative Financial Instruments for Global Environmental Management*. World Bank Environment Department. GEF Coordination Unit. September 1997.
- Banco Interamericano de Desarrollo. 1997. *Informe anual sobre el medio ambiente y los recursos naturales 1997*. Washington, D.C: Divisiones de medio ambiente y recursos naturales.
- Barbier, E.B., J.C. Burgess, J. Bishop, and B. Aylward. 1994. *The Economic of Tropical Timber Trade*. London: Earthscan.
- Bayon, R. & C. Deere. 1998. *Financing Biodiversity Conservation: The Potential of Environmental Funds*. Washington, D.C: IUCN – the World Conservation Union. (Draft May 18, 1998).
- Borges, J.L. 1956. *Funes el Memoriso, in Ficciones*. Buenos Aires: Emece Editores, S.A.
- Boscolo, M. and J.R. Vincent. 1998. *Promoting Better Logging Practices in Tropical Forests*. Policy Research Working Paper, No. 1971. World Bank Development Research Group. September 1998.
- Boscolo, M. and J. Buongiorno. 1997. Managing a Tropical Rainforest for Timber, Carbon Storage and Tree Diversity. *Commonwealth Forestry Review*.
- Bouton, L. and M.A. Sumlinski. 1997. *Trends in Private Investment in Developing Countries, Statistics for 1970-1985*. IFC Discussion Paper No. 31. December 1996, revised February 1997.
- Bowles, I.A.; R.E. Rice; R.A. Mittermeier; and G.A.B. da Fonseca. 1998. Logging and Tropical Forest Conservation. *Science*, Vol. 280, June 1998.
- Brown, S.; M. Cannell; J. Heuvelink; P. Kauppi; J. Sathaye; N. Singh; S. Weyers; R. Dixon; A. Grainger; R. Leemans; P.H. Moura-Costa; S. Nilsson; M. Pinard; W. Schopfhauser; R. Sedjo; and M. Trexler. 1996. *Chapter III.F. Establishment and Management of Forests for Mitigation of Greenhouse Gas Emissions*. Working Group II, Intergovernmental Panel on Climate Change, and 1995 Assessment for the Framework Convention on Climate Change.
- Bruce, J.P.; H. Lee; E.F. Haites. 1996. *Climate Change 1995: Economic and Social Dimensions of Climate Change*. Contribution of Working Group III to the Second Assessment Report of the IPCC. Cambridge: CUP.
- Chandrasekharan, C. 1996a. *Status of Financing for Sustainable Forestry Management Programmes*. Proceedings of the UNDP Pretoria Workshop on Financial Mechanisms and Sources of Finance for Sustainable Forestry, Pretoria, June 1996. UNDP.

- Chandrasekharan, C. 1996b. *Cost, Incentives, and Impediments for Implementing Sustainable Forest Management*. Proceedings of the UNDP Pretoria Workshop on Financial Mechanisms and Sources of Finance for Sustainable Forestry, Pretoria, June 1996. UNDP.
- Chandrasekharan, C. 1997. *International Cooperation and Resource Mobilization for Sustainable Forestry Development*. Proceedings of the XI World Forestry Congress. Social Dimensions of Forestry's Contribution to Sustainable Development. Policies, Institutions and Means for Sustainable Forestry Development. Volume 5. pp. 365-387. Antalya, Turkey.
- Chomitz, K.M. and K. Kumari. 1998. *The Domestic Benefits of Tropical Forests: A Critical Review*. The World Bank Research Observer, Vol. 13, No. 1.
- Chomitz, K.M.; E. Brenes, and L. Constantino, 1998. *Financing Environmental Services: The Costa Rican Experience*. Economic Notes No. 10. Central America Country Management Unit, Latin America and Caribbean Region. Washington, D.C: The World Bank.
- Constantino, L. 1998.. Personal Communication. The World Bank
- Crossley, R., D. Lent, D. Propper de Callejon, and C. Sethare. 1996. *Innovative Financing for Sustainable Forestry*. Proceedings of the UNDP Pretoria Workshop on Financial Mechanisms and Sources of Finance for Sustainable Forestry, Pretoria, June 1996. UNDP.
- Crossley, R.; J. Points; K. Thornber; F. Dixon, and J Hollow. (Ed.). 1998. *Investing in Tomorrow's Forests. Profitability and Sustainability in the Forest Products Industry*. Gland, Switzerland: A WWF Research Report..
- Dewar, R.C. 1990. *A model of carbon storage in forests and forest products*. Tree Physiology, 6.
- Deweese, P.A. 1993. *Trees, Land and Labor*. World Bank Environment Paper No. 4. Washington, D.C: The World Bank.
- Dixon, R.K.; S. Brown; R.A. Houghton; A.M. Solomon; M.C. Trexler and J. Wisniewski. 1994. Carbon Pools and Flux of Global Forest Ecosystems. *Science*.
- Douglas, J. and W. Magrath. 1996. *Financing Sustainable Forestry: The World Bank Perspective*. Proceedings of the UNDP Workshop on Financial Mechanisms and Sources of Finance for Sustainable Forestry. Pretoria.
- DSE. 1991. *Application of Remote Sensing and Geographic Information Systems in Managing Tropical Rainforests and Conserving Natural Resources in the ASEAN Region*. DSE/AIFM/FAO Training Course, Kuala Lumpur 1991.
- Dudley, N.; J.P. Jeanrenaud and F. Sullivan. 1995. *Bad Harvest*. London: Earthscan.
- EA Capital. 1998. *Stimulating Investment in Forest-based Enterprises in Guyana*. Draft for Comment. New York: Prepared for UNDP-SEED Global Programme on Forests.
- EFI/IUCN/CIFOR. 1996. *Options for Strengthening the International Legal Regime for Forests*. Prepared for the European Commission.
- Ellerman, A.D.; H.D. Jacoby; and A. Decaux 1998. *The Effects on Developing Countries of the Kyoto Protocol and Carbon Dioxide Emissions Trading*. Policy Research Working Paper, No. 2019. World Bank Development Research Group, Infrastructure and Environment. December 1998.

- European Community (EC). 1992. *ECIP, European Community Investment Partners, A User's Guide*. Commission of the European Communities DG I-K-3, B-1049 Brussels.
- FAO. 1991. *Mixed and Pure Forest Plantations in the Tropics and Subtropics*. FAO Forestry Paper No. 103. Rome.
- FAO. 1995. *Forest Resources Assessment 1990*. Global Synthesis. FAO Forestry Paper 124. Rome.
- FAO. 1998a. *National Forest Programmes: Africa*. Update 33. Rome.
- FAO. 1998b. *National Forest Programmes: Asia and the Pacific*. Update 33. Rome.
- FAO. 1998c. *National Forest Programmes: Latin America and the Caribbean*. Update 33. Rome.
- FAO/ECE. 1993. *Meeting on Experts on Global Forest Resources Assessment, Kotka, Finland, 3-7 May 1993*. Helsinki: The Finnish Forest Research Institute Research Papers 469.
- Fischlin, A. 1996. *Conflicting Objectives while Maximising Carbon Sequestration by Forests*. In: NATO ASI Series, Vol. I40, Forest Ecosystems, Forest Management and the Global Carbon Cycle, M.J.Apps & D.T.Price (eds).
- Freeman, A. Myrick, III. 1993. *The Measurement of Environmental and Resource Values: Theory and Methods*. Washington, D.C.: Resources for the Future.
- French, H.F. 1998. *Investing in the Future: Harnessing Private Capital Flows for Environmentally Sustainable Development*. Washington, D.C.: WorldWatch Paper 139
- Frumhoff, P.C. and E.C. Losos. 1998. *Setting Priorities for Conserving Biological Diversity in Tropical Timber Production Forests*. A Policy Report from The Union of Concerned Scientists & The Center for Tropical Forest Science, Smithsonian Institution.
- Fry, A. 1998. *Industry, Fresh Water and Sustainable Development*. Geneva: WBCSD and UNEP.
- Gaviria, D. 1996. *Economic and Financial Instrument for Sustainable Forestry: The Case of Colombia*. Proceedings of the UNDP Workshop Financial Mechanisms and Sources of Finance for Sustainable Forestry. Pretoria. June 1996.
- Gentry, B.S. 1996. *Private Investment and the Environment. Development*. Office of Development Studies. Discussion Papers Series No 11. UNDP. New York.
- Gentry, B.S. and L.O. Fernandez. 1997. *Evolving Public-Private Partnerships: General Themes and Urban Water Examples*. Yale/UNDP Program on Public Private Partnerships for the Urban Environment. Yale Center for Environmental Law & Policy. OECD Workshop on Globalization and the Environment: New Challenges for the Public and Private Sectors. November 13-14, 1997. Paris.
- Glaessner et al. 1994. *Poverty Alleviation and Social Development Funds: the Latin American Experience*. World Bank Discussion Papers 261. Washington, D.C.
- GEF. 1995. *Incremental Costs and Financing Modalities*. GEF Council Meeting. Washington, D.C.
- GEF. 1996. *Operational Strategy*. Washington, D.C.
- GEF. 1997a. *Annual Report 1996*. Washington, D.C.

- GEF. 1997b. *GEF Operational Programs*. Washington, D.C.
- GEFa. 1998. *Corporate Business Plan F400-F402*. GEF Council. October 14-18 1998. Agenda Item 12.
- GEFb. 1998. *GEF Evaluation of Experience with Conservation Trust Funds*. September 8, 1998.
- GEFc. 1998. *Operational Report on GEF Programs*. Washington, D.C.
- GEFd. 1998. *Study of GEF's Overall Performance*: see Porter et al. 1998.
- Government of Tanzania 1998. *Forest Policy of Tanzania* (revised).
- Grubb, M., M. Koch, A. Munson, F. Sullivan, and K. Thomson. 1993. *The Earth Summit Agreements: a Guide and Assessments*. London: Earthscan Publications Ltd.,
- GTZ. 1996. *Implementing the Forest Principles – Promotion of National Forest and Land-use Programmes*. Proceedings of an International Expert Consultation. German Foundation for International Development, GTZ, Food and Agriculture Development Centre. Feldafing, Germany, 16-21 July 1996.
- Gullison, R., T., S. Westbrook, M. Nissan, D. Grieg-Gran, Hocking, EcoSecurities Ltd., and J. Cannon. 1998. *The Potential for UK Portfolio Investors to Finance Sustainable Tropical Forestry*. Discussion Paper 98-03. IEED Environmental Economics Programme. December 1998.
- Haltia, O. and K. Keipi. 1997. *Financing Forest Investments in Latin America: The Issue of Incentives*. Best Practice Study. Washington, D.C: Inter-American Development Bank. Sustainable Development Department. Environment Division. No ENV-113.
- Heindrichs, T. 1997. *Innovative Financing Instruments in the Forestry and Nature Conservation Sector of Costa Rica* Eschborn, Germany: GTZ.
- Hueth, D. 1995. *The Use of Subsidies to Achieve Efficient Resource Allocation in Upland Watershed*. Environment Division Working Paper ENV-1. Washington, D.C: Inter-American Development Bank.
- IFF Secretariat and UNDP. 1998. *On the Need for Financial Resources for Sustainable Forest Management*. IFF Programme Element II.a. Information Note. GE. 98-51365. New York.
- Inter-American Development Bank. 1997. *Investing in Biodiversity Conservation*. Proceedings of a Workshop. Social Programs and Sustainable Development Department. Environment Division. No ENV-111. Washington, D.C.
- IPF. 1997. *Report of the Intergovernmental Panel on Forests*. E/CN.17/1997/12.
- ITC. 1993. *Rubberwood, Study on the Global Development Potential*. Geneva.
- ITTO. 1991. *Incentives in Producer and Consumer Countries to Promote Sustainable Development of Tropical Forests*. Pre-Project Report prepared by the Oxford Forestry Institute in association with the Timber Research and Development Association. Oxford. February 1991.
- ITTO. 1994. *Fire in Rainforest – Lessons from East Kalimantan*. Summary of the ITTO Report of Project PD 17/87: Investigations of the steps needed to rehabilitate the areas of East Kalimantan seriously affected by fire. *Tropical Forest Update*, 4(5): pp. 18-19.

- ITTO. 1998. *Report of the Third Session of the ITTO Committee on Finance and Administration with Regards to Resources of the Special Account and the Bali Partnership Fund* (including the annexed statement of the Executive Director on 25 May 1998).
- IUCN (the Netherlands Comité) & TransGlobal Ventures, Inc. 1998. *Financing Biodiversity Conservation*. Draft Final Report Submitted to the Inter-American Development Bank. August 17, 1998.
- IUCN, The Nature Conservancy and WWF. 1994. *Report of the First Global Forum on Environmental Funds*. IUCN, The Nature Conservancy, WWF. Santa Cruz, Bolivia, 30 May-2 June 1994.
- Jacobs, Michael. 1991. *The Green Economy: Environment, Sustainable Development and the Politics of the Future*. London: Pluto Press. p. 312.
- Johnson, Alan 1996. *Microfinance in Vietnam: a Collaborative Study Based Upon the Experiences of NGOs, UN Agencies and Bilateral Donors*. Consultative Group to Assist the Poorest, Hanoi: United Nations Development Programme. May 1996
- Joshi, M. 1997. *Innovative Financing for Sustainable Forest Management: Present Status, Opportunities, and Constraints*. Paper prepared for UNDP-SEED Programme on Forests.
- Jun, K. W. and T. L. Brewer. 1997. *The Role of Foreign Private Capital Flows in Sustainable Development*. Proceedings of the Fourth Group Meeting on Financial Issues of Agenda 21. Santiago, Chile. pp. 109-137. United Nations. New York.
- Kaimowitz, D., N. Byron, and W. Sunderlin. 1998. *Public Policies to Reduce Inappropriate Tropical Deforestation*. In Lutz (ed.). 1998; 302-322.
- Kaiser, J. and A. Lambert. 1996. *Debt Swaps for Sustainable Development*. A Practical Guide for NGOs. IUCN. SCDO, EURODAD. Sadag, Bellegarde-Valserine, France.
- Karsenty, A. 1998. *Environmental Taxation and Economic Instruments for Forestry Management in Congo Basin*. CIRAD-Forêt.
- Keipi, K. 1998. *Financing Biodiversity Conservation in Latin America*. Technical Meeting on Sustainable Development in Latin America and the Caribbean: Policies, Programs and Financing. Washington, D.C: Organization of American States. October 30, 1998.
- Killick, T. 1997. *What Future for Aid? Finance for Sustainable Development: The Road Ahead*. Proceedings of the Fourth Group Meeting on Financial Issues of Agenda 21. Santiago, Chile. pp. 77-107. United Nations. New York.
- Kumari, K. and K. King. 1997. *Paradigm Cases to Illustrate the Application of the Incremental Costs Assessment to Biodiversity*. GEF Secretariat.
- Kumari, K.. 1995. *An Environmental and Economic Assessment of Forest Management Options: A Case Study in Malaysia*. Environment Department Papers. Paper No. 026. Pollution and Environmental Economics Division. Environmentally Sustainable Development (ESD). Washington, D.C.: The World Bank.
- Kumari, K. 1997. *Designing Projects within the GEF Focal Areas to Address Land Degradation: with Special Reference to Incremental Cost Estimation*. Draft. GEF Secretariat.

- La Gazeta. 1996. *Ley Forestal 7575, April 16, 1996*. Alcance n.21 a La Gazeta, Diario Oficial, N. 72.
- Laarman, J.G.. 1997. *Government Policies Affecting Forests in Latin America: An Agenda for Discussion*. IADB, Social Programs and Sustainable Development Department, Environment Division.
- Lampietti, J.A. and J.A. Dixon. 1995. *To See the Forest for the Trees: A Guide to Non-Timber Forest Benefits*. Environment Department Papers. Paper No. 013. Pollution and Environmental Economics Division. Environmentally and Socially Sustainable Development (ESSD). Washington, D.C.: The World Bank.
- Landell-Mills, N., J. Ford, E. Morrison, and K. Thornber. 1998. *Private Sector Participation in Sustainable Forest Management: A Global Review*. IIED.
- Ljungman, L. FAO Forestry Department. Personal communication.
- López, R. 1996. *Policy Instruments and Financing Mechanisms for the Sustainable Use of Forests in Latin America*. Inter-American Development Bank. Social Programs and Sustainable Development Department. Environment Division. No ENV-106. Washington, D.C.
- Lutz, E. (ed.). 1998. *Agriculture and the Environment. Perspectives on Sustainable Rural Development*. Washington, D.C.: The World Bank.
- Macilwain, C. 1998. *When Rhetoric Hits Reality in Debate on Bioprospecting: a Briefing*. Nature, Vol. 392, 9 April 1998.
- Malingreau, J.P.; C.J. Tucker, and N. Laporte. 1989. AVHRR for Monitoring Global Tropical Deforestation. *International Journal of Remote Sensing*.
- Mansley, M. 1996. *Achieving Sustainable Forestry: The Role of the Capital Markets*. Making Forest Policy Work 1996. Conference Proceedings of the Oxford Summer Course Programme. K. Harris (ed.). Oxford Forestry Institute. 1996.
- Marland, G. 1988. *The Prospect of Solving the CO<sub>2</sub> Problem through Global Reforestation*. Washington, D.C.: U.S. Department of Energy,
- Marsh, C. 1993. *Carbon Dioxide Offsets as Potential Funding for Improved Tropical Forest Management*". Oryx, 27(1),
- McClellan, M. 1997. *Financial Mechanisms for the Environment*. World Bank Group.
- McNeely, J. 1997. *Achieving Financial Sustainability in Biodiversity Conservation*. Investing in Biodiversity Conservation. Proceedings of a Workshop. Environment Division Paper ENV-111.
- MIGA. 1998. Website (October 1998) – [www.miga.org/migim/overview.html](http://www.miga.org/migim/overview.html)
- Mikitin, K. 1995. *Issues and Options in the Design of GEF Supported Trust Funds for Biodiversity Conservation*. Environment Department. Paper No. 011. Global Environment Division. Environmentally Sustainable Development (ESD). Washington, D.C.: The World Bank.
- Moor (de), A., and P. Calamai. 1998. *Subsidizing Sustainable Development: undermining the Earth with Public Funds*. Report commissioned by the Earth Council.

- Moura-Costa, P. 1996. *Tropical Forestry Practices for Carbon Sequestration: A Review and Case Study from Southeast Asia*. *Ambio*, 25.
- Moura Costa, P. and M.D. Stuart. 1996. *Analysis of Project Design and Carbon Sequestration Methodology of Project Carfix*. Report Prepared for SGS Forestry.
- Moura-Costa, P.H. and M.D. Stuart. 1997. *Issues Related to Developing Monitoring and Verification Systems for Forestry-based CO<sub>2</sub> Offset Projects*. Proceedings of the Workshop of the Australian Greenhouse Challenge Office. Canberra, July 1997.
- Moura-Costa, P.H. and M.D. Stuart. 1998. Forestry-based Greenhouse Gas Mitigation: a Short Story of Market Evolution. *Commonwealth Forestry Review*, 77(3).
- Moura-Costa and J. Tay. 1996. *Reduced Impact Logging in Sabah, Malaysia*. Proceedings of the FAO/ITTO/IPF International Workshop on Integrated Application of Sustainable Forest Management Practices, Kochi, Japan, 1996.
- Munasinghe, M. 1993. *Environmental Economics and Sustainable Development*. World Bank Environment Paper No. 3. Washington, D.C.: The World Bank.
- Nicaragua Gets Sustainable Forestry Investment*. Environmental News Network. January 19, 1999.
- Nilsson, S. and W. Schopfhauser. 1994. *The Carbon Sequestration Potential of a Global Afforestation Program*. *Climate Change*.
- Nussbaum, R.; S. Bass, E. Morrison, and H. Speechly. 1996. *Sustainable Forest Management: An Analysis of Principles, Criteria and Standards*. IIED Sub-Study Series, Towards a Sustainable Paper Cycle. IIED, September 1996.
- ODI. 1996. *Rethinking the Role of the Multilateral Development Banks*. ODI Briefing Paper. November 1996.
- ODI. 1997. *Foreign Direct Investment Flows to Low-Income Countries: A Review of the Evidence*. Overseas Development Institute Briefing Paper. 1997 (3) September.
- OECD. 1995. *Making Markets for Biological Diversity: the Role of Economic Incentive Measures*. Expert Group on Economic Aspects of Biodiversity. Environment Directorate. Paris.
- OECD. 1997. *Environmental Taxes and Green Tax Reform*. OECD, Paris.
- Oksanen, T. 1997. *National Forest Programmes and Forest Partnership Agreements*. Paper Prepared for UNDP-SEED Programme on Forests.
- Oksanen, T. 1998. *National Forest Programmes (NFPs) and Forest Partnership Agreements*. In UNDP (undated).
- Oksanen, T. and J. Salmi. 1996. *Synthesis Report on Consultative Process on National Forest and Land-use Programmes in Support of the Intergovernmental Panel on Forests*. Expert Consultation on Implementing the Forest Principles – Promotion of National Forest and Land-use Programme. Feldafing, Germany, 16-21 July 1996.
- Oksanen, T.; J. Salmi, J. and M. Simula 1994. *National Forestry Programmes*. Approach Paper. Prepared for the Forestry Advisers' Group. Helsinki.
- Panayatou, T. 1997a. *Taking Stock of Trends in Finance for Sustainable Development since Rio*. In United Nations (1997).



- Paris, R.; I. Ruzicka, and H. Speechley. 1994. Performance Guarantee Bonds for Commercial Management of Natural Forests – Early Experience from the Philippines. *Commonwealth Forestry Review*. vol. 73 (2) 1994, pp. 106-112
- Pearce, D.; W. Krug, and D. Moran. (Forthcoming). *The Global Value of Biodiversity*. Nairobi, Kenya: UNEP.
- Pearce, D. and P. Steele. 1997. *Private Financing of Sustainable Development*. UNDP Office of Development Studies. Discussion Papers Series No. 9. New York.
- Pearce, D. W. and R.K. Turner. 1990. *Economics of Natural Resources and the Environment*. Harvester Wheatsheaf, Hertfordshire.
- Pérez, C.I. and A.U. Quesada. *El financiamiento del desarrollo sostenible*. Centro Latinoamericano de Competitividad y Desarrollo Sostenible. INCAE.
- Peterson, George L. and Thomas C. Brown. 1995. *Accounting for Non-market Values for Sustainable Ecosystem Management*. Paper presented at IUFRO XX World Congress, August 1995, Tampere, Finland.
- Pinard, M.; F.E. Putz, J. Tay, T.E. Sullivan. 1995. Creating Timber Harvest Guidelines for a Reduced-Impact Logging Project in Malaysia. *Journal of Forestry*, 93.
- Planistat Europe and the European Commission, Directorate-General VIII (Development). 1997. *Statistical Analysis of Tropical Forest Projects Financed by the European Community*. Summary. France.
- Poore, D. (Ed.) 1989. *No Timber without Trees. Sustainability in the Tropical Forest*. Earthscan Publications Ltd., London.
- Porter, G., Cléménçon. R., Ofosu-Amaah, W. and Philips, M. 1998. *Study of GEF's Overall Performance*. GEF. New Delhi Assembly. Washington, D.C.
- Price, C. 1990. The Allowable Burn Effect: Does Carbon-fixing Offer a New Escape from the Bogy of Compound Interest? *The Forestry Chronicle*, December 1990.
- Price, D.T.; R.M. Mair, W.A. Kurz, and M.J. Apps. 1996. *Effects of Forest Management, Harvesting and Wood Processing on Ecosystem Carbon Dynamics: a Boreal Case Study*. In: NATO ASI Series, Vol. 140, Forest Ecosystems, Forest Management and the Global Carbon Cycle, M.J.Apps & D.T.Price (eds).
- Putz, F.E., and M.A. Pinard. 1993. Reduced Impact Logging as Carbon-offset Method. *Conservation Biology*, 7.
- Reed, D.J. 1998. *Green Shareholder Value, Hype or Hit? Sustainable Enterprise Perspectives*. Washington, D.C.: World Resources Institute.
- Repetto, R. and N. Sizer. 1996. *Why Finance Sustainable Forestry?* Proceedings of the UNDP Pretoria Workshop on Financial Mechanisms and Sources of Finance for Sustainable Forestry. Pretoria, June 1996.
- Resor. J. P. 1997. Debt-for Nature Swaps: a Decade of Experience and New Directions for the Future. *Unasylva* (48).
- Rice, R.E.; R.E. Gullison and J.W. Reid. 1997. Can Sustainable Management Save Tropical Forests? *Scientific American*, April 1997.

- Richards, Michael. 1998. *Innovative Financing and Incentive Mechanisms for Sustainable forestry*. EU Tropical Forestry Paper. Draft.
- Ruzicka, I. and P. Moura Costa. 1998. *Sustainable Forest Management: Allocation of Resources and Responsibilities*. SGS Forestry. Produced under a grant from the Forest Research Programme of the UK Department for International Development.
- Rydén, Per. Global Mechanism of the Convention on Combating of Desertification and Drought. Personal communication.
- Salazar, J. 1998. *Environmental Finance: Linking Two Worlds. Financier's Perceptions on Biodiversity Conservation and Clean Technology Projects: the Peruvian Case*. Presentation at the Financial Innovations for Biodiversity Workshop as Global Biodiversity Forum Bratislava, Slovakia.
- Salmi, Jyrki, Vu Thi Thao and Tran Chi Thien 1997. *Study on Options for Incentive/credit Schemes*. The Vietnam–Finland Forestry Sector Cooperation Program, The Department of Agriculture and Rural Development of Bac Kan Province, Technical Report No. 4, January 1997.
- Schneider, R.R. 1995. *Government and the Economy on the Amazon Frontier*. World Bank Environment Paper No. 11. The World Bank. Washington, D.C.
- Sedjo, R.; M. Bowes and C. Wiseman. 1991. *Towards a Worldwide System of Tradeable Forest Protection and Management Obligations*. ENR-91-116. Energy and Natural Resources Division. Resources for the Future. Washington, D.C.
- Simula, M. 1996. *Effective Co-ordination Mechanisms in Financing Sustainable Forestry Development*. Proceedings of the UNDP Workshop on Financial Mechanisms and Sources of Finance for Sustainable Forestry. Pretoria, June 1996.
- Simula, M. 1997. *The Economic Contribution for Forestry to Sustainable Development*. Proceedings of the XI World Forestry Congress. Antalya.
- Singh, K.D. 1993. *Forest Resources Assessment 1990: Tropical Countries*. Unasylva, 44:10.
- Skala-Kuhmann, A. 1996. *Legal Instruments to Enhance the Conservation and Sustainable Management of Forest Resources at the International Level*. Bonn.
- Smith, J., Persson, R. and K. Mulongoy. 1999. *Harnessing Carbon Markets for Tropical Forest Conservation: Towards a More Realistic Assessment*. CIFOR, Bogor, Indonesia, and the International Academy of the Environment, Geneva.
- Southgate, D. 1997. *Alternatives for Habitat Protection and Rural Income Generation*. Inter-American Development Bank. Social Programs and Sustainable Development Department. Environment Division. No ENV-107. Washington, D.C.
- Spears, J. 1997. *Sustainable Forest Management: An Evolving Goal*. Paper Prepared for UNDP-SEED Programme on Forests.
- Stuart, M.D. and P.H. Moura Costa. 1998. *Climate Change Mitigation by Forestry: a Review of International Initiatives*. Policy that Works for Forests and People Series no 8. International Institute for Environment and Development, London.

- Stuart, M.D. and N. Sekhran. 1996. *Developing Externally Financed Greenhouse Gas Mitigation Projects in Papua New Guinea's Forestry Sector: A Review of Concepts, Opportunities and Links to Biodiversity Conservation*. United Nations Development Program and the Papua New Guinea Biodiversity and Conservation Management Programme.
- Tarasofsky, R. 1995. *The International Forests Regime: Legal and Policies Issues*. IUCN. Gland.
- Thailand Environment Institute. 1995. *Joint Implementation of Climate Change Commitments in the Tropical Forestry Sector*. Thailand Policy Paper submitted to the Thai Ministry of Science, Technology and Environment.
- The Netherlands Comité for IUCN & TransGlobal Ventures, Inc. 1998. *Financing Biodiversity Conservation*. Draft Final Report submitted to the Inter-American Development Bank.
- Tietenberg, Tom. 1994. *Environmental Economics and Policy*. Harper Collins College Publishers, New York.
- Tipper, R. 1997a. *Establishment of the International Carbon Sequestration Federation*. In: Greenhouse Gas Mitigation. Technologies for Activities Implemented Jointly. Proceedings of Technologies for AIJ Conference. Vancouver, May 1997. Riermer, P.W.F., Smith, A.Y. and Thambimuthu, K.V. (Eds.). Elsevier, Oxford.
- TNC. 1998. *Agua: Juntos podemos cuidarla*. The Nature Conservancy. Quito – Washington, D.C.
- Trexler and Associates, Inc. 1998. *La forestación como una opción para la mitigación del cambio climático*. Un análisis de vanguardia. Portland.
- Trexler and Associates, Inc., EA Capital & CSERGE. 1998. *Forestry Based Carbon Offset Issues Paper*. Prepared for Guyana Innovative Forest Financing Project.
- Turner, R. Kerry, David W. Pearce & Ian Bateman. 1994. *Environmental Economics: an Elementary Introduction*. Harvester Wheatsheaf, London.
- UNCED. 1992. *Earth Summit '92*. Regency Press, London.
- UNDP. (undated). *Programme on Forests. Project Document*. United Nations Development Programme, Sustainable Energy and Environment Division (UNDP/SEED).
- UNDP. 1996. *Financial Mechanisms and Sources of Finance for Sustainable Forestry*. Workshop Proceedings. Pretoria, June 1996.
- UNDP. 1997a. *Forest Management to Support Sustainable Livelihoods*. Project Document for UNDP-SEED Programme on Forests.
- UNDP. 1997b. *A New Paradigm of Development Financing*. Office of Development Studies. Stockholm Roundtable 23-24 March 1997.
- UNDP. 1997c. *Promotion of Sustainable Forest Management through Public-Private Partnerships*. Preparatory Phase for a UNDP Global Programme. Project Document.
- UNDP. 1997d. *Strengthening the Capacities of National Environmental Funds in Latin America and the Caribbean*. A Report of the Regional Consultation on National Environmental Funds in Latin America and the Caribbean, Merida, Yucatan, Mexico.

- UNDP. 1998. *Public-Private Partnerships for the Urban Environment*. Sustainable Energy and Environment Division, UNDP. Reprinted April 1998.
- UNDP and Climate Change*. ACTIONmg.doc.
- UNDP-GEF. 1998. *Designing GEF Biodiversity Projects. Project Preparation and Implementation Series*. Working Paper.
- UNFCCC. 1997. *Trends of Financial Flows and Terms & Conditions Employed by Multilateral Lending Institutions*. Technical Paper FCCC/TP/1997/1.
- United Nations. 1996. *Sustainable Development Finance: Opportunities and Obstacles*. Proceedings of the Third Expert Group Meeting on Financial Issues of Agenda 21, February 1996, Manila, Philippines. New York.
- United Nations. 1997. *Finance for Sustainable Development: The Road Ahead*. Proceedings of the Fourth Group Meeting on Financial Issues of Agenda 21, Santiago, Chile. United Nations Department for Policy Coordination and Sustainable Development. Division for Sustainable Development. New York.
- United Nations. 1998. *High-level International Intergovernmental Consideration of Financing for Development: Recurring Themes and Key Elements*. Note by the Secretary-General. 8 October 1998.
- Upton, C. and S. Bass. 1995. *The Forest Certification Handbook*. Earthscan. London.
- U.S. Congress. 1998. *An Act to Amend the Foreign Assistance Act of 1961 to Facilitate Tropical Forests through Debt Reduction with Developing Countries with Tropical Forests*. 105<sup>th</sup> Congress. 27 January 1998.
- USIJI 1994. *The United States Initiative on Joint Implementation*. Washington, D.C.
- Wells, M.P.; D.J. Ganapin and F. Trempe. 1998. *Report of the Second Independent Evaluation of the Global Environment Facility Small Grants Programme (GEF/SGP)*. 1996-1998. Commissioned by the GEF Coordination Unit. UNDP. New York.
- West, G.T. & Tarazona, E.I. 1998. *MIGA and Foreign Direct Investment: Evaluating Developmental Impacts*. The Multilateral Investment Guarantee Agency and The World Bank. Washington, D.C.
- World Bank. 1997. *Global Development Finance*
- World Bank. 1997a. *Five Years after Rio. Innovations in Environmental Policy*. Environmentally Sustainable Development Studies and Monographs Series No. 18. Washington, D.C.
- World Bank. 1998a. *CEOs' ad hoc Forum on Forests*. World Bank, Washington, D.C., July 12-14, 1998.
- World Bank. 1998b. *Project Appraisal Document on a Proposed Credit in the Amount of SDR 6.4 Million to the Republic of Nicaragua for a Sustainable Forestry Investment Promotion Project*. Report No. 18653-NI. World Bank, Washington, D.C., December 9, 1998.
- World Bank. 1998c. *World Bank Policy-Based Guarantees*. Discussion Draft. December 17, 1998.

- World Resources Institute. 1989. *Natural Endowments: Financing Resource Conservation for Development*. International Conservation Financing Project Report. Commissioned by the UNDP.
- World Resources Institute. 1990. *World Resources 1990-1991*. Oxford University Press, Oxford.
- World Rainforest Movement 1998 *High Stakes: The Need to Control Transnational Logging Companies: a Malaysian Case Study*. World Rainforest Movement and Forests Monitor Ltd.
- Yamin. 1998. *Unanswered Questions*. Paper prepared for Issues & Options. The Clean Development Mechanism. UNDP, draft.
- Yaron, Jacob, McDonald P. Benjamin, Jr, and Gerda L. Piprek 1997. *Rural Finance; Issues, Design, and Best Practices. Environmentally and Socially Sustainable Development Studies and Monograph Series 14*. Washington D.C.:The World Bank.
- Zapata, Elssy-Fedora 1996. *A Micro Finance Approach to Forestry Financing for Poor Farmers: the PROCAFOR Experience*. Proceedings of the UNDP Workshop on Financial Mechanisms and Sources of Finance, Pretoria, June 1996.
- Zinkhan, F., Sizemore, W.R., Mason, G.H. and T. J. Ebner. 1992. *Timberland Investments – A Portfolio Perspective*. Timber Press. Portland, Oregon.

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## LIST OF GEF PROJECTS ANALYZED

Country	Project title	Focal area	Operational program	GEF allocation (US\$)	Allocation to SFM (US\$)	GEF phase
Albania, FYROM	Lake Ohrid Conservation Project	International Waters	Water Body-Based OP	4,100,000	450,000 <sup>1</sup>	GEF-1
Argentina	Biodiversity Conservation Project	Biodiversity	STRM	10,389,000	0 <sup>2</sup>	GEF-1
Bangladesh	Biodiversity Conservation in the Sundarbans Reserved Forest	Biodiversity	Coastal, Marine and Freshwater Ecosystems	12,200,000	500,000 <sup>3</sup>	GEF-1
Belarus	Biodiversity Protection Project	Biodiversity	Forest Ecosystems	1,000,000	0	Pilot
Benin	Village-Based Management of Woody Savanna and the Establishment of Woodlots for Carbon Sequestration	Climate Change	STRM	2,500,000	2,500,000 <sup>4</sup>	Pilot
Bhutan	Trust Fund for Environmental Conservation	Biodiversity	Mountain Ecosystems	10,000,000	0 <sup>5</sup>	Pilot
Bhutan	Integrated Management of Jigme Dorji National Park	Biodiversity	Mountain Ecosystems	1,500,000	0 <sup>6</sup>	GEF-1
Bolivia	Biodiversity Conservation	Biodiversity	Forest Ecosystems	4,500,000	100,000 <sup>7</sup>	Pilot
Botswana, Kenya, Mali	Management of Indigenous Vegetation for the Rehabilitation of degraded Rangelands in the Arid Zone of Africa	Biodiversity	Arid and Semi-Arid Zone Ecosystem	9,054,000	4,050,000 <sup>8</sup>	GEF-1

<sup>1</sup> Under “Participatory watershed management” component: pilot projects and catalytic measures: Albania: US\$180,000 and FYROM: US\$270,000.

<sup>2</sup> Although the “Buffer Zone Biodiversity Activities” component’s activities (GEF: US\$743,000) may include some SFM.

<sup>3</sup> “Biodiversity and forestry” subcomponent under the component “B.” Incorporation of biodiversity conservation consideration within sustainable productive activities”.

<sup>4</sup> This unusual project can be classified completely under SFM. However, it was a GEF Pilot Phase project, and similar projects would not be eligible now (carbon sequestration is not yet eligible for GEF financing).

<sup>5</sup> Although the trust fund revenues may be used in the future for SFM related activities in buffer zones

<sup>6</sup> GEF inputs to SFM are zero, although some US\$300,000 of UNDP co-financing goes to SFM

<sup>7</sup> “Alternative management of natural resources in buffer zones” component

<sup>8</sup> Components “Establishment and strengthening of appropriate indigenous management systems” (US\$1.5 million), and “Rehabilitation of indigenous vegetation” (US\$2.55 million)



Country	Project title	Focal area	Operational program	GEF allocation (US\$)	Allocation to SFM (US\$)	GEF phase
Brazil	National Biodiversity Project (PROBIO)	Biodiversity	STRM	10,000,000	Asked from task manager: no reply	Pilot
Brazil	Brazilian Biodiversity Fund Project (FUNBIO)	Biodiversity	STRM	20,000,000	Asked from task manager: no reply	Pilot
Burkina Faso, Côte d'Ivoire	West Africa Pilot Community-Based Natural Resource and Wildlife Management Project	Biodiversity	Arid and Semi-Arid Zone Ecosystem	7,000,000	0 <sup>9</sup>	Pilot
Cameroon	Biodiversity Conservation and Management	Biodiversity	Forest Ecosystems	5,960,000	3,756,000 <sup>10</sup>	Pilot
Central Africa Region	Regional Environment Information Management Project (REIMP)	Biodiversity	Forest Ecosystems	4,077,000	206,000 <sup>11</sup>	GEF-1
Central African Republic	A Highly Decentralized Approach to Biodiversity Protection and Use: The Bangassou Dense Forest	Biodiversity	Forest Ecosystems	2,500,000	2,500,000	GEF-1
Central America	Central American Fund for Environment and Development: Account for the Global Environment	Biodiversity	STRM	15,000,000	0 <sup>12</sup>	GEF-1
China	Nature Reserves Management Project	Biodiversity	Forest Ecosystems	17,900,000	7,078,000 <sup>13</sup>	GEF-1
Comoros	Island Biodiversity and Participatory Conservation in the Federal Islamic Republic of the Comoros	Biodiversity	Coastal, Marine and Freshwater Ecosystems	2,442,000	290,000 <sup>14</sup>	GEF-1
Costa Rica	Biodiversity Resources Development Project	Biodiversity	Forest Ecosystems	7,000,000	900,000 <sup>15</sup>	GEF-1

<sup>9</sup> Some references to “assisting communities to make better use of secondary forest products” and “ possible investments in...agroforestry.” However, it is not possible to identify specific components or inputs for these purposes.

<sup>10</sup> All “local components”: GEF contribution to those

<sup>11</sup> “Forestry” components: CAR: US\$4,000, Congo: US\$34,000, the Democratic Republic of Congo: US\$160,000, Equatorial Guinea: US\$8,000, in addition the project may have impact on SFM policy development

<sup>12</sup> The Fund is not yet operational: three projects pre-selected for financing, none of them for SFM, although SFM could qualify for financing

<sup>13</sup> (i) Under “Nature reserves” component, subcomponent “Community participation” (US\$2,265,000), (ii) project component (Forest) Enterprise Restructuring (US\$4,813,000)

<sup>14</sup> “Economic development alternatives” component.

Country	Project title	Focal area	Operational program	GEF allocation (US\$)	Allocation to SFM (US\$)	GEF phase
Côte d'Ivoire, Ghana, Guinea, Liberia, Sierra Leone	Conservation Priority-Setting for the Upper Guinea Forest Ecosystem, West Africa	Biodiversity	Forest Ecosystems	742,000	0	GEF-1
Czech Rep.	Biodiversity Protection	Biodiversity	STRM	2,000,000	250,000 <sup>16</sup>	Pilot
Democratic Republic of Congo	Rehabilitation of Protected Areas in the Democratic Republic of the Congo	Biodiversity	Forest Ecosystems	6,332,441	0	GEF-1
Ecuador	Biodiversity Protection Project	Biodiversity	Forest Ecosystems	7,200,000	350,000 <sup>17</sup>	Pilot
Georgia	Georgia Conservation of Forest Ecosystems	Biodiversity	Georgia Conservation of Forest Ecosystems	9,050,000	2,000,000 <sup>18</sup>	GEF-1
Ghana	Natural Resource Management	Biodiversity	Forest Ecosystems	8,725,000	0 <sup>19</sup>	GEF-1
Global	Small and Medium Scale Enterprise Program	Multiple Focal Areas		4,300,000	Asked from IFC: no reply	Pilot
Global	Small and Medium Scale Enterprise (replenishment)	Multiple Focal Areas		16,500,000	Asked from IFC: no reply	GEF-1
Global	Alternatives to Slash and Burn	Climate Change	STRM	3,000,000	3,000,000	Pilot
Global	Global Environmental Benefits from Alternatives to Slash and Burn Agriculture (Phase II)	Climate change	STRM	2,941,000	2,941,000	Pilot
Guyana	Program for Sustainable Forestry (Iwokrama Rain Forest Program)	Biodiversity	Forest Ecosystems	3,000,000	3,000,000	Pilot

<sup>15</sup> Sustainable uses of biodiversity – component (US\$0.9 million): although only indirect links with SFM

<sup>16</sup> Restoration of forest ecosystems (US\$170,000) & Preparation of sustainable development strategies (US\$80,000)

<sup>17</sup> Activity No. 35: TA and pilot studies for Chachi indians and other communities located in buffer zone...

<sup>18</sup> Rough estimate: the available information does not permit more detailed assessment: there are activities like “2.1 Preparation and adoption of integrated plan for forestry and protected areas in the Central Caucasus” in collaboration with the Forestry Development Project”, and “2.3 Forest management agreements to wildlife corridors and appropriate management regimes in place”.

<sup>19</sup> GEF contribution to SFM is zero, although co-financing components include US\$18.7 million for SFM

Country	Project title	Focal area	Operational program	GEF allocation (US\$)	Allocation to SFM (US\$)	GEF phase
Kazakhstan, Kyrgyz Rep., Tajikistan, Turkmenistan, Uzbekistan	Aral Sea Basin Program: Water and Environmental Management Project	International Waters	Integrated Land and Water Multiple Focal Area OP	12,200,000	0	GEF-1
Kenya, Tanzania, Uganda	Lake Victoria Environmental Management Project	International Waters	Water body-based OP	35,000,000	0 <sup>20</sup>	GEF-1
Kenya, Tanzania, Uganda	Reducing Biodiversity Loss at Cross Boarder Sites in East Africa	Biodiversity	N / A	12,899,000	6,574,000 <sup>21</sup>	GEF-1
Latin America	Terra Capital Fund	Biodiversity	STRM	5,000,000	N.A. <sup>22</sup>	GEF-1
Madagascar	Priority Setting and Strategic Identification & Design of Interventions for Biodiversity Conservation: A Multi-sectoral, Consensus-based, Scientific Approach for Madagascar	Biodiversity	N / A	170,000	0 <sup>23</sup>	GEF-1
Mauritania and Senegal	Biological Diversity Conservation through Participatory Rehabilitation of the Degraded Lands of the Arid and Semi-Arid Transboundary Areas of Mauritania and Senegal	Biodiversity	Arid and Semi-Arid Zone Ecosystems	7,996,000	7,996,000 <sup>24</sup>	GEF-1
Nicaragua	Atlantic Biological Corridor Project	Biodiversity	Forest Ecosystems	7,100,000	1,190,000 <sup>25</sup>	GEF-1
Panama	Atlantic Mesoamerican Biological Corridor Project	Biodiversity	Forest Ecosystems	8,400,000	2,980,000 <sup>26</sup>	GEF-1

<sup>20</sup> The afforestation component US\$2.5 million is financed by IDA

<sup>21</sup> Project still under planning. SFM includes the component "Balancing Resource Demand & Supply" (US\$6,574,000)

<sup>22</sup> The Fund became operational only in October 1998.

<sup>23</sup> Pre-Investment Feasibility (PRIF) Funding; project preparation; based on the available documentation it is not likely that the project would include SFM

<sup>24</sup> This is a rare example of a GEF project that can be said to focus completely on SFM which is noticeable in the type of ecosystem the project is operating in

<sup>25</sup> Under component E (priority biodiversity areas), subcomponent 2 (sustainable use): US\$1.19 million

<sup>26</sup> (i) Under project component 1: Subcomponent 2 (local & regional planning in priority areas) US\$1.03 million, (ii) Under component 3, subcomponent 1 (strengthening at the community level) US\$0.63 million, (iii) Under project component 4: subcomponent 1 (support for conservation and sustainable use of biodiversity) US\$1.32 million

Country	Project title	Focal area	Operational program	GEF allocation (US\$)	Allocation to SFM (US\$)	GEF phase
Papua New Guinea	Papua New Guinea Forestry and Conservation Project	Biodiversity	Forest Ecosystems	17,300,000	2,000,000 <sup>27</sup>	GEF-1
Peru	National Trust Fund for Protected Areas	Biodiversity	Forest ecosystems	5,000,000	0	Pilot
Romania	Danube Delta Biodiversity	Biodiversity	Coastal, Marine and Freshwater Ecosystems	4,500,000	132,000 <sup>28</sup>	Pilot
Romania	Integrated Protected Areas and Conservation Management	Biodiversity	Forest Ecosystems	5,300,000	700,000 <sup>29</sup>	GEF-1
SADC	Southern Africa Biodiversity Support Program	Biodiversity	STRM	4,482,000	4,482,000 <sup>30</sup>	GEF-1
South Africa	Cape Peninsula Biodiversity Conservation Project	Biodiversity	Forest Ecosystems	12,300,000	0	GEF-1
Sri Lanka	Conservation and Sustainable Use of Medicinal Plants	Biodiversity	Forest Ecosystems	4,700,000	4,700,000 <sup>31</sup>	GEF-1
Tanzania	Conservation of Forest Biodiversity Resources in the Eastern Arc Mountains	Biodiversity	Forest Ecosystems	24,308	24,308 <sup>32</sup>	GEF-1
Tanzania	Conservation of Coastal Forest Biodiversity in East Africa	Biodiversity	Forest Ecosystems	22,969	22,969	GEF-1
Tanzania	Critical Wildlife Corridors in Tanzania	Biodiversity	Arid and Semi-Arid Zone Ecosystems	5,000,000	0 <sup>33</sup>	GEF-1
Uganda	Conserving Biodiversity in the Western Rift Valley Forests	Biodiversity	Forest Ecosystems	24,720	24,720 <sup>34</sup>	GEF-1

<sup>27</sup> GEF contribution to subcomponents “Forest management and conservation education” (US\$0.9 million) and “Land-group-based conservation and resource management areas” (US\$1.1 million). Furthermore, there may be additional contributions to SFM from the Conservation Trust Fund to be established (GEF contribution US\$10 million), however, GEF does not provide any contribution to the “Sustainable Forest Management” component of the project.

<sup>28</sup> Under component 4 (ecosystem restoration): (i) establishment of village woodlots (US\$9,900), (ii) willow planting (US\$123,000)

<sup>29</sup> GEF contribution to “Sustainable natural resource management” component

<sup>30</sup> Available information did not permit more detailed assessment; however, as the executing agency is SADC FSTCU and because of the description of the project components, it may be appropriate to assume that the whole project can be classified to support SFM

<sup>31</sup> Available information did not permit more detailed assessment, however, it appears that the whole project can be classified as NTFP / SFM

<sup>32</sup> PDF-A Status only. The project focuses on a high priority forest sector issue identified also in the Tanzania TFAP. The actual SFM components remain to be seen.

<sup>33</sup> PDF-B status only, according to the documentation available, no SFM components.

Country	Project title	Focal area	Operational program	GEF allocation (US\$)	Allocation to SFM (US\$)	GEF phase
Vietnam	Creating Protected Areas for Resource Conservation Using Landscape Ecology	Biodiversity	Forest Ecosystems	6,011,840	420,000 <sup>35</sup>	GEF-1
<b>Total</b>				<b>364,343,278</b>	<b>65,116,997</b>	<b>17.9%</b>
<i>Subtotal</i>	Pilot Phase			92,901,000	16,029,000	17.3%
<i>Subtotal</i>	GEF-1			271,442,278	49,087,997	18.1%

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<sup>34</sup> PDF-A Status only. The project focuses on a high priority forest sector issue. The actual SFM components remain to be seen.

<sup>35</sup> Forest management and rehabilitation



## ANNEX 4

### FACT SHEETS ON INNOVATIVE FINANCING MECHANISMS

- A/1. PORTFOLIO EQUITY INSTRUMENTS
- A/2. PUBLIC-PRIVATE INSTRUMENTS
- A/3. PRIVATE SECTOR FORESTRY INVESTMENT FUNDS
- B/4. NATIONAL ENVIRONMENTAL FUNDS (NEFs)
- B/5. DEBT-FOR-NATURE AND DEVELOPMENT SWAPS
- B/6. CONSERVATION TRUST FUNDS (CTFs)
- B/7. BIODIVERSITY VENTURE CAPITAL FUNDS
- B/8. SMALL AND MEDIUM SCALE ENTERPRISE CREDIT LINES
- B/9. MICRO-CREDIT
- B/10. SMALL TARGETED GRANTS
- C/11. FORESTRY-BASED CARBON OFFSETS
- C/12. BIOPROSPECTING FEES
- C/13. WATER RESOURCE USE CHARGES
- C/14. TRADEABLE DEVELOPMENT RIGHTS (TDR)
- C/15. MARKETABLE FOREST PROTECTION AND MANAGEMENT OBLIGATIONS
- D/16. FISCAL INSTRUMENTS
- D/17. NATIONAL FOREST FUNDS
- D/18. ENVIRONMENTAL PERFORMANCE BONDS

## FACT SHEETS ON INNOVATIVE FINANCING MECHANISMS

### A/1. PORTFOLIO EQUITY INSTRUMENTS

#### **OVERVIEW**

##### **Type**

Direct financial: equity

##### **Objective**

Channel traditional sources of portfolio equity capital from institutional investors into environmentally and ethically sound companies publicly traded on capital markets.

SFM barriers addressed	Main sources	Main recipients	Timing	Likely scale
operational (lack of local investment capital*)	private commercial	Private commercial	Late stage	Global National

\* This can be due to structural barriers such as lack of capital market infrastructure, but these are not addressed by this mechanism.

*See also:* Private sector forestry investment funds

#### **DESCRIPTION**

The financial resources managed by institutional investors such as pension funds, insurance companies, commercial banks, and other mutual investment fund managers, represent a vast source of equity capital. Developing new portfolio investment vehicles that tap this resource by channelling it into environmental or environmentally efficient companies that are publicly traded on local stock exchanges is therefore a priority. The main example of such vehicles are the “ethical investment” funds which screen their chosen investments against a range of social, ethical or environmental criteria. Currently, such funds are based almost exclusively in the developed world. Their aim is to provide their shareholders with returns comparable to other investment funds through long-term capital growth, but only from environmentally acceptable investments. Indeed, recent evaluations suggest that some ethical funds have met or beaten the performance of established indices such as Standard & Poor’s 500-stock index.

There is also some evidence that long-term concerns about risk and environmental liabilities are increasingly stimulating traditional investors’ interest in emerging environmental markets, and particularly in cutting-edge environmental technologies, as the best place for high returns in the medium and long-term, irrespective of any shareholder-driven ethical concern.

#### **ASSESSMENT**

##### **Extent of application**

Ethical funds (in their broadest sense) control in the order of US\$ 40 billion in assets worldwide (ballpark figures only), predominantly in the European Union and the United States. The estimated proportion of these resources in forestry is unknown.



These funds are well established in the U.S. (e.g., Ventana North American Environment Funds) and Europe (e.g., Friends Provident & Jupiter in the United Kingdom, various Green Fund initiatives in Holland). Equity portfolios are dominated by companies listed on developed countries' capital markets. However, several examples exist of comparable developing world funds (for example, in Thailand), or of funds in developed countries that are dedicated to investing in the developing world. One example of the latter is Progressive Asset Management (PAM), a U.S. investment firm, which now handles US\$350 million (1996 figures) of environmental investments in developing country enterprises.

### **Replicability for forestry**

Although SFM companies present their own unique characteristics to the investor in terms of risk: return profiles, liabilities, capital requirements, etc., there is no intrinsic reason why companies engaged in SFM activities should not be included within the portfolios of institutional equity investors, provided sufficient information is made available to overcome prevailing negative perceptions (see Chapters 3 & 8). Similarly, no specific types of SFM activity should inherently be excluded, although in practice the range and financial performance of publicly traded companies involved in activities such as conservation might not match fund managers' requirements. Conversely, industrial plantations and vertically integrated NFM companies have been identified as potential targets for fund managers.

One major constraint is that there are still very few large (established) listed companies engaged in SFM, particularly in the developing world. Certified forestry companies tend to be small and often under private ownership. One solution proposed by Gullison et al. (1998) is through the creation of a forestry fund which could take on ownership and management of many smaller companies, but would itself to be large enough to be publicly listed.

On the more positive side, ongoing processes in the forestry sector like certification, due diligence, or the incorporation of ISO management standards, could neatly dovetail with environmental screening methodologies used by ethical fund managers. Appropriate SFM principles and criteria could be suitably adapted for use in screening.

### **Funding potential**

Medium (see above constraints), but likely to be focused (at least initially) on well-established high-profile companies in the forestry sector whose engagement with SFM is both easily verified and uncontroversial. Moreover, both the fund portfolios' equity investments tend to be focused in developed countries with established capital markets, or in TNCs. Smaller publicly traded SFM companies in the developing world are unlikely to be targeted.

### **Issues**

There are a range of prerequisites before environmentally-oriented portfolio equity capital can be accessed by SFM companies in developing countries, not least of which are established local stock markets. There are also numerous informational barriers that need to be overcome if investment opportunities in the developing world are to be linked to large-scale institutional investors. One such is the negative environmental perceptions of the forestry sector, and particularly NFM, amongst potential developed world shareholders and fund managers. This is compounded by the poor track record of natural resource investment (the worst performing sector

in the US in 1998) which has created entrenched negative perceptions of the performance of forestry-based equity on the capital markets.

Although, information on poor environmental practice appropriately wielded by shareholders can be a powerful tool for influencing portfolio fund managers' investment priorities, in practice, major institutional investors who dominate the shareholdings of ethical funds tend to be quite passive. More vociferous smaller investors and consumers, however, have been known to leverage changes in investment priorities. Government regulation is the other main driver.

The screening procedures of ethical investment funds are information-intensive. However, the provision of sophisticated analyses of companies' environmental performance to the financial sector is currently a growth area both within fund management infrastructure, and independently from rating bodies (e.g., Eco-Rating International in Switzerland, Investors Responsibility Research Center in the U.S., etc.). Increasingly, environmental performance analyses are being integrated into standardised investment ratings based on a more systematic consideration of the financial risks posed to a company's operations by current and future environmental requirements and liabilities. The Centre for Study of Financial Institutions (UK), for example, produces a bond-style rating which takes into account both the financial strength and environmental performance of a company using a credit-rating scale of AAA to C.

Small-scale SFM operators are unlikely to be able to access portfolio equity capital due to the informational and other requirements mentioned above. However, there are examples of investment funds, such as DevCap in the United States, that seek to create a link between capital markets of the U.S. and the capital needs of micro-entrepreneurs in the developing world.

Lack of capital is but one of a host of barriers to SFM. Moreover, attractive SFM investment opportunities for portfolio equity capital are likely to remain scarce while underlying policy and market failures persist in making forest mining more profitable.

The possibility of a multilateral environmental agreement on portfolio investment has also been suggested (based on the reactions against the OECD's proposed Multilateral Agreement on Investment) which would provide a framework for linking flows of portfolio equity capital to the stipulations of international environmental agreements.

## **References**

Richards 1998, Gentry 1996, Crossley, et al. 1996, Gullison, et al. 1998

## A/2. PUBLIC-PRIVATE INSTRUMENTS

### OVERVIEW

#### Type

Direct financial: equity, debt

#### Objective

Use of public sector resources, either financial or in kind, to remove key barriers to private sector involvement with activities for which social benefits generally outweigh private benefits; one result is often the leverage of significant levels of financial resources from the private sector both as direct investments and through the capital markets.

SFM barriers addressed	Main sources	Main recipients	Timing	Likely scale
Operational (e.g., lack of capital, risk)	Public Private commercial	Public Private commercial	Early stage Mid-stages (also late stage)	Local National Global

See also: Biodiversity venture capital funds; Sector-defining investment funds

### DESCRIPTION

There are a range of mechanisms and instruments that facilitate or embody public-private joint ventures. They share the common objective of using public sector resources, either directly or in kind, to leverage private sector financing into activities which, by virtue of identifiable barriers to investment, fail to attract the interest of the private sector investor community (and particularly the capital markets). Such activities can include what are traditionally regarded as “public works” such as building hospitals or roads.

Selected examples of such mechanisms include:

- *Seedcorn equity capital*– generally from public, or mixed public-private sources; typically invested in emerging enterprises which require debt or equity financing to scale-up to the next level of commercial activity; such enterprises could be too small to guarantee profitability and security, or could require specialist knowledge that major players in the capital markets do not have and might not want to acquire; alternatively, investors may have an interest in the later stages of a project, and so commit venture capital to pre-operational requirements such as feasibility studies or carry out market evaluations;
- *Project-based capital funds* – differ from seedcorn equity investments in targeting more immediate returns and thus more suited to providing debt or equity financing for removing mid-to-late stage operational barriers; generally capitalised exclusively from private sector resources;
- *Public-private partnership arrangements* – can be mediated by equity investments in joint venture companies designed to carry defined projects through the pre-profitability early stage using public or concessionary capital (cf. seedcorn capital); public sector cofinancing can have specific objectives such as buying down risk insurance or providing regulatory

oversight; private sector involvement can ensure managerial expertise, operational efficiency, further access to capital markets, etc.

## **ASSESSMENT**

### **Extent of application**

Widespread across a range of sectors. Well documented examples include:

- UNDP-BCSD Public-Private Partnerships for the Urban Environment programme provides technical assistance and seed funding through the Project Development Facility to identify and develop investment projects in which both public and private sectors have a stake and managing role.

The Global Environment Fund Inc. (GEFI) holds three funds with total managed assets of over US\$140 million, one of which is the Global Environment Emerging Markets Fund, backed by OPIC, the export promotion arm of the US State Department. This Fund invests 75% of its capital in private firms, targeting investments between US\$1.5-5 million with returns in excess of 40%. OPIC provides a credit guarantee which lowers GEFI's risk profile when issuing bonds on the institutional debt market.

- The Nordic Environmental Finance Corporation (NEFCO) was capitalised by ECU 40 million from 5 Nordic countries, under the auspices of the Nordic Investment Bank . It operates a venture capital programme involving equity joint ventures (and some loans) as a minority investor with generally less than a 35% stake.
- The Environmental Enterprises Assistance Fund Inc. (EEAF) manages various venture capital funds capitalised by a mix of private and public money. It provides loans or equity capital (or in combination) to small and medium sized environmental projects that might be excluded by large institutions and traditional capital markets.

### **Replicability for forestry**

Public-private instruments are on the ascendant throughout many sectors, particularly transport and construction, as well as environment. This global trend which is largely forced by shrinking state roles and revenues is likely to continue. There are no apparent constraints to such instruments being applied in the forestry sector, and indeed, some of the conditions that characterise SFM (such as long time-scales, initial capital investments, high risk, etc.) lend themselves to public-private joint ventures.

The prevalent global system by which the management of forest resources under state ownership is carried out under concession or contract by the private sector can in fact be seen as a loose form of public-private arrangement. Moreover, more specific types of joint public-private mechanisms are being developed for the forestry sector. One example are "tax-exempt environmental performance bonds" which are based on the large U.S. market for long-term (15-20 years) tax-exempt bonds which can be issued by local governments or private not-for-profit groups. Such groups could issue such a bond and buy a forest with the proceeds, paying

back the low-interest debt over time using revenues from the sustainable management of the forest.

### **Funding potential**

Venture capital funds, capitalised either by public or mixed public-private sector resources, have a very significant potential role to play in SFM. This is particularly the case for early stage debt or equity investments in enterprises incurring incremental costs of the transition away from unsustainable forest management.

### **Issues**

Considerable doubt still remains as to whether public money should be used to effectively carry private ventures through their pre-profitability stage.

Joint ventures are often designed to support activities for which, given existing policy and market failures, social returns are much higher than private returns, which themselves may therefore be lower than normal capital market requirements.

### **References**

Pearce 1996, Gentry 1996, Crossley et al. 1996, Gentry et al. 1997, UNDP 1998, Crossley 1998, Ruzicka et al. 1998.

### A/3. PRIVATE SECTOR FORESTRY INVESTMENT FUNDS

#### **OVERVIEW**

##### **Type**

direct financial: equity, debt

##### **Objective**

Mobilise institutional and other private sector capital for emerging sector investments; define and promote new investment by targeting funds to unexploited opportunities whose risk-to-return profile matches that of specific investors.

<b>SFM barriers addressed</b>	<b>Main sources</b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely Scale</b>
Operational (lack of capital flows into new investment areas)	Private commercial (public)	Private commercial	Mid-stage Late stage	National Global

*See also:* Public-private instruments; Portfolio Equity Investments; Early Stage Venture Capital Funds; Biodiversity Venture Capital Funds

#### **DESCRIPTION**

Private-sector forestry investment funds function like other sectoral investment funds, matching forestry's characteristic investment profile to the needs of potential investors. The attractiveness of forestry as opposed to other sectoral investments includes: protection against inflation; possible tax advantages; and the insulation of stock growth from market fluctuations. In particular, the risk return profiles of forestry investments can be tailored to serve as asset and liability management tools.

Sector-defining investment funds are a specialised type of private sector forestry fund, generally providing venture capital. They play a key catalytic role in mobilising financial flows into new investment areas by targeting funds at specific investors whose requirements match those of as yet unexploited opportunities. To take an example, the longer-term financial returns that characterise sustainable NFM might be matched to the investment requirements of pension fund managers. A sector-defining investment fund might then provide debt or equity financing for scaling up projects or enterprises approaching profitability in the mid-to-late stages of the business cycle. Such financial interventions can be complemented by information provision and streamlined access to any additional financial services required, particularly the mitigation of risk. If successful, such an investment would:

- inform the capital markets of the new investment opportunities,
- mobilise new or existing funds to provide similar services but over a larger scale, and
- catalyse new capital flows to the sector and activity in question.

In this context, private-sector forestry investment funds are assumed to operate at commercial rates. Those that rely on catalytic concessionary public sector resources to leverage private sector institutional capital are addressed under public-private instruments.

## **ASSESSMENT**

### **Extent of application**

Private sector forestry investment funds are relatively common in the developed world, particularly in the US, Australia, and New Zealand. Increasingly, opportunities are also being realised in the plantation estates of temperate developing world countries such as Chile, and Argentina.

One specific example is Xylem Investments Inc., an international timber investment management firm, which makes private equity investments in international publicly-traded plantation-based forestry companies based on expectations of a significant appreciation of forest assets (generally). Nominal rates of return are 15%. Xylem complements its investments with a strategic management role, seeking to develop vertical integration among 'investee' companies along the value chain.

### **Replicability for forestry**

Forestry investment funds are likely to focus on plantation establishment and management, and the downstream wood products industries. In this regard, the short rotations with associated cash flows attainable in the tropics make such funds potentially highly replicable in the developing world. However, this assumes that other structural preconditions are in place such as efficient capital markets, available information, political and macroeconomic stability, etc.

### **Funding potential**

Medium (at least in the short-term). Although new investment opportunities in SFM abound, there are a range of "preconditions" (mostly structural or risk-related) needed before forestry as a sectoral investment can break into the mainstream objectives of the private sector investor community.

### **Issues**

Precedents of forestry investment funds have tended to downplay the environmental and highlight the financial. This is perhaps exactly as it should be, for the leverage potential of such funds relies on the awareness they raise of forestry among the wider investment community. However, this does raise the question of the role environmental criteria play in influencing investment decisions. For example, how do fund managers screen for SFM as opposed to unsustainable forest management? And how effective are such screening procedures? There is a risk that such concerns become subordinate to financial considerations. In such situations, mobilising additional private sector capital is only likely to exacerbate the problems associated with unsustainable forest management. [N.B. See also Portfolio equity investments].

### **References**

Zinkhan et al. 1992, Crossley et al. 1996

## **B/4. NATIONAL ENVIRONMENTAL FUNDS (NEFs)**

### **OVERVIEW**

#### **Type**

Direct financial: grants, concessional credit

#### **Objective**

Create a stable source of financial resources for environmental conservation.

<b>SFM barriers addressed</b>	<b>Main sources</b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely scale</b>
Operational (potential for structural)	Public Private commercial	Public Private commercial and non-commercial	Early stage Mid-stage Late stage	Local National Sub-regional

*See also:* Conservation trust funds; Debt-for-nature and development swaps

### **DESCRIPTION**

NEFs refer to a variety of mechanisms including national level trust funds, foundations, and endowments. Funds can be single-issue, targeted at a specific area or activity, or multi-issue, addressing environmental management and sustainable development in a broader sense. The following features are typical of NEFs: (1) governed by boards representing different sectors of society, (2) capable of receiving and managing money from a variety of resources, and (3) able to make grants to beneficiary organisations. Most successful funds tend to operate like independent foundations, investing their assets and using the interest for fund programmes (endowment funds). However, such funds often require very large initial capital that is not easily available. Sinking funds face the problem of long-term continuity of financing. Revolving funds enable sustainability of operations. They require, however, high profitability from individual investment in order to be able to pay back the invested capital.

Trust Funds have two primary benefits in that they stabilise recurrent cost financing, and they moderate the volatility of funding. Indirect benefits include the flexible use of funds for a wide range of objectives, improved flow of funds by matching trust fund disbursements to expenditures as they arise, leveraging additional resources, enabling private-public partnerships, and empowering local communities to design and implement small-scale alternative livelihood projects.

The main sources have been GEF contributions, and other multilateral and bilateral aid funds but they also include NGOs and host country contributions, often through debt swaps or debt conversion.



## **ASSESSMENT**

### **Extent of application**

NEFs have been set up in more than 30 countries, including most of the countries in transition in Eastern Europe and Latin America. Only five countries in Africa and two in Southeast Asia have a NEF. Thirteen African and twelve Asian countries are in the process of preparing a NEF. About ten countries have more than one environmental fund.

### **Replicability for forestry**

Several NEF supported activities can be linked with SFM, particularly to finance conservation components. However, it is apparent that NEFs could be better geared towards SFM.

### **Funding potential**

NEFs have been particularly successful in Eastern Europe and Latin America and there is a considerable interest among donors to expand the experience to other areas as well. The volume of financing raised is measured in hundreds of millions but only a small share is apparently used for forest-related activities. By 1994, total commitments amounted to US\$850 million.

Considerable leverage on additional public and private sector funds have been achieved through NEFs. If multilateral development banks start serving as brokers and facilitators of debt swaps designed to capitalise NEFs, the funding potential could be substantially increased.

Several national sources have been tapped for raising funds for NEFs including “polluter pays” taxes, tourist taxes, and airline ticket taxes.

### **Issues**

The key issues to consider in the establishment of any Environmental Fund are (1) the source of funds, and particularly the possibilities to harness in-country resources (user fees, taxes and levies, donations, etc.) to ensure long-term financial sustainability, (2) the Fund’s long-term plan (areas of focus, type of activities, criteria of fund uses, etc.) (3) fund governance including the level of representation and decision-making power of NGOs in the board and the relationship between the board and the secretariat, (4) asset management (investments, risks, rates of return and the use of the fund’s capital base), (5) grant-making criteria which should be jointly established building on local participation in project preparation and assessment, and (6) fund monitoring and evaluation. Management must also be transparent and responsive.

Economic efficiency has been a cause of concern and the guaranteed sources of finance can result in wasteful management and poor expenditure choice. It has been therefore proposed that NEFs should address the specific market and institutional failures that hinder environmental investment.

Close relations with donors is essential. The donor base should also include local sources to complement external financing and increase the degree of ownership.

### **References**

Asad 1997, Bayon & Deere 1998, Crossley et al. 1996, Richards 1998, OECD 1995, Panayatou 1997a, Resor 1997, UNDP 1997.

## **B/5. DEBT-FOR-NATURE AND DEVELOPMENT SWAPS**

### **OVERVIEW**

#### **Type**

Direct financial: transfer payment

#### **Objective**

Transfer of financial resources from industrialised countries in recognition of the global externality values of forests, seeking to redress the inequitable market distribution of the costs and benefits of forest conservation, in which most (opportunity) costs are incurred at the local and national levels, whereas most benefits accrue at international level. Debt reduction.

<b>SFM barriers addressed</b>	<b>Main sources</b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely scale</b>
Operational (structural can be included in conditionalities)	Public (bilateral) Private commercial	Debtor government NGOs	Mid-stage Late stage	Local (site-specific projects) National

*See also:* Conservation trust funds

### **DESCRIPTION**

Debt-for-nature swaps involve an agreement between a donor or environmental NGO, and a debtor country, on the cancellation of debt in exchange for environmental commitments by the debtor country. Usually the donor or an NGO acting as an intermediary purchases a debt from secondary debt markets. The debtor provides local currency counterpart funds either at the face value of the debt or any negotiated amount. The counterpart funds, together with possible additional donor TA funds are used to carry out agreed conservation or development investments. The rate of debt conversion reflects a WTP for biodiversity conservation by the international community. The debt-swap formula can also be used to promote developmental investments, carbon sequestration (debt-for-carbon), or indeed anything else relating to forest services.

Several bilateral debt reduction facilities exist. An interesting recent example is the modality created by the U.S. Congress through an Act on Debt Reduction for Developing Countries with Tropical Forests. The Act recognises the values received by U.S. citizens from the protection of tropical forests as the justification for re-channelling existing resources into debt reductions to facilitate their protection. The eligibility criteria for countries in Latin America and the Caribbean are listed and it is required that they have put in place major investment reforms. However, the final decision on eligibility is maintained by the U.S. Government. The authorised appropriations will increase from US\$25 million in 1999 to US\$75 million in 2000 and further to US\$100 million in 2001.

## **ASSESSMENT**

### **Extent of application**

The first debt swap in 1987, in Bolivia, led to the establishment of the Beni Biosphere Reserve. This initial experience was followed by improved mechanisms in Ecuador, Peru, Bulgaria, and the Philippines.

### **Replicability for forestry**

There are no constraints in applying debt to nature for development swaps for sustainable forest management but in practice most projects have been oriented towards conservation or protection. It is also possible to extend the use of debt swap instrument to promote reforestation, sustainable use, other development, and carbon sequestration, etc. The replicability for forestry depends on the priority given to the sector by the ministry of finance in the debtor country as well as by the donor. The income generation and employment effects of sustainable forestry provide priority justification for the debtor government.

### **Funding potential**

Significant funds can be generated in national currency for forest conservation and protection. There is also some potential for leverage but it often appears limited.

The main sources in the past have been commercial private debt and official bilateral debt. Official debts can be sold to a converter under the 10%-clause. The clause does not say anything about pricing which is freely negotiable and donors are also free to donate the debts for nature conservation or development. The potential could expand if multilateral development bank debts, which are currently exempt from cancellation, could be drawn on. This has been suggested, e.g., by COICA in the Amazon Basin and the scope would be extended to cover debt-for-indigenous-territory swaps in which national governments agree to restore and protect indigenous land rights in return for debt reductions.

Recently, it has been proposed in the media that at least some of the debts of the countries affected by Hurricane Mitch (Honduras, Nicaragua, Guatemala at least) could be cancelled or converted into development and conservation commitments, including commitments for upstream reforestation.

### **Issues**

Discounted debts have been less available in the 1990s and limited discounts offered, but the current financial crisis may change the situation again.

Inflationary impacts should be controlled, particularly if large projects are involved. Purchasing second-hand debt tends to increase the price of remaining debt, thereby increasing the macroeconomic burden for debtors and thus the pressure on natural resources.

Organisational capacity and strategic planning of conservation organisations, combined with an unstable economic and political situation has reduced effectiveness and increased transaction costs.

Other issues concern the lack of local participation in land-use decision-making and in enforcing property rights, which may cause inefficiency and inequality.

**References**

Anderson 1994, Kaiser & Lambert 1996, Keipi 1998, Resor 1997, Richards 1998, 105th Congress of the USA 1998, Wells 1992.

## **B/6. CONSERVATION TRUST FUNDS (CTFs)**

### **OVERVIEW**

#### **Type**

Direct financial: transfer payments, concessional credit

#### **Objective**

Provision of long-term financing for biodiversity conservation. The purpose of GEF-supported funds is to finance the incremental costs of protecting globally significant biodiversity resources.

<b>SFM barriers addressed</b>	<b>Main sources</b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely scale</b>
Operational (potential for structural)	Public Private	Government agencies, NGOs, CBOs	Early stage Mid-stage Late stage	Local Sub-regional

*See also:* National Environmental Funds; Debt-for-nature and development swaps

### **DESCRIPTION**

The governance structure, scope of activities, priorities, and procedures of trust funds vary according to their purposes and the situation of the country. Two general categories are distinguished: (i) “parks” funds supporting specific protected areas within a national protected areas system; and (ii) “grants” funds channelling resources to target groups (typically NGOs and CBOs) for a broad range of conservation and sustainable development projects. In addition to financing, CTFs are often key actors in the development of national conservation strategies and providers of technical expertise to private and public agencies in development of effective management approaches. “Parks” funds have contributed to the establishment of “resource security” for protected areas. Several “grants” funds have applied a programmatic or geographic approach to achieve maximum impact. Most of the funds were set up as non-governmental institutions with mixed public-private governing bodies.

Many of them have proved to be effective in supporting protected areas, generating and managing financial resources, enabling participation of the civil society institutions in resource conservation, increasing the level of scientific research, and increasing public awareness of conservation issues.

### **ASSESSMENT**

#### **Extent of application**

There are more than forty CTFs. Seven have received GEF support and assistance. About fifteen new funds are under design or active consideration.

### **Replicability for forestry**

Many CTF-funded activities are already closely linked with the promotion of SFM in natural forests, including buffer zone management, alternative livelihood projects, etc. However, the emphasis is by definition on conservation-oriented activities.

### **Funding potential**

Based on several recent positive evaluations on CTFs it is expected that they will receive increasing support from GEF, bilateral donors, multilateral development banks, the private sector, and NGOs. The leverage impact is important as, e.g., six GEF funds have raised more than US\$32 million in non-GEF contributions. However, if the impact is measured in terms of endowment funding, it has remained limited. GEF supported funds have successfully applied an asset management and asset manager selection model developed by the World Bank. CTFs offer excellent opportunities to attract additional funds such as self-generating national funding sources, given appropriate policy changes (e.g., park user fees), with the resulting income channelled to conservation and social development programmes.

### **Issues**

Successful CTFs have good financial management systems and skills, high-quality technical staff and necessary technical support. They are accountable and they support participatory approaches to conservation and sustainable development.

Long-term biodiversity impact has been difficult to demonstrate.

Cost-effectiveness is constrained by the operating (non-programme) costs, which tend to be in the 25-30 percent range.

Except the largest countries, there is a limited pool of national talent available to be tapped for governance, asset management, and policy oversight, and a limited pool of potential financial supporters for whom multiple funds would compete.

### **References**

Bayon & Deere 1998, GEF 1998, Mikitin 1995, Report of ... 1994

**B/7. BIODIVERSITY VENTURE CAPITAL FUNDS**

**OVERVIEW**

**Type**

Direct financial: equity and debt

**Objective**

To provide risk capital for emerging biodiversity-based businesses

SFM barriers addressed	Main sources	Main recipients	Timing	Likely scale
Operational (risk reduction)	Public Private commercial and non-commercial	SMEs in biodiversity-based businesses	Early stage Mid-stage	Local National Regional

See also: Public-Private Instruments

**DESCRIPTION**

Biodiversity investments are generally considered to be inherently high risk and innovative reduction of the risk barrier is their main justification. Therefore, sector investment programmes or funds have been designed to address the special need of biodiversity-based businesses. Two recent examples are summarised: *The Terra Capital Fund* in Brazil is being set up to bring together investment management expertise (Banco Axial, Environmental Enterprises Assistance Fund, Sustainable Development Inc. and IFC), advanced sector know-how, and local and foreign capital. Funding (US\$20-50 million) is made available to businesses operating in sectors of interest to GEF, i.e. sustainable forestry (including non-timber forest products), agriculture and ecotourism. In addition to GEF and IFC, funds are raised from the private sector, multilateral and bilateral institutions, as well as other investors.

Expected returns are 18-22% (ROI), i.e. high but commensurate with risks taken. The ROI target of projects is 30%. The return requirements are lower than in more traditional venture capital funds because of the GEF grant of US\$5 million. Target companies include private SMEs under start-up or expansion in Latin America. Instruments are (preferred) equity up to 49% of ownership, convertible debt and subordinated loans as well as warrants and options. The Fund contribution can range from US\$0.5 million up to 15% of the total capital.

The *Multilateral Investment Fund (MIF/TNC) Environmental Enterprise Fund* of US\$4 million will help establish an NGO Enterprise Development Fund which will promote and support conservation ventures of micro-enterprise and small businesses in Latin America and the Caribbean. The financing consists of US\$3.25 million in risk capital and a technical assistance grant of US\$1.75 million. The project is sponsored by The Nature Conservancy and IDB but other donors are expected to join. Eligible projects include those in organic agriculture, sustainable forestry, and ecotourism.

The role of these sector funds is catalytic: encouraging follow-on investments by defining the investment opportunities, educating investors, and helping to channel new capital flows to the target activities and geographical area.

## **ASSESSMENT**

### **Extent of application**

Terra Capital is not yet in operation. It is expected to provide funding to established enterprises, rather than early stage ventures. Neither is the MIF/TNC Fund is operational yet.

### **Replicability for forestry**

Both sector investment funds are expected to fill a much needed void in the provision of risk capital to emerging biodiversity-based business, including SFM as one of the priority sectors. Priority given to forestry will be highly dependent on the expected return of projects. The funds are likely to finance natural forest management and utilisation, including non-timber forest products.

### **Funding potential**

Regional sector investment funds can be expected to raise funding in the order of tens of millions of dollars for SFM projects in the private sector. Leverage potential is significant, estimated at five to twelve times the initial investment.

### **Issues**

The principal reasons for Terra Capital Fund taking more than three years to establish have been the difficulty on identifying willing and able investors familiar enough with the fund's investment focus; finding qualified and knowledgeable partners and management; developing a high quality pipeline of potential investment objects; and the establishment of host country support to the regional fund. The "market test" of country/regional demand needs to be passed before the funds can become operational. Cost effectiveness may be jeopardised if the funding volume remains small.

Companies in the start-up phase may have difficulties in receiving priority for reasons of risk.

Carefully designed investment guidelines would be required to ensure both profitable investments and contribution to biodiversity conservation and sustainable use.

Due to high risks, grant funding is necessary to initially capitalise the funds.

### **References**

Asad 1997, GEF 1998, IUCN & TransGlobal 1998.



**B/8. SMALL AND MEDIUM SCALE ENTERPRISE CREDIT LINES**

**OVERVIEW**

**Type**

Direct financing: concessional loans

**Objective**

To leverage funds for environmental SMEs

SFM barriers addressed	Main sources	Main recipients	Timing	Likely scale
Operational (access to capital)	Public Private	SMEs	Structural (early / mid / late stages)	Local National

*See also:* Micro-credit; Small targeted grants

**DESCRIPTION**

The ventures financed by the World Bank Group credit lines should help demonstrate that SME projects can benefit the environment and be commercially viable. Their purpose also includes development of a track record for leveraging private capital flows into environmental investments, and the increase of the involvement of financial intermediaries to build financing capacity for environmental ventures. Intermediaries are necessary for a number of reasons: (i) tapping into their broad client networks, (ii) a larger number of SMEs can become involved (iii) risk assessment is best carried out at local levels, and (iv) possibility to draw on existing local and national arrangements to support such ventures.

The IFC SME Programme for Biodiversity and Climate Change was designed to stimulate the development of commercially viable projects with global environmental benefits. Due to uncertainties involved, the Programme is still in the pilot phase. Sustainable forestry is one of the applications of the programme. The instruments are low-interest loans, credit enhancement (guarantees), co-financing, and technical assistance. GEF grant acts as a lever for risk capital and helps make these projects viable by reducing the costs of financial intermediaries.

**ASSESSMENT**

**Extent of application**

There is substantial international and national experience to provide financing through targeted credit lines to SMEs. However, adapting this approach to environmental investments is still in very early stages. The IFC SME Programme had financed more than 20 projects by mid-1997.

**Replicability for forestry**

Targeted environmental SME credit lines can prevent biodiversity loss by creating new value from ecosystems and genetic resources, diverting pressure from critical areas, and practising low impact methods for sustainable yields. Certification can be used as a complementary instrument

for SMEs that sustainably produce timber and NTFPs, ecotourism, and other activities, particularly if environmental niche markets can be targeted.

### **Funding potential**

Theoretically, the potential is large, but there are various barriers that must be breached before large-scale implementation becomes reality. Leverage potential is obviously high.

### **Issues**

Most projects are small and therefore financial intermediaries are required if funding comes from multilateral sources. This is a constraint and, therefore, only a few projects have been funded. Multi-Project Facilities (MPFs) have been successfully implemented by some multilateral financial institutions (though not the World Bank). Management costs tend to become high if efficient arrangements are not in place.

Creditworthiness tends to be a common problem. Traditional corporate and project financing use a project's fixed assets as collateral for a given loan. Environmental ventures do not always have physical assets with sufficient commercial value to secure debt financing, which is also the case in many forest-based projects, where a lack of clear ownership rights may be an additional constraint. Performance contracts, accrued payments (e.g., under long-term sales contracts of plantations), letters of credit and guarantees (e.g., if there is a World Bank country risk guarantee programme) can be allowed as additional collateral for support. IFC has developed a unique private-sector oriented guarantee facility to 'collateralise' a co-financing facility in Hungary that has a potential for replication in other environmental investments.

The stability of a venture's cash flow to repay financing or provide a return on investment, whether actual, contractual, or performance-based is critical to a project's viability.

Non-typical credit structures easily emerge in environmental projects that involve complicated transaction structures with multiple parties and stakeholders.

There also tends to be a bottleneck where supply of credit lines do not meet demand. The programmes should be designed to be more demand-driven, and which can be supported by appropriate promotion and technical assistance. Lack of experience of market participants in this kind of ventures is still very limited.

Finally, economic policy or political constraints, such as subsidies that favour large-scale industries, may limit the access to credit by SMEs. The issues related to property rights and collateral are particularly serious for many forest-based enterprises that seek to meet both commercial viability and environmental sustainability.

### **References**

Asad 1997, McClellan 1997.

## **B/9. MICRO-CREDIT**

### **OVERVIEW**

#### **Type**

Direct financial: grant, concessional loan

#### **Objective**

Provision of capital for profitable small-scale forestry or related investments for farmers and other (small-scale) landowners.

<b>SFM barriers addressed</b>	<b>Main sources</b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely scale</b>
Operational (access to capital; risk) Structural (inadequate financial institutions in rural areas)	Public ODA & locally generated private savings	Private small-scale farmers and other land owners	Early stage	Local

*See also:* Small and medium scale enterprise credit lines; Small targeted grants

### **DESCRIPTION**

Micro-credits (also called rural micro-financing) have been developing rapidly during the past ten years. They can be hailed as a true success story in many countries' rural development strategies, particularly in Asia. Well-known examples are the schemes of the Grameen Bank of Bangladesh, the Bank of Agriculture and Agricultural Cooperatives (BAAC) in Thailand, and the Bank Rakyat of Indonesia, Unit Desa (BRI-UD). There are, however, possibly thousands of schemes all over the world, many of them supported by bilateral and multilateral ODA, development banks and NGOs.

The micro-credit concept is based on the assumption that individuals and families know best how to improve their own well-being. All that is lacking is access to the necessary capital (for structural reasons and because traditional financing institutions often consider small-scale rural farmers not creditworthy). Once provided with capital, farmers and families can make profitable investments, which allow them to pay back the loan and raise their net income. Other innovative elements include:

- new approaches to accessing capital reducing the costs on potential loan takers for taking a loan;
- reducing risks relating to bad debts by using social and financial pressure through "credit groups" instead of collateral which small-scale farmers often do not have; and
- linking extension on technical issues and family-level financial management with the loan-taking (such extension is usually financed by an additional ODA component within the credit scheme).

Micro-credit schemes are often self-financing and as such, financially sustainable. Interest rates charged are "market" rates, though lower than the interest rates charged by individual money-

lenders. Administrative costs, inflation, and risk are covered by the interest earnings. Loan repayment rates are usually very high, in the order of 95-97%.

## **ASSESSMENT**

### **Extent of application**

All developing countries where traditional rural financial institutions are weak and access to loans by small scale farmers is poor. Particularly well suited to cultures where local social pressure is strong (e.g., East and South-east Asia).

### **Replicability for forestry**

There is a major theoretical problem in restricting or directing micro-credit schemes to specific types of investment. The essence of micro-credit's success lies in the commitment and ownership of borrowers, which stems from their feeling fully in charge of their own investment. If the scope of micro-projects eligible for credit was limited to forestry projects, the sense of genuine commitment and ownership could be eroded.

However, there are successful examples of micro-credit schemes targeted at the forest sector (e.g., in Vietnam). In some of these schemes the reduced decision-making power of the borrower is compensated by a slightly subsidised interest rate, with the subsidy justified by the environmental externalities associated with forestry activities. In one such micro-projects scheme, the following eligibility criteria apply:

- (i) afforestation for timber production
- (ii) planting of fruit trees, trees producing spices, oils, tannin, or other marketable extracts
- (iii) agroforestry (permanent or semi-permanent inter-cropping)
- (iv) silvo-pastoral activities (animal husbandry in open forests)
- (v) live fences
- (vi) bee-keeping
- (viii) sericulture (production of silk)
- (ix) production of sticklac
- (x) production of non-wood forest products (from natural sources or semi-cultivated: medicinal plants)
- (xi) sustainable management of existing natural (primary or secondary) forests
- (xii) conservation of forest resources
- (xiii) small-scale processing of the products from points i-xi.

Forestry targeted schemes also require monitoring of the use of loans (which the non-tied schemes do not need) which can increase administration costs. However, monitoring can and should be linked with extension thereby providing additional training and motivation to the target group.

### **Funding potential**

For individual micro-projects, the funding potential is extremely small. For individual schemes, it is usually quite small. However, as the potential for replicability is enormous, the overall funding potential is quite large. Applicable only in areas where forest and land ownership is fairly well defined, and preferably based on individual or family tenure.

### **Issues**

Targeted schemes are theoretically somewhat controversial (see above). They also compete for the same ODA & local resources (financial & human) as non-tied and thus more attractive micro-credit schemes.

Recently many field forestry projects have included some kind of micro-project or micro-credit schemes. This kind of arrangement (linking micro-credit with broader agroforestry, community forestry, or farm forestry projects) allows adequate technical backstopping for the small-scale investments. In some cases project-based credit schemes can be mainstreamed to become national schemes managed by national forest authorities. Such schemes often include subsidised credit components in order to attain specific forest policy goals. Policy incentives, including (subsidised) micro-credit schemes for farm forestry should be integral components in any NFP.

### **References**

Johnson 1996, Salmi et al. 1997, Yaron et al. 1997, Zapata 1996.

## **B/10. SMALL TARGETED GRANTS**

### **OVERVIEW**

#### **Type**

Direct financial: transfer payment

#### **Objective**

Provision of financial support to NGOs and CBOs in activities related to sustainable livelihoods and environmental conservation.

<b>SFM barriers addressed</b>	<b>Main sources</b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely scale</b>
Operational	Public Private (mostly non-commercial)	NGOs, CBOs, communities, research groups	Early stage Mid-stage	Local

*See also:* Micro-credit; Small and medium scale enterprise credit lines

### **DESCRIPTION**

Targeted grants programmes provide direct financial support to target groups bypassing inherent implementation inefficiencies of central government delivery systems. Examples include Alternative Livelihood Grants and NGO/Small Grant Funds. The former are typically established as part of integrated conservation and development programmes to provide incentives to communities to participate and offset their potential economic losses as a result of implementing conservation activities.

NGOs/Small Grant Funds address institutional constraints resulting from overly centralised administration of environmentally sustainable development activities. This has improved effectiveness and efficiency in implementation and disbursement. In particular, participation and ownership have contributed to the quality of implementation. Local NGOs and CBOs invest their own time and energy and local collective action can be mobilised. Keeping the interventions small means they are flexible in responding to the needs of real life.

Some highly innovative projects and activities have been started and implemented by small-grants programmes.

### **ASSESSMENT**

#### **Extent of application**

The GEF Small Grants Programme allocated US\$16.6 million to country programmes from the US\$17.95 million provided for the Operational Phase. By June 1998, 45 national programmes had been set up and grants had been provided to more than 1,100 projects at a total cost of US\$42 million over 6 years. The share of biodiversity is 71%, climate change 17%, international waters 3% and projects with multiple focal areas 9%.

### **Replicability for forestry**

Targeted grants are applicable in most NGO and CBO based activities related to forest utilisation and conservation. The high share of biodiversity related projects within this mechanism is probably due to the NGO/CBO interest in such activities.

### **Funding potential**

The available experience is positive, but limited. Targeted small grants often provide the missing link between the local recipient group and the external source of financing. Systematic information on leverage is not available but in kind contributions are assumed to be significant. The GEF Small Grants Programme has not yet developed a strategy for attracting matching, non-GEF funding for its projects.

### **Issues**

Quality of local organisations to manage this kind of financing is a key constraint. The implementing NGOs and CBOs should have adequate technical knowledge, a legitimate measure of political and financial independence, and a clear link to local communities. The lack of attention to financial management often misses the opportunity for capacity building and for teaching the business and finance skills needed to manage and attract financial investments for environmental conservation. Partnerships with government organisations, international NGOs and the private business sector may often help fill the gaps.

Monitoring and evaluation methods are still evolving and there have been limited identifiable measures of success and impacts, partly because funds are relatively new.

High apparent administrative costs remain a challenge to be tackled. The GEF Small Grants Programme aims to keep them below the 25% limit. National variations are wide in the efficiency of managing small-grants programmes.

The small size of grants and their short duration (1-2 years) do not often allow sustainable impacts. Project income-generating components intended to promote sustainability are generally unconvincing. They often lack adequate feasibility studies and business-oriented management. More technical guidance is needed to help select sites and technologies.

### **References**

Asad 1997, Glaessner et al. 1994, Wells et al. 1998.

## **C/11. FORESTRY-BASED CARBON OFFSETS**

Due to their high estimated potential to influence private sector financial flows into SFM, forestry-based carbon offsets are considered in greater depth in Annex 5.

## **C/12. BIOPROSPECTING FEES**

### **OVERVIEW**

#### **Type**

Commoditisation: creating market for biodiversity use value

#### **Objective**

Generate and recover revenue for landowners and forest users for the production of biodiversity protection services

<b>SFM barriers addressed</b>	<b>Main sources</b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely scale</b>
Structural (market creation)	Private commercial Some public research bodies	Non-commercial private landowners and forest users Some public sector bodies	Structural (early / mid / late stages)	Global

*See also:* Water resource use charges; Forestry-based carbon offsets

### **DESCRIPTION**

Bio-prospecting is based on the potential value of natural biological materials to facilitate the development of commodities such as pharmaceuticals, genetic strains of crops, or food supplements. Charging bio-prospecting fees is the mechanism by which this value is recognised by the market, by capturing the actual use or economic value of biodiversity (N.B., not the non-use or existence value). Such fees are paid by interested parties, principally pharmaceutical or agrochemical companies, to landowners or intermediary institutions for the rights to access, study and potentially commercialise genetic and other biochemical information stored in indigenous plant, animal, insect and microbial species.

### **ASSESSMENT**

#### **Extent of application**

The most well-known example of a transaction within this emerging market is the Costa Rica – Merck agreement under which INBio, Costa Rica’s national biodiversity institute, collects and processes plant, insect and soil samples from Costa Rica’s national park forests and supplies them for assessment to the pharmaceutical company, Merck. For the service, Merck pays US\$1 million, as well as a share (probably between 1-3%) of the royalties from any successful drug developed from the material supplied. All patent rights remain with Merck. Pfizer tried to negotiate a similar arrangement with Ecuador, but was unsuccessful. Shaman Pharmaceuticals in the U.S. has raised US\$100 million in capital to bio-prospect in cooperation with indigenous



peoples in Brazil, Argentina, and elsewhere. Patents on 2 drugs have been established thus far. Andes Pharmaceuticals seeks to build host countries' own capacity to screen biological materials through technology transfer agreements with universities or NGOs.

However, the general consensus among professionals in the field is that the bio-prospecting boom expected at the beginning of the decade has failed to materialise and is unlikely to do so.

### **Replicability for forestry**

As an estimated 40-90% of the world's species live in tropical forests, bio-prospecting is potentially highly replicable in forest systems, particularly those with biodiversity hotspots, and in general, any species-rich forest types. Thus natural tropical forests are favoured; temperate and boreal forests less so. Conservation areas are most eligible, through perhaps also protected areas within managed forest concessions. Bio-prospecting is unlikely to apply to industrial plantations.

An interesting criteria for and possible constraint to bio-prospecting is the coincidence of biodiversity-rich forest areas and indigenous knowledge stored in local forest-living or forest-using communities (see Issues).

### **Funding potential**

Funding potential has proved controversial. Global revenue has been estimated to be in the region of US\$1 billion annually, but market demand has failed to meet expectations by a substantial margin. This is largely because success rates are minuscule: in the order of one sample in every 250,000 directly yields a commercially-viable pharmaceutical product. Moreover, drug development lead-times are usually 5-12 years, and can cost US\$250-350 million to bring a drug to market. Net present value of bio-prospecting rights to pharmaceutical companies is therefore low.

Potential for bio-prospecting for genetic improvement of industrial tree crops is also uncertain, given the well-established alternative techniques. Moreover, exploitation of natural genetic material (as opposed to other chemical and biological information) is still an incipient field, with revenue streams likely to be decades rather than years away.

### **Issues**

Biodiversity values – both use and non-use – are difficult to evaluate. Use values in tropical forests range from US\$0.01-21 per hectare per year, though most studies tend towards the US\$1/ha/yr mark. The social value of genetic material has been estimated at over 50 times this private use value, but society's WTP is difficult to recover.

Laboratory synthetic techniques and technologies (“combinatorial chemistry”) are improving rapidly. Biochemical molecules can be made en masse, systematically screened using automated bioassays, and then, where appropriate, subjected to in vitro and then in vivo testing. The net result of such advances is likely to be that random sampling of natural biodiversity will diminish. Researchers might however focus on sampling based on local knowledge of medicines, food stuffs, successful crops, etc. However, the most important natural source of testable compounds are from microbes, which are much less forest-specific, and do not involve local populations.

Bio-prospecting has significant and complex implications for and requirements from intellectual property rights regimes, both nationally and at the global level (e.g., through the TRIPS agreement). The patenting of genetic material is particularly controversial. Various policy and legal frameworks have been established at national and regional levels (e.g., Andean Community, Organisation of African Unity, U.S. International Cooperative Biodiversity Group Programme) to regulate future bio-prospecting contracts, and to avoid further problems with 'bio-piracy', the unauthorised exploitation of a country's biodiversity resources by foreign companies or researchers. A focus of such frameworks has been to ensure any benefits are shared with local communities, often repositories of the knowledge that enabled successful bio-prospecting in the first place. A Biotic Exploration Fund has also been proposed to develop standardised contractual arrangements between biodiversity providers (or "custodians") and users wishing to screen organisms for biochemical activity. Such arrangements would constitute *de facto* intellectual property rights over plants and animals *in situ*.

There are also questions of enforcement, as it is extremely difficult to trace a chain-of-custody from any given organism to a marketed drug, thus creating scope for abuse by buyers in awarding royalties to biodiversity providers. As precedents suggest significant revenue from bio-prospecting will only come from royalties generated by "blockbuster drugs," and not initial payments, enforcement issues as well as payment time-scales are key issues.

Distribution mechanisms need to be in place to link bio-prospecting payments to those whom provide and facilitate access to the biodiversity, often small-scale forest dwellers, and users. Strong scientific (institutional) capacity is also required.

### **References**

Macilwain 1998, Pearce & Steele 1997, Chomitz et al. 1998, McNeely 1997, Southgate 1997.

## C/13. WATER RESOURCE USE CHARGES

### **OVERVIEW**

#### **Type**

Commoditisation: creating market for watershed protection services of forests

#### **Objective**

Generate revenue for forest users and managers for the production of watershed protection services.

<b>SFM barriers addressed</b>	<b>Main sources</b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely scale</b>
Structural (market creation)	Private and public water users	Upstream landowners	Structural (early / mid / late stages)	Local Sub-regional (e.g., pan-national river basins)

*See also:* Bio-prospecting fees; Forestry-based carbon offsets

### **DESCRIPTION**

Water resource use charges are designed to correct market failures in order to make upstream farmers choose environmentally desirable investments to protect the water supply to downstream populations. Compensation is provided to induce environmentally benign practices. Water fees and tariffs are adjusted to pay for watershed management.

In Colombia, a law requires the electric power companies to transfer 2% of their gross sales to direct investment in watershed management, or to environmental authorities. In Costa Rica, the water company is charged US\$6 million and the power company another US\$3 million per year. The fees will then be used to finance the conservation of some 1.3 million ha of forest in the watersheds supplying water to the city.

A recent example is the Watershed Protection Fund established in Quito, Ecuador by the municipal government and the private sector with the assistance of The Nature Conservancy. Funding is raised from water charges to electricity companies and private water users and from the public water authority. Grants and loans are then provided to individuals and communities upstream to help them conserve the watershed via measures such as tree planting, protection, and erosion control, and develop alternative livelihoods.

### **ASSESSMENT**

#### **Extent of application**

Widely applied in the United States. The recent example of Quito is creating a lot of interest for similar projects in Latin America. Thailand charges user fees at centralised waste-water treatment plants.

### **Replicability for forestry**

Several studies have pointed to the successful and effective use of these resources in forest conservation and restoration of degraded areas in Colombia, and reforestation in Quito. In addition to watershed management (tree planting, protection, and erosion control), funds can be used for other activities related to SFM as a means of creating alternative sources of income to local populations. As this mechanism becomes more established, it might shift its focus (in terms of SFM activities) from being reactive (e.g., reforestation to address upstream water flow degradation or soil erosion) to being more active (e.g., incorporating watershed buffer zones in forest management plans).

### **Funding potential**

Significant funding potential to be measured in tens of millions of dollars for areas adjacent to major cities. Leverage potential is expected to be moderate. A large number of internationally financed water projects could be adjusted for the concept of creating a market for watershed services through water charges, particularly as unclear property rights over water and the consequent lack of allocated responsibility for watershed protection and water use are increasingly seen as threatening water-based environmental conflicts (tragedy of the commons argument). This mechanism can contribute towards SFM in watershed areas by providing the incremental costs of incorporating watershed protection into forest management.

### **Issues**

Several issues need to be addressed in the design of the financing arrangements including the collection of revenues from users and raising funding from other sources, the valuation and pricing of the watershed services, the market mechanism targeted at producers, particularly at the small-scale, and monitoring and supervision. Environmental awareness among the public helps to establish such schemes and to create a real WTP. Effective organisation of farmers and landowners would help to mobilise demand for financing.

The potential for wide application of this or similar mechanisms has been highlighted by the dramatic flooding this year in China, Central America and Italy, all of which have pointed out upstream deforestation as a major contributing factor.

### **References**

Curtis, personal comment, Gaviria 1997, Heindrichs 1997, Hueth 1995, Keipi 1998, McNeely 1997, TNC 1998.

## **C/14. TRADEABLE DEVELOPMENT RIGHTS (TDR)**

### **OVERVIEW**

#### **Type**

Commoditisation

#### **Objective**

Domestic TDR (domestic buyer) provides a financial means of compensating restricted or “attenuated” property rights. International TDRs (international buyer) represent potential way of capturing and internalising global externalities.

<b>SFM barriers addressed</b>	<b>Main sources<sup>1</sup></b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely scale</b>
Structural (legal and policy failure)	public private non-commercial	private commercial private non-commercial	structural (early / mid / late stages)	National Global

<sup>1</sup> Likely to include: local and international NGOs, governments, research / scientific institutions.

*See also:* Marketable forest protection and management obligations

### **DESCRIPTION**

TDRs are marketable rights to development in areas reserved for conservation that can be sold to public and private sector conservation interests, or exchanged for development rights on land outside the “restricted use” areas. Land itself is not sold, only the development rights. The exchange value of TDRs should reflect a balance of buyer’s WTP for the public good values (conservation), and the seller’s estimation of their foregone development benefits (opportunity costs), plus a profit margin.

In international TDRs the equilibrium price should lie between the WTP of the rest of the world for a nation’s conservation benefits, and a supply price based on the opportunity costs of conservation or forgone development benefits. International Franchise Agreements (IFAs) represent a contractual structure for TDRs on state-owned land in which national sovereignty is respected, conflicts are minimised, and appropriate land use incentives are promoted.

A conservation easement is a special type of TDR, in which landowner and conservation organisation enter into a voluntary agreement, in which the former is compensated for restricted use of the land in order to protect a specific habitat.

### **ASSESSMENT**

#### **Extent of application**

Only a few applications in North America, most notably in Virginia where the impetus has come from land use zoning regulations in which land has been divided into conservation and development areas. Conservation easements have been applied in North America and proposed for the Amazon.

### **Replicability for forestry**

Replicability is unproblematic, particularly as TDRs can specifically address the opportunity costs associated with SFM. It is likely to be limited to conservation or non-extractive forest uses.

### **Funding potential**

Funding potential is difficult to estimate though probably low. Some argue domestic TDRs would only take off if purchasers could set them off against a general conservation tax that requires a high (and therefore unlikely) level of political and financial commitment.

### **Issues**

Markets for TDRs have to be developed. Allocation of yet more property rights over forests could provoke further reaction from local communities and NGOs. Also, legal reform would be required to recognise TDRs.

Significant levels of capacity are also required, including:

- capacity to assess WTP for public goods;
- monitoring / enforcement capacity, as payment for TDRs is conditional on performance;
- long-term strategic development plans / visions to determine the division of land between development and conservation

The distributions of benefits should be based on clear principles. All this requires local capacity building to plan and implement TDRs.

Three main advantages have been suggested:

- TDRs can be established on a bilateral level and no international convention is needed;
- the market place determines the value; and
- national sovereignty issues can be avoided as countries can retain control.

### **References**

Richards 1998, Panayatou 1992 & 1997a.

**C/15. MARKETABLE FOREST PROTECTION AND MANAGEMENT OBLIGATIONS**

**OVERVIEW**

**Type**

Commoditisation

**Objective**

To provide a multilateral financing mechanism for forest protection and SFM.

SFM barriers addressed	Main sources	Main recipients	Timing	Likely Scale
Structural	Public (possibly private)	Governments with large forests and small protection obligations	Structural (early / mid / late stages)	Global

*See also:* Tradable development rights

**DESCRIPTION**

A global system of marketable forest protection and management obligations has been suggested by Sedjo, et al. (1991). Under a voluntary global forestry agreement the aggregate or global requirement for protecting or sustainably managing forests could be distributed to the signatories according to a formula based on the mix of their forest areas and national incomes. Holders of obligations must either fulfil them on the ground or induce another agent to assume them by means of a payment. Countries with large obligations (based on income levels) and small forest areas would have an excess of obligations, while countries with small obligations and large forest areas would have excess forest, providing a clear basis for negotiation and trade. The system has the advantage that countries would comply with conservation and SFM obligations from self-interest, and less-forested countries would have relatively higher costs.

**ASSESSMENT**

**Extent of application**

Not applied at present.

**Replicability for forestry**

Theoretically it is widely replicable, but a political feasibility assessment would be necessary.

**Funding potential**

Cannot be assessed at this stage; theoretically large.

**Issues**

The difficulties lie in negotiating a comprehensive international agreement to establish the system, the need for an international institution or clearing house to allocate the certificates, and regulate international trade in them, and the common monitoring and enforcement problems. Similar problems are being observed with regards the trading of carbon offsets.

**References**

Barbier et al. 1994b, Richards 1998, Sedjo et al. 1991



## D/16. FISCAL INSTRUMENTS

### OVERVIEW

#### Type

structural

#### Objective

Objective-led restructuring of tax and subsidy regimes to provide financial incentives for socially desirable activities, and disincentives for undesirable ones.

SFM barriers addressed	Main sources	Main recipients	Timing	Likely scale
Structural (policy failures / perverse fiscal incentives)	Private commercial	Public Private commercial and non-commercial	Structural (early, mid, late stages)	National

*See also:* Water resource use charges; National forest funds

### DESCRIPTION

There are numerous different ways of using tax and subsidy regimes to encourage environmental behaviour. Increasingly, for example, fiscal policy is used to ensure:

- that the private costs of environmentally harmful activities are brought nearer to their social costs (the “polluter pays” principle); and
- that the costs of supplying environmentally beneficial services can be recovered by those who provide them from those who benefit from them (e.g., see fact sheet on Water resource use charges).

In the latter case, direct “transfer payments” rather than fiscal incentives can also be used (e.g., Costa Rican PFP programme; the EU’s Common Agricultural Policy Agenda 2000 reform).

Differential land use taxation also aims to internalise the non-market social benefits of different land uses or potential uses by establishing tax gradients between environmentally “good” (low tax) and “bad” (high tax) activities. Such land use tax reform is designed to compensate land users for providing environmental services, and for lost opportunity costs. However, it is also needed to redress the historical tendency to fiscally favour productivity, associated with intensive monoculture agriculture. Such “perverse incentives” or subsidies activities such as forest conversion pervade most country’s tax systems and are beginning to be studied and addressed within the context of moves towards “full-cost pricing” (e.g., de Moor et al. 1998).

Other fiscal instruments, both general and specific to the forestry sector, include: ecological VAT (e.g., Brazil), tree-planting subsidies or subsidised credit (e.g., Chile), tax breaks for reforestation (e.g., Panama), concession taxes, logging taxes, C/energy taxes (e.g., EU), etc.

It should be noted that the use of the tax system to encourage socially-desirable behaviour is clearly not innovative. However, recently-identified environmental “goods” are throwing up new and innovative ways of using fiscal instruments – hence their brief inclusion here. As a final point, although incentives are most commonly associated with tax and subsidy regimes, there are also abundant non-monetary incentive mechanisms such as input financing, food for work, wage payments, directed credit, etc.

## **ASSESSMENT**

### **Extent of application**

Universal. All countries have fiscal regimes that in some way affect environmental behaviour. However, the marriage of environmental objectives and fiscal/market structures is comparatively recent, although the number of precedents is rapidly growing, particularly in Europe.

Examples specific to forestry are less known. Differential land use taxation to guide fuel wood collection appears to have been successfully implemented in Niger and is being replicated in Mali, Chad, and Senegal (and of a different form in Germany). Brazil has introduced an ecological value-added tax (VAT) in 4 States, and re-allocated tax revenue to municipalities according to environmental criteria such as forest conservation. Panama’s 1994 Reforestation Law created a variety of fiscal incentives to promote forest protection, reforestation and at the same time, the country’s cultivated wood industry. For example, all investments in reforestation projects are 100% tax deductible.

### **Replicability for forestry**

There are no fundamental constraints for using fiscal instruments to encourage all types of SFM according to each country’s priorities. There are numerous requirements, however, that may limit their widespread application including: institutional and fiscal capacity; effective tax collection and enforcement system; stakeholder consensus; detailed information on impacts, marginal costs of compliance, social costs of different activities; distribution mechanisms, etc. (see 'Issues').

### **Funding potential**

Potentially large, but subject to fiscal traditions, attitudes, and capacity.

### **Issues**

New taxes can be raised on activities that are effectively subsidised by other indirect components of the fiscal regime. Although disentangling perverse incentives from complex tax structures can be more laborious, the full private cost pricing that should result is generally a necessary first step before new targeted taxes or charges can be *effectively* used to internalise environmental externalities that carry social costs.

Taxes have multiple objectives, which often conflict with making the tax workable or effective. The two principal objectives are to raise revenue (generally requires a low tax with a broad base), or to provide incentives/disincentives for desired/undesired behaviour (generally requires a high tax with a narrow targeted base). Comprehensive programmes of “green tax reform” aim to combine both these objectives by raising environmental taxes but reducing labour taxes, the net result being net revenue neutrality. Other fiscal objectives include the redistribution of land and income.

New taxes are usually resisted fiercely by electorates and companies who stand to be affected. Accusations of tax-obsession are cheap and effective weapons in the political arsenal. Ceding exemptions to key affected parties can often undermine the objective of the tax (as happened with proposed EU C/energy tax). Opposition to environmental taxes can be mitigated by earmarking tax revenues to specific synergistic spending or reinvestment plans. However, hypothecation is deeply unpopular with treasuries, and subject to future hijacking (as happened with the Costa Rican fuel tax). In some cases, devolution of tax responsibilities can offer better guarantees of reinvestment.

Fiscal instruments often need other legal, economic and policy frameworks to be in place. Examples include: privatisation, land-use zoning, structured markets, established property rights, enforcement and compliance regimes etc. Lack of complementary capacity can undermine fiscal effectiveness.

Fiscal reform is information-intensive. Tax-setting needs both accurate valuations of the social costs of given activities, which are controversial at best, and knowledge of the marginal private costs of abating harmful activities or making the transition to beneficial activities, which is often closely-guarded industry information. Flexible taxes can offer some scope for trial-and-error.

New incentives should be temporary so as to avoid long-term dependencies and intractability of reforms.

Distribution mechanisms are needed for fiscal incentives or transfer payments intended to reach smallholders who don't pay income, land-use, or property taxes.

### **References**

Laarman 1997, Haltia 1997, Richards 1998, Asad 1997, Crossley et al. 1996, Bruce et al. 1996, OECD 1997, Chandrasekharan 1996b, Landell-Mills 1998.

## **D/17. NATIONAL FOREST FUNDS**

### **OVERVIEW**

#### **Type**

Structural (though can also be direct financial through targeted payments)

#### **Objective**

Provision of capital for forestry operations

<b>SFM barriers addressed</b>	<b>Main sources</b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely scale</b>
Structural <sup>1</sup> Operational (e.g., risk reduction, incremental costs of SFM)	Internally-generated income ODA grants	Government forest departments Private farmers & land owners	Early stage Mid-stage Late stage	Local National

<sup>1</sup> assuming government forest department has some degree of financial autonomy

*See also:* Fiscal instruments; National environmental funds

### **DESCRIPTION**

In many countries, the government forest department (FD) is in charge of managing state-owned forests. However, the FDs are rarely allowed to keep the income received from forest management (timber sales, sale of licenses, etc.), as they are required to submit all receipts to the central state treasury. In turn, the FDs receive annual budget allocations like any other government department for development and recurrent costs. Due to chronic budget deficits and low-ranking political priorities, these budget allocations to FDs are generally insufficient for effective SFM of state forests. Consequently, the FDs have little incentive in carrying out forest management operations in a way that would generate net income.

National Forest Funds have been recently established in some countries such as Tanzania to enable the FDs to withhold at least some part of the revenue generated from forest management activities. Rules have been defined for the use of these funds (e.g., reforestation, staff training, local travel). Such a mechanism provides a degree of financial autonomy for the FDs, and incentives to carry out SFM efficiently and profitably. In some other countries such as Nicaragua, the fund is mainly aimed at providing incentives for SFM to private farmers or land owners (usually afforestation or reforestation). In both cases, national inputs to the fund can be topped up by ODA grants.

### **ASSESSMENT**

#### **Extent of application**

All countries where state-owned forests are managed by ordinary government departments (i.e., not by autonomous or semi-autonomous agency or authority, etc.). The National Forest Fund of

Tanzania provides recurrent and development funds for FD itself. Fondosilva in Nicaragua provides incentives for private farmers and other land owners, mainly for tree planting.

[The Forest Renewable British Columbia (FRBC) is a sub-national equivalent, set up by the Ministry of Forestry in British Columbia, as a not-for-profit corporation to manage funds (about US\$310 million per year) earmarked from increased stumpage royalties. The FRBC's principal objective is to assist its forest sector in making the transition to SFM (although much of the funds disbursed are invested in restocking and reforestation degraded forest lands).]

### **Replicability for forestry**

This mechanism is well-suited for the full range of SFM activities, as determined by the respective FD or fund managers. It can provide a strong incentive for national forestry staff to streamline operations under a business-oriented framework.

### **Funding potential**

Funding potential is substantial, though it depends on the commercial potential of state forests. Leveraging potential of ODA grants can also be significant.

### **Issues**

The major barrier for the application of this mechanism includes the reluctance of Finance Ministries to allow individual sectors or departments to gain financial, and by extension, political autonomy. Consequently, the setting up of such a mechanism usually requires lengthy negotiations between ministries. In many cases, such negotiations produce some kind of compromise income-sharing between the FD, forest fund, and the treasury.

There can also be prejudices and worries (particularly among donors) relating to the potential mismanagement of funds, financial discipline, transparency of use, and corruption. Some kind of jointly agreed regular external auditing system may be useful in this regard.

In many cases, national forest funds reflect the separation of normative and operational functions of state forest authorities, a trend that is becoming increasingly evident globally.

Most FDs have neither adequate business experience nor the capacity for fund management. Necessary training, and possibly external recruitment, are thus necessary when starting a National Forest Fund. Otherwise, organisational overheads may be too high with too little of the funds being used for their intended purposes.

Some schemes (e.g., Fondosilva in Nicaragua) suffered from high dependence on ODA grants from single donor agencies. It is very important that schemes generate most of their income from internal sources (i.e., revenue from forest operations). This allows for the necessary financial independence and sustainability.

### **References**

Alves-Milho (1996), Government of Tanzania (1998)

## **D/18. ENVIRONMENTAL PERFORMANCE BONDS**

### **OVERVIEW**

#### **Type**

direct financial: incentive for good environmental performance

#### **Objective**

To tie companies to predetermined environmental performance standards over the long-term by requiring a pre-operational deposit that is only refunded if the agreed standards are adhered to. The bonds entail a shift of responsibility for enforcing good environmental practice from the public sector to the private producer.

<b>SFM barriers addressed</b>	<b>Main sources</b>	<b>Main recipients</b>	<b>Timing</b>	<b>Likely scale</b>
Structural (high discount rates, high opportunity costs of SFM)	Large private commercial operators	Public sector	Early stage (payment) Late stage (payback)	Local National

*See also:* Fiscal instruments

### **DESCRIPTION**

Environmental performance bonds consist of up-front financial payments by a company or operator prior to the commencement of project activities. These “bonds” or guarantees are then returned to the company at the end of the project if certain predetermined environmental performance standards are met. If not, the performance bond can be used to fund appropriate environmental mitigation measures, or other environmental schemes. Such bonds are generally held on deposit by appropriate government departments or agencies.

Various elaborations can be added to this basic formula. For example, performance bonds could be used to capitalise endowment funds whose interest is used to finance environmental projects over the short-term. Alternatively, interest from the performance bonds can be used to fund field inspections of the bound company’s activities, which, if favourable, could result in periodic partial refunds of the bond over the length of the project cycle.

### **ASSESSMENT**

#### **Extent of application**

Environmental performance bonds have been implemented in Malaysia, Indonesia, and the Philippine’s’ forestry sectors. Their use was largely unsuccessful, largely because their value was set too low. More successful precedents come from other sectors, such as mining. Further examples can be found in Papua New Guinea, Chile, and Finland. India has applied performance

bonds in some states for NTFP leases such as bamboo. Their potential use in Ghana, Honduras, and Cameroon is also being considered.

### **Replicability for forestry**

In forestry, environmental performance bonds can be most effectively used to encourage long-term multiple-rotation management of natural forests by overcoming what has been called the “bogey” time problem caused by high discount rates applied to 30-60 year rotations. Gradual payback of the performance bond over the second rotation provides a continuous income stream to the forest manager, and reduces the opportunity cost of not moving to another un-logged area. Indeed, evidence from bio-economic modelling simulations by the World Bank suggest that relatively small performance bonds can be used to induce loggers to adopt reduced-impact logging practices. However, much larger bonds are needed to induce compliance with minimum-diameter cutting limits.

Environmental performance bonds could also be used in a range of other SFM scenarios, for example to encourage replanting (in plantations) or enrichment planting (in natural forests) at the end of a rotation. Other applications include requiring verifiable implementation of environmental management systems, training, dissemination of information, soil protection measures, etc.

### **Funding potential**

If structured appropriately, performance bonds have significant potential to ensure SFM activities in the long-term. Moreover, some of the interest from the performance bonds could provide valuable income for reinvestment in the forestry sector if the government department acting as bond-holder is allowed to 'ringfence' the performance bond deposit account.

### **Issues**

The value of the performance bond is crucial in determining whether it will encourage the desired environmental behaviour. If it is set too low, such that even when included in a forest manager's calculations it still leaves the opportunity cost of a second rotation (for example) higher than the NPV of moving into a new area, the company will likely forfeit its guarantee. Even though this will raise some revenue for the bond-holder, the desired environmental performance will not have been achieved.

Performance bonds can be valued either by auctions or based on some formula relating to likely profitability. The former may result in the bond value being set too low; the latter requires often unavailable information.

The environmental performance required by the bond should be clear, preferably simple and not open to interpretation, easily verifiable, and ongoing rather than an “one-off” event. Ideally, performance standards should be agreed consensually between the bond-holder and the bond company.

Likely to be a viable instrument for large-scale operators only, due to the level of financial and strategic commitment required. Performance bonds are likely to be deeply opposed by those obliged to deposit them. There is also the risk that they may constitute a perverse incentive for

natural forest conversion to monoculture plantations (not subject to the performance bonds) if appropriate and enforced land-use zoning restrictions are not in place.

**References**

Richards 1998, Price 1990, Crossley et al. 1996, Paris et al. 1994, ITTO 1991, Landell-Mills et al. 1998, Boscolo et al. 1998.



## FORESTRY-BASED CARBON OFFSETS

### 1. BACKGROUND

The term 'carbon offsets' embodies the concept of commoditisation of the carbon sequestration and storage services provided by forests. The actual mechanisms for creating this market are Joint Implementation (JI), and the Clean Development Mechanism (CDM). "Forestry-based carbon offsets" is thus used as a generic term encompassing these specific financing mechanisms.

During the last ten years, forestry-based carbon offsets have evolved from a theoretical idea towards being a market-based instrument for accomplishing the global environmental objectives of the United Nations Framework Convention on Climate Change (FCCC), signed in Rio in 1992 during the United Nations Conference on Environment and Development (UNCED).

A major step forward in this process was the signing of the Kyoto Protocol by 170 countries to the UNFCCC in December 1997. The most important aspect of the Kyoto Protocol is the adoption of legally-binding commitments by 37 developed countries and economies in transition (collectively called the "Annex 1 countries") to reduce their greenhouse gas (GHG) emissions by an average of 5.2% below 1990 levels (the "baseline") by the years 2008-2012. Crucially, forestry and land-use change activities were included among the recognised strategies that countries could use in meeting these GHG reduction commitments.

The Protocol also provides for the use of 3 "flexibility mechanisms" designed to facilitate the attainment of these commitments, principally (in theory) by reducing the implementation costs of the GHG reduction targets. These mechanisms are:

- QELRO trading – the international transfer of national allotments of emission rights or Quantified Emission Limitation and Reduction Obligations (QELROs);
- Joint Implementation (JI) – creation of emissions reduction credits through transnational investments between Annex 1 industrial countries and/or companies; and
- The Clean Development Mechanism (CDM) – a new mechanism resembling JI, which allows for the creation of Certified Emission Reduction (CER) credits in developing countries, regulated by a newly formed central authority.

The recent CoP to the UNFCCC in Buenos Aires, November 1998, agreed a timetable for finalizing the necessary rules, structures, and methodologies for the implementation of these flexible mechanisms. The deadline has been set for CoP6, which is scheduled for October 2000.

In relation to forestry, both JI and the CDM can be seen as important financial mechanisms based on the valuation of an externality of global importance. Both, though particularly the CDM, have the potential to mobilise vast financial resources for SFM activities.

### 2. JOINT IMPLEMENTATION (JI)

The concept of JI was originally proposed by Norway in 1991 in the negotiations leading up to the Rio UNCED Conference. Until the Kyoto Protocol, the terminology of JI (and Activities Implemented Jointly – see below) was virtually synonymous with the overall sweep of emissions

trading possibilities. The Kyoto Protocol, however, narrows the scope of JI considerably. Article 6 of the protocol defines JI as the creation, acquisition and transfer of emission reduction units (ERUs) between Annex I parties (developed countries and economies in transition) that result from projects aimed at reducing GHG emissions at sources or enhancing GHGs removals by sinks. JI is specifically based on the idea of international investments in specific projects.

According to the Kyoto Protocol, JI projects must:

- be approved by the parties involved;
- provide reductions in GHG emissions or enhancements of GHG removals that are additional to any that otherwise would have occurred;
- be supplemental to domestic actions for meeting commitments that are required elsewhere in the protocol.

The Kyoto Protocol also requires that countries and the FCCC develop the mechanisms (legal structures, reporting guidelines, accounting procedures, etc) required to run a legitimate emissions transaction regime. In the coming years, parties will need to:

- further elaborate guidelines for implementation, including for verification and reporting;
- establish rules for regulating legal entities under a party's responsibility to participate in generation, transfer, or acquisition of ERUs; and
- begin transfers and acquisitions of ERUs, while questions of implementation are resolved, provided that ERUs are not used by a party to meet commitments under Article 3 of the Kyoto Protocol until any issue of compliance is resolved.

As mentioned above, the recent CoP in Buenos Aires, Argentina agreed on a timetable for such matters to be resolved, allocating different responsibilities to various bodies both within and outside the FCCC structure. If the timetable is adhered to, all outstanding decisions relating to JI should have been made by the end of the year 2000.

It should be noted that since the early 1990s, a variety of terms have been used to refer to different climate change mitigation mechanisms, and in particular, JI. At CoP1 of the FCCC, held in Berlin, March 1995, developing country dissatisfaction with the JI model introduced was voiced as a formal refusal of JI with crediting against the GHG emission reduction objectives set by the convention. A compromise was found in the form of a pilot phase, during which projects were called Activities Implemented Jointly (AIJ). During the AIJ Pilot Phase, projects were conducted so as to establish protocols and experiences, but without allowing carbon credit transfer between developed and developing countries. At CoP4 of the FCCC, held recently in Buenos Aires, it was agreed to continue this pilot phase. For the purposes of this report, all AIJ activities are included within the term "JI".

### **3. THE CLEAN DEVELOPMENT MECHANISM (CDM)**

The creation of the CDM is contemplated in Article 12 of the Kyoto Protocol. The CDM evolved out of an idea presented by Brazil called the Clean Development Fund. This fund is based on taxing industrial countries that are non-compliant with their emission reduction commitments,

and use the proceeds to engage in sustainable development projects with emissions reduction capacity in developing countries. The CDM's purpose is to assist non-Annex I parties (developing countries) in making progress towards sustainable development and contribution to the FCCC objective, and to assist Annex I parties (developed countries and economies in transition) in achieving their QELROs. Non-Annex I parties will gain the economic, developmental and environmental benefits from implemented projects that generate Certified Emission Reductions (CERs) for export. Annex I Parties may use the certified reductions to contribute to compliance with part of their emission reduction targets, as determined by the convention. It has been proposed that there should be restrictions regarding the percentage of a national obligation that can be met through CDM credits as opposed to internal domestic actions (the so-called "supplementarity" rule). A recent study by the World Bank and MIT, however, has shown that such restrictions both reduce developing country gains, as well as increase industrial countries' costs (Ellerman et al. 1998).

The CDM will act as an international body to oversee emission reduction projects that take place in developing countries not under emission restrictions. Like JI, projects must be shown to be additional to what would have occurred otherwise and to have the express approval of the host government. In addition to the JI requirements, projects must also be certified by an independent third party. In effect the CDM is a hybrid mechanism that brings together JI and emissions trading with voluntary developing country participation.

One important facet of the CDM is that its resulting CER credits will apparently be bankable from inception (probably 2000). What that means is that credits granted by the CDM up until the first reporting period (2008-2012) will be cumulatively available for "spending" during the reporting period (though project credits may also continue throughout the reporting period). This creates a strong incentive to engage in CDM projects as early as possible, as each year of emissions reductions adds to the transaction value at the point of "spending" (i.e., 2008-2012). Other major components of the CDM include:

- project activities must be additional to policy actions that may cause the same outcomes;
- the CDM is open to participation by either private or public entities, or combinations of the two; and
- the CDM also has a mandate to use a portion of its proceeds to assist countries that are particularly vulnerable to climate change.

It is becoming apparent that a flexible CDM is important to future acceptance of the Kyoto Protocol by many countries. At this stage, however, the CDM remains poorly defined and it seems clear that a large number of countries and interest groups. Each has its own interpretation. Developing country governments want to use it to improve financial flows in their direction; certain social and environmental advocates see it as a redistribution mechanism against historical development inequity; other environmental groups see it as a way to enhance capital flows to forest conservation and sustainable forest management.

A further question involves the operational structure of the CDM. While some see it as a fairly simple regulator of emission transaction projects, others view it as a direct financing participant in projects, much along the lines of the Global Environmental Facility. While some industrial

countries clearly prefer the former model, many developing countries prefer the latter, as it would seemingly give them far greater control in spending priorities. The nature of the institution(s) or organization(s) that will be in charge of the CDM is also under debate. As noted above, the CDM has a mandate to use a portion of its proceeds to assist countries particularly vulnerable to climate change. It remains to be seen, however, how the CDM will make priorities, how the transfers will occur, and the degree to which added transaction fees (the presumed source of proceeds for vulnerability abatement) may impair market efficiency.

#### **4. CARBON SEQUESTRATION IN FORESTS – THE OPTIONS**

Before considering the potential of forestry projects under the CDM or JI, it is necessary to step back and consider the nature of carbon sequestration by forests as a GHG mitigation option. “Positive carbon flows” can be generated by forestry-based carbon offsets projects<sup>1</sup> through two different approaches:

- active absorption<sup>2</sup> in new vegetation, and
- avoided emissions<sup>3</sup> from existing vegetation (e.g., from fire or decomposition).

The first approach encompasses two main activities: “sink creation” through the planting of new trees (e.g., afforestation, reforestation, agroforestry, etc.); and “sink enhancement” through increasing growth rates of existing forest stands (e.g., silvicultural practices such as thinning, weeding, liberation treatments, or fertilization).

The second approach can be accomplished through the prevention or reduction of deforestation and land use change (e.g., through conservation projects), or reducing the damage inflicted on existing forests (e.g., through uncontrolled logging, fire), etc. Since substantial amounts of carbon are stored in soils, management practices that promote an increase in soil organic matter can also have a positive carbon sequestration effect.

Although the first approach is equivalent to an “end-of-pipe” technology while the second seeks to avoid GHG emissions at source, both have the same effect of reducing the net accumulation of GHGs in the atmosphere. However, different analytical tools are required for the evaluation of their merits as carbon offsets (i.e., whether they differ from an ongoing baseline) and for the calculation of their offset potential.

#### **5. ELIGIBLE SFM ACTIVITIES**

Discussions thus far on forestry projects in the context of the Kyoto Protocol have generally been polarised around the ‘conservation versus plantations’ debate. What tends to be ignored is that carbon offsets can be generated from an extremely wide range of forestry activities. Some of these are discussed in this section.

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<sup>1</sup> Also referred to as carbon emissions mitigation projects, carbon sequestration projects, etc.

<sup>2</sup> Also referred to as carbon fixation, sink creation, sink enhancement, etc.

<sup>3</sup> Also referred to as sink protection, pool protection, emissions reduction, etc.

Traditional financial cost/benefit calculations weigh heavily against all types of reforestation. Carbon offset payments, however, could help change forest plantation economics. There is growing recognition that the economic challenges of plantations – which generally yield little in the way of cash flow for many years – have inhibited investment in this activity. Additionally, high capital costs and delayed returns tend to favor the establishment of high-yield species monocultures, short rotations, and minimal cost management policies - all of which can be environmentally problematic. Risky locales (without track records) are also negatively weighted in such financial calculations. While the wood products industry is already increasing its reliance on planted forests, most studies indicate that plantation development still comprises only a fraction of annual primary forest cut, leading to fears that there is insufficient present investment to ease market pressure on dwindling primary forests (FAO 1991). Joint Implementation investments can, theoretically, make lower growth areas financially viable, make it possible to choose longer rotations, or to use a wider range of species than the eucalyptus, pine and teak varieties which account for 85% of all plantation investments in the tropics (FAO 1991).

Forest conservation can also serve as an efficient form of carbon offset. Despite substantial losses in overall forest cover, remaining primary forests, both tropical and temperate, represent huge pools of sequestered carbon. A large proportion of land under forest cover is threatened with conversion to other land uses that have lower value as carbon sinks (Dixon et al. 1994). The avoidance and mitigation of carbon releases from these pools provides the quickest, forestry-based, opportunity to slow the accumulation of carbon dioxide into the atmosphere (Thailand Environment Institute 1995). Some of the main pressures on natural forests are related to the expansion of agriculture and pasturelands, logging operations, and urbanization (World Resources Institute 1990). Conservation of forests plays a double role in relation to carbon sinks. Firstly, it prevents the emission of carbon that would be caused by decomposition of the forest biomass. It has been estimated that deforestation contributes to 30% of the current global anthropogenic CO<sub>2</sub> emissions (Brown et al. 1996). Secondly, conservation prevents the reduction in areas with potential for active carbon sequestration.

Forest conservation for carbon sequestration purposes can be either direct or indirect. Direct interventions essentially require the “locking up” of threatened land resources into untouchable preserves. Indirect interventions comprise a far wider range of possibilities, including increasing agricultural productivity (thus lowering the need for cyclical slash and burn cropping), the development of agroforestry to meet fuel wood needs, the opening of markets for indigenous forest products, and the promotion of wood waste and paper recycling.

Assessing how much deforestation is being “avoided” can be a complex and controversial endeavour that relates to social and economic aspects of a particular region. Often government policies induce pressure on standing forests by specifically encouraging forest utilisation. Some countries view conservation as patrimonial and an affront against a nation’s sovereignty. As such, there has been some negative bias among potential funders, against the idea of resource “lock-ups,” although several programmes have combined conservation with sustainable utilisation and other economic activities.

Interventions that reduce ongoing rates of carbon emissions from forestry practices can also be important. These include the introduction of techniques for controlled logging and improved fire prevention. It is estimated that 15 million hectares of tropical forests are logged yearly throughout

the world (Singh 1993), and the majority of logging operations in tropical countries are considered unsustainable and damaging (Poore 1989). Implementation of reduced impact logging (RIL) techniques that avoid unnecessary destruction of biomass and release of carbon has great potential as a carbon offset technique (Marsh 1993, Putz & Pinard 1994, Moura Costa & Tay 1996). RIL is an attractive forestry offset option because approximately half of the eventual greenhouse gains are realised over the first few years and are basically irreversible. This lessens the risk factor of failure for carbon offset investments. Simultaneously, biodiversity values are maintained, fire risks are lowered, and topsoil integrity is maintained. Furthermore, a fundamental feature of this option is that forests continue to provide economic potential through continued production of timber resources in an environmentally sustainable manner.

The suppression of forest fires is another option to reduce unnecessary carbon emissions. In the last decade, fire outbreaks have destroyed millions of hectares of rainforests in Kalimantan and Sumatra alone, and the incidence of forest fires is expected to increase in the next decade (ITTO 1994). In 1997, another massive series of fires began in Indonesia, releasing hundreds of millions of tons of GHGs. Along with the crucial need to address the policy causes, a combination of ground-based practices of fire prevention and control, and available remote sensing monitoring systems (Malingreau et al. 1989, DSE 1991) has great potential for reducing the frequency and extent of forest fires.

Finally, forestry can also be used to prevent carbon released by fossil fuels elsewhere. This can be achieved either directly through fuel substitution or indirectly through material substitution. In the first scenario, fuel wood can be used to replace fossil fuels, with associated carbon savings resulting from the unburned fossil fuels. In the second scenario, wood-based materials can be used to replace materials that require high levels of energy and/or fossil fuels for their production (e.g., steel, cement, plastics). Similarly, carbon savings are made through avoiding the need to burn fossil fuels.

## **6. QUALITATIVE CRITERIA FOR FORESTRY-BASED CARBON OFFSETS**

In the context of forestry and conservation practices, however, it should be recognised that not all projects which appear to have positive GHG effects are conceptually valid as carbon offsets. For example, existing national parks may not be considered to generate carbon offsets; these forests were already in existence when the concept of carbon sequestration arose. Therefore, simply renaming them as “carbon offset projects” does not involve any active removal of CO<sub>2</sub> from the atmosphere. Conversely, the establishment of new forests with the primary objective of carbon sequestration may be rightly considered an offset.

Carbon offsets are a notional commodity, based on a conceptual evaluation and scientific calculations. There is no separable entity to a ton of carbon offset; a specific volume cannot be created in one place and materially transported to another. The commodity is derived by observing the difference between projected standard practices (known as the *project baseline* or *reference case*) and the occurring practices (known as the *project case*). That behavioural differential which proves “additionality” then translates into GHG savings, using quantitative methodologies.

By necessity, there is subjectivity in developing project baselines, because the baseline is a prediction of the future which cannot be empirically tested or directly observed. Since measurement is of relative differentials rather than of absolute quantities, it is very important that the baseline be as accurate and thorough in its assumptions as possible.

Before a project gets to the point of creating and claiming carbon offsets, it must demonstrate that the activities are occurring – or will occur – within the bounds of a set of subjective criteria. These criteria involve issues of project design, financing sources, secondary environmental and developmental impacts (Jones and Stuart 1994). There must be consistency with national and local objectives. While these qualitative criteria are still evolving, there is sufficient concurrence to synthesise a basic evaluation methodology (the objective of the joint implementation pilot phase). Aside from additionality (discussed above), key components of such a methodology include the consideration of:

- *acceptability* – at both national and international levels
- *externalities* – slippage and leakage, social and development effects, environmental impacts

## **7. TROPICAL VS. TEMPERATE CARBON OFFSETS**

For countries rich in forest resources, altering non-sustainable land-use patterns is likely to be a prized greenhouse gas mitigation opportunity. Large expanses of under-utilised, degraded or deforested land with a low current value as carbon repositories that could be either afforested, reforested or rehabilitated, are available throughout the world (e.g., Nilsson and Schopfhauser 1994). However, because of better climate and faster tree growth rates, tropical forests are more efficient than temperate forests in absorbing CO<sub>2</sub> from the atmosphere. It has been estimated that any particular target for carbon sequestration through forestry would require 25 percent less overall land area, if planting was concentrated in tropical rather than temperate areas (Marland 1988). The attractiveness of tropical forests for GHG-mitigation projects is still greater given the lower factor costs for land and labour than in temperate zones. This represents a direct comparative advantage for tropical forest countries.

With this in mind, it should be noted that the CDM is currently the only mechanism that could bring carbon offset financing to developing countries in the tropics – all the other Kyoto mechanisms relate to capped Annex 1 countries only. As it is in tropical regions, where SFM is most urgently in need of implementation (and financing), the importance of the CDM to this end is paramount. This is returned to in Section 1.111.

As discussed above, tropical forestry carbon offsets can encompass a range of project-scale interventions, including direct preservation, reforestation, and reduction of the negative impacts of forest management and harvesting (Moura-Costa 1996a, Brown et al. 1996). There is also the possibility of increasing the production efficiency of swidden agricultural systems or the end-use efficiency of fuel wood resources, both of which can help take pressure off standing forests with accompanying GHG benefits.

Other less forested countries in the tropics may benefit through rehabilitation, stopping degradation, establishment of new forest cover, including plantations and integrated agroforestry systems, as well as (possibly) efficiency improvements in wood processing and manufacturing industries.

## 8. EXTENT AND EXAMPLES OF FORESTRY-BASED CARBON OFFSET PROJECTS

Several million hectares of forests world-wide are currently under forest management regimes related to GHG mitigation funding. To date, more than 25 forestry projects have already been funded through joint implementation mechanisms (see Table 1). These projects have taken place in more than 15 countries, financed by government, NGO or private sector concerns and implemented by community organizations, NGOs, and private sector companies. Four case-studies, including the well-known Costa Rican programme, are profiled at the end of this Section.

**Table 1 Forestry-based Carbon-offset Projects to Date**

Project name	Start date	Carbon offset (1000 tC)	Area (ha)	Host country	Investor country	Project description
AES-Care	1990	10,500	186,000	Guatemala	USA	Agroforestry
Face Malaysia	1992	4,250	25,000	Malaysia	Netherlands	Enrichment planting
Face-Kroknose	1992	3,080	16,000	Czech Rep.	Netherlands	Park rehabilitation
Face Netherlands	1992	885	5,000	Netherlands	Netherlands	Urban forestry
ICSB-NEP 1	1992	56	1,400	Malaysia	USA	Reduced impact logging
AES-Oxfam-Coica	1992	15,000	1,500,000	South America	USA	Forest protection
AES-Nature Conservancy	1992	15,380	58,000	Paraguay	USA	Forest protection
Face-Profafor	1993	9,660	75,000	Ecuador	Netherlands	Small farmers plantation forestry
RUSAFOR-SAP	1993	79	450	Russia	USA	Plantation forestry
Face Uganda	1994	6,750	27,000	Uganda	Netherlands	Forest rehabilitation
Rio Bravo	1994	1,300	87,000	Belize	USA	Forest protection and management
Carfix	1994	2,000	91,000	Costa Rica	USA	Forest protection and management
Ecoland/Tenaska	1995	350	2,500	Costa Rica	USA	Forest conservation
ICSB-NEP 2	1996	39	980	Malaysia	USA	Reduced impact logging
Noel Kempff M.	1996	14,000	1,000,000	Bolivia	UK/USA	Forest conservation and management
Klinki forestry	1997	1,600	87,000	Costa Rica	USA	Reforestation with Klinki
Burkina Faso	1997	67	300,000	Burkina Faso	Denmark	Firewood community forestry
Scolel Te	1997	15	13,000	Mexico	UK/France	Community forestry
PAP OCIC	1997	18,000	570,000	Costa Rica	Norway, USA	Forest conservation



Project name	Start date	Carbon offset (1000 tC)	Area (ha)	Host country	Investor country	Project description
Norway-Costa Rica	1997	230	4,000	Costa Rica	Norway	Forest rehabilitation and conservation
Tesco “green petrol”	1998	n.a.	n.a.	Undefined	UK	Forestry
Green fleet initiative	1997	n.a.	n.a.	Australia	Australia	Reforestation
AES-Ilha Bananal	1998	n.a.	n.a.	Brazil	USA	Forest rehabilitation
NSW + Pacific Power + Delta Electricity	1998	69	1,041	Australia	Australia	Reforestation
World Bank Prototype Carbon Fund	1998	n.a.	n.a.	International	International	Renewable energy and forestry
<b>TOTAL</b>		<b>103,310</b>	<b>3,970,171</b>			

## 9. CARBON OFFSETS AS A NEW INVESTMENT OPPORTUNITY – THE ISSUES

Flexibility mechanisms provide a variety of opportunities for investments in pursuit of clean and sustainable development. Most estimates indicate that a global market in emissions trading could be in the tens of billions of dollars annually by the first commitment period, 2008-2012 (See, for instance, a recent study carried out for the World Bank by, Ellerman et al. 1998). While a portion of such theoretical sums will be transfers between industrial countries, particularly those of the EITs of Eastern Europe, a substantial percentage will also flow to developing countries. How these sums are apportioned, which countries will be best positioned to take advantage of these new capital flows and the degree to which regulatory mechanisms can control emissions trading, remains to be determined. It is vitally important, however, that investment priorities be set by the developing countries themselves rather than by outside buying parties who are less likely to appreciate the secondary positive (or negative) values which different investment tracks can bring in different socioeconomic situations.

In this light, it is good to see that it has become a *de facto* requirement that emission transaction projects need to obtain the express approval of both the host and investor country governments in order for future emission credits to be granted. In industrial countries, that approval may well devolve to an entity level, allowing private concerns to import or export their portion of the national quota, as they see fit. However, all emerging regulations from the AIJ phase for developing countries have consistently emphasised the need for projects to be supportive of national development objectives and to be socially positive. Many projects inherently provide further environmental benefits beyond the quantified greenhouse gas achievements. For example, sustainable forestry projects leading to emission reductions may also lead to a series of ancillary benefits such as biodiversity conservation, water catchment protection, employment, and income generation.

One of the major advantage of trading in carbon offsets through JI/CDM is that it could represent a new source of capital which is targeted towards sustainable development ideals, but which is

project specific. Potential capital flows to these types of projects could be very large, if industrial nations make a concerted effort on climate change. With the continuing reductions in ODA from the OECD to the G-77, this could be an important facet in encouraging investments down environmentally appropriate paths.

Besides representing a new source of capital, extensive utilization of project-level carbon trading mechanisms could lead to technological leapfrogging for developing countries. This could occur by accelerating the adoption of clean and efficient technologies, particularly in the energy sector. In this context, biomass energy could bring a new dimension to forestry. The opportunity for an outside concern to earn Certified Emission Reductions (CERs) for providing or financing the best available technologies (BAT) – rather than outdated or used equipment – could help overcome the higher capital costs and lack of information which disadvantage such technologies in many developing countries. Once in place, developing countries could begin to establish their own competence with various new technologies or techniques, which could catalyse new service and trade opportunities in their own right.

If structured properly, trading in carbon offsets through JI/CDM could be advantageous to both public and private sectors in developing countries. Public sector advantages could include:

- Injection of new capital, additional to current aid funding and traditional trade sources;
- Access to new sources of funding, technology and expertise to assist in the implementation of national priorities;
- In the forestry sector, carbon offset investment could be directed to: implementation of national land use plans, forest conservation efforts, consolidation of national parks, rehabilitation of degraded areas, development of plantations and farm forestry, strengthening of forestry sector institutions and systems for improved management; and
- In the energy sector, investment could be directed to reduce dependence on fossil fuels, including the utilisation of renewable biomass energy sources.

If such actions were carried out concertedly, increased employment generation and economic growth would result. Countries might gain better access to external markets through the use of BAT technologies, potentially associated with independent certification (through ISO, ITTO 2000 or FSC). Forestry initiatives to mitigate GHG emissions would also probably have positive effects on the objectives of other UNCED commitments, notably the Biodiversity Convention and Agenda 21.

Advantages for the private sector in developing countries include:

- Trade advantages in a new commodity which is likely to become increasingly valuable to industrial countries as GHG restrictions from the FCCC come into force;
- This trade could leverage further investments, by increasing the attractiveness of environmentally-friendly projects with marginal returns or high risks;
- In the case of commercial forestry activities, carbon benefits provide early financial returns, before harvesting takes place; and

- In the case of biomass energy, there are opportunities to gain positions of market leadership (through increased experience and enhanced expertise), rather than being strictly dependent on technology downflow.

Despite these potential advantages, there are systematic objections legitimately raised against the concept of trading in carbon offsets through JI/CDM. Chief among these objections is the fear, among developing countries, that agreeing to an emissions trading system will lead to mounting diplomatic and economic pressure to undertake emissions commitments themselves. Many developing countries would consider this unfair, given the historical responsibility of the industrialised countries for dumping CO<sub>2</sub> into the atmosphere. However, G-77 unity on these equity considerations have been confused by the recently expressed wishes of South Korea and Argentina to voluntarily take on GHG emission reduction commitments, thereby joining the list of Annex 1 countries.<sup>4</sup>

Some of the other main objections raised against the concept of JI/CDM are outlined below (Stuart and Moura Costa 1998, Stuart and Sekhran 1996).

- (1) *Potential aid reduction.* There is a fear that CDM will provide industrial countries with further excuses to reduce ODA, replacing it with “GHG emissions reduction” aid. It is argued that ODA should not be replaced at all, and that emissions transaction funding should flow from private sector sources in developed countries. However, reliance on such flows would potentially compromise a country’s ability to control its own investment strategies.
- (2) *Emissions slippage.* Currently, only industrial country emissions are likely to be restricted or “capped”. Emissions trading between a capped country and an uncapped country creates the possibility that no net emissions reductions will actually occur. This is because high emission activities in a capped country can merely be transferred to an uncapped country without penalty. This type of activity is termed “leakage” (USIJI 1994) or “slippage” (Moura-Costa and Stuart 1997); in other words, emissions are displaced to another location without any net positive effect. If leakage/slippage in this manner becomes a severe problem, developing countries expect that industrial countries will pressure them greatly to undertake binding emissions commitments. They would then be responsible for the displaced emissions, to their competitive disadvantage.
- (3) *Reduced inward investment from carbon-intensive industry.* Higher factor costs in industrial countries, caused by energy taxes or the costs of emissions permits, would make investment opportunities in developing countries more attractive to industrial concerns. This would create economic development opportunities. If extensive emissions trading is allowed to mitigate those costs, however, there will be less pressure to transfer profitable carbon intensive industries to developing countries, thus keeping such industries (and the concomitant economic benefits) in industrial countries.

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<sup>4</sup> The motives for such actions are many and complex. Therefore, while such commitments should clearly be lauded, care must be taken to ensure that these targets are not inflated to allow excessive trade of surplus emission rights with developed countries unable or unwilling to meet their targets through domestic action (the so-called “tropical air” problem).

- (4) *Industrial countries cornering the offset market.* Industrial countries could lock up the most advantageous carbon offset options in developing countries. This would reduce the long-term capacity of these countries to reduce their net emissions when they need to take on commitments. In this situation, all that would be available would be the higher cost options that had not interested the industrial country participants.
- (5) *Low offset prices.* Currently, the announced average price of offsets has been very low (less than US\$10 per ton of carbon in forestry), usually representing a portion of the marginal cost of the intervention, without any rents accruing to the supplier. This overt lack of profitability provides no commercial incentive for developing countries to supply offsets and reinforces the notion that carbon offsets are “win-win” in name only.
- (6) *Eco-colonialism in emission rights.* If in the future, emission targets are set for all countries, these rights could be viewed as a potential form of eco-colonialism, under the “terms of trade” argument. In this analysis, industrial countries could coordinate the purchase of emissions rights from developing countries, thus denying developing countries the right to industrialise using inexpensive fossil fuels.
- (7) *Increased conditionality on investments.* Another form of this argument views carbon trading as a mechanism by which industrial countries could impinge upon the sovereign rights of developing countries by imposing various restrictive covenants on behavior as conditionality terms on their investments. Since most analysts see carbon trading as being driven by the private sector, developing countries will have even less recourse to object to that type of conditionality.
- (8) *Industrial countries should get their own house in order.* Many take the strong moral stand that OECD countries should not be allowed to avoid their own emission reduction responsibilities (and continue to use a disproportionate amount of the global atmospheric resource) through the low cost options promised by transnational mitigation programmes.

These kinds of objections have been at the root of the continuous debate among the parties of the FCCC. Proponents of the CDM, as a developing country-run regulatory body, have high hopes that it will have an important role in avoiding abuses of the carbon trading concept, while enabling acceptable compromises to be reached in relation to these issues.

## **10. FUNDING POTENTIAL OF FORESTRY-BASED CARBON OFFSETS**

A recent MIT study for the World Bank about the market for carbon offsets estimated the market for carbon offsets it to be around 15 billion dollars a year, if there were to be free trading with developing countries, through the CDM (Ellerman et al. 1998). In order to better understand its potential, it is worth looking at the evolution of the market for these credits and its underlying policy framework, as follows.

The first transactions for CO<sub>2</sub> emission mitigation took place in the early 1990s. These were voluntary in nature, since there were no legislative requirements for polluters to reduce GHG emissions. Projects were established in anticipation of changes in environmental legislation, while capitalising on the public relations value of projects. This voluntary aspect was somewhat

reflected in the assumed price paid for carbon sequestration, which averaged US\$0.19 per ton of carbon (see Table 2 below), based upon the costs to the investor.

In July 1992, representatives from 155 nations gathered in Rio de Janeiro for the United Nations Conference on Environment and Development (UNCED). At Rio, the United Nations Framework Convention on Climate Change (FCCC) was signed. This included a voluntary commitment by Annex 1 countries (industrialised countries) to reduce their emissions to the levels of 1990 by the year 2000 (Grubb et al. 1993). Embedded in FCCC was the concept of Joint Implementation (JI) of activities between countries to collectively reduce GHG emissions or promote the absorption of atmospheric CO<sub>2</sub>. The investing participants in these projects could presumably claim emission reduction “credits” for the activities financed. These credits could then be used to lower GHG-related liabilities (e.g., carbon taxes, emission caps, etc.) in their home countries. The overall rationale of JI is that the marginal costs of emission reduction or CO<sub>2</sub> sequestration can vary dramatically, and that such costs are generally lower in developing nations than industrialised countries.

The commitments and mechanisms proposed at Rio led to an increase in the level of investment in this sector. An average of 3.3 new projects and US\$50 million were committed yearly during the two years between UNCED and CoP1 in 1995 (see Table 2). The average price (usually equating to costs) paid for carbon sequestration during this phase is estimated to be around US\$1.97 per ton of carbon, a tenfold increase from the prices paid in the previous phase.

At CoP1 in Berlin, March 1995, developing country dissatisfaction about the concept of JI was voiced as a formal rejection of this mechanism for achieving the GHG emission reduction objectives set by the Convention. Subsequent negotiations led to a compromise in the form of a pilot phase, during which projects were called Activities Implemented Jointly (AIJ). During the AIJ Pilot Phase, projects were conducted with the objective of establishing protocols and experiences, but without allowing carbon crediting between developed and developing countries. This was meant to simulate the process of JI, giving substantive information to decision-makers in formulating the final system for emission transactions between countries and private entities.

The absence of credit transfer, however, substantially dulled the appetite for participation among private sector parties in particular. The direct statement from Berlin – that current JI projects were not eligible for future crediting – meant that these were unrecoverable costs. Because of this lack of real incentives for the private sector (which most observers believe must eventually drive the trading system), the results of the AIJ pilot phase were generally considered poorly representative of the full potential of JI.

In this new environment, where companies were faced with great uncertainty about the potential value of projects for their respective balance sheets, a large reduction in the level of investment in JI/AIJ-type projects was observed (Table 2). Only three new AIJ forestry projects were initiated during this phase, with an average yearly committed investment of US\$6 million (down from US\$50 million). The WTP for carbon also decreased, down to an average of US\$0.59 per ton of carbon.

In the year preceding the CoP3 of the Climate Convention that took place in Kyoto, December 1997, there was great anticipation that changes were imminent. Discussions during CoP2 in

Geneva, 1996, determined that binding commitments were going to be a central theme at CoP3. The consequences of these commitments were unknown but were likely to be manifested in the form of carbon taxes, quotas, caps, etc., all of which would entail hard costs to be incurred by industrialised economies. These factors led to an increase in the level of carbon offset investment.

Four new forestry projects were initiated in 1997. These included:

- two large national carbon offset programmes in Costa Rica, the Protected Areas Project (PAP) and the Private Forestry Project (PFP) (see Case studies in Section Chapter 13);
- a 13,000-hectare community forestry project in Mexico, financed by the International Automobile Association (Tipper 1997a); and
- a community forestry project for fuel-wood production in Burkina Faso, financed by the Government of Norway through the World Bank.

**Table 2 Evolution of Forestry-based Carbon Offset Investments**

	Pre-UNCED	Pre-CoP 1	AIJ PP	Pre-Kyoto	Post-Kyoto*
Number new projects per year	0.5	3.3	1.5	4	14
Area of new projects (ha/year)	93,000	628,467	501,740	893,000	2,002,082
Investment committed (US\$ million per year)**	1.00	49.25	6.05	4.48	347.00
Carbon price (US\$/ton)	0.19	1.97	0,59	11.07	> 12.00

Source: (from Moura Costa & Stuart 1998)

\* Based on value of contracts signed

\*\* Figures for the post-Kyoto phase were based on unofficial data and were adjusted to give a proportional idea of a one-year contribution. Some figures were based on press announcements and so might contain inaccuracies.

While the level of investment remained low (US\$4.5 million per year), the price paid for carbon rose to an average of US\$12 per ton of carbon.

The establishment of binding commitments for Annex 1 countries at Kyoto in December 1997 (see Section 1.1Section 1) has led inevitably to a more substantial demand for carbon offsets. Sandor (1997) estimated that, for the U.S. alone, the costs of reduction of GHG emissions to levels 10% below the 1990 baseline is in the range of US\$32 billion a year. If these targets were partially accomplished through GHG emissions trading, the resulting U.S. demand for GHG Emission Reduction Units (ERUs) would be in the order of US\$6 billion a year, a huge increase from the voluntary demand of the pre-Kyoto phase. Another change in demand specification regards the quality of offsets. According to the Kyoto Protocol, all ERUs generated through the CDM outside capped Annex 1 countries will have to be independently certified, creating a potentially high demand for this type of service.

These new conditions greatly increased the attractiveness (and reduced the risks) of investment in forestry-based carbon offset projects, resulting in an immediate rise in the level of investment, and in the price paid for carbon credits, which reached up to US\$20-25 per ton of carbon, in the case of the World Bank prototype carbon fund. Less than a year after the Kyoto Protocol, a variety of initiatives were announced. These include: the creation by BP of a voluntary cap on its internal emissions associated with an internal trading system; the investment by BP in forestry-offset projects in Bolivia; the development of a forestry conservation project in Brazil, by AES; the creation of a variety of consumer-based schemes in UK and Australia (Greenhouse Issues 1997); a carbon trading transaction between New South Wales State Forests and Pacific Power, in Australia.; and UNDP's carbon offset forestry programme in Guyana (still in the planning stage).

A recent study by the World Bank and MIT estimate that the global demand for carbon credits will reach tens of billions of dollars yearly, once the trading mechanism necessary for these flows is in place. This brief look at the evolution of the carbon offset market highlights the importance of the signals which emerge from policy-makers and the wider international community. From now until October 2000, the deadline agreed at CoP4 in Buenos Aires, outstanding issues related to the CDM's policy, legal, and institutional settlements are to be resolved. If the resultant CDM market is designed and developed appropriately, it will likely have a great potential for channeling new and additional funding for forestry into developing countries and economies in transition.

## **11. CARBON OFFSET MARKET CONDITIONS**

While we are still a long way from an organised market with prices defined according to forces of supply and demand, the initial voluntary schemes and bartering transactions that characterised the early 1990s have already given way to more sophisticated market mechanisms. If this trend continues, it seems very likely that forestry offsets will play a part in accomplishing the legally binding emission reduction commitments agreed in 1997 in the Kyoto Protocol of the FCCC. Moreover, if the trading regimes are properly structured, a sizeable proportion of the proceeds from the international market for carbon projects, credits, and allowances, could flow to developing countries.

For carbon offsets to succeed in attracting the expected large financial flows into the forestry sector, however, more mature markets must develop. We are still a long way from a price denominated CO<sub>2</sub> credit market determined by equilibrium of supply and demand. Significant transactions will never occur if the model remains that of emitters putting forth calls for proposals, which are answered haphazardly by a combination of environmental, social development and business interests. The direct linkage between supply and demand must be broken and the commodity must become more homogenous. It can no longer be the case that production of this novel commodity only occurs when a downstream client makes a direct investment in the "factory," thus creating the good.

For forestry professionals, the next steps in this process require that they formally recognise the potential of emission reductions in their planning process. They can then develop verifiable volumes of emissions reduction outputs through the capital allocation process. Forest output optimisation will eventually develop a new production possibility boundary, based on relative

values of the main output (forest products) together with the associated carbon sequestration potential (e.g., Boscolo and Buongiorno 1997). Once a more detailed understanding of the production process is available, more sophisticated emissions reduction services will emerge and there will likely be a bloom of structured financial instruments based on this value. For this to occur, however, policies must emerge – sooner, rather than later – that better define the acceptable quality range of the commodity. That said, the forestry community would be immediately benefit through more active participation in the current debate, so that the most rational policies from a SFM perspective are the ones that ultimately emerge.

In large part, this futuristic model reflects an expansion of the current mechanisms within the Costa Rican national programme (see case studies), which provided the first true break between supply and demand, reduced transaction costs and the development of standardised instrumentation regarding carbon flows. Smaller and private organizations, however, are less likely to be able to dedicate similar internal resources to invent similar products. The emergence of a new class of forestry investors is thus expected, who will speculate in the environmental performance of new varieties of forestry projects, according to anticipated markets for verifiable GHG commodities. In this way, emitter-based or internal financing may give way to venture capital financing – all based on perceived future carbon offset market evolution. Forestry professionals need to prepare to meet this brave new world, armed with information and a recognition that they may control a valuable commodity in a GHG-concerned world.

## **12. THE CDM AND SFM**

To conclude, it is worth drawing together some of the points and arguments made throughout this section annex in the context of the CDM and SFM in the tropics. It has been made abundantly clear that developed country demand for forestry-based carbon offsets from project-level activities in the tropics could be highly significant, an order of magnitude higher than total current ODA flows into forestry. If the CDM is structured so as to facilitate and appropriately channel this demand, the leverage potential of an additional carbon-derived funding stream for SFM operations in the tropics is considerably vast. Of course, there is a whole range of preconditions (see Section 1.10) for this potential to be realised. Not least of these is the level of engagement by host country institutions, and the transaction costs under the CDM compared to similar costs of project-level GHG mitigation within developed countries.

There is little doubt, however, that the demands of SFM in the developing world should be a determining factor in the ongoing policy debates on the CDM. As mentioned above, these debates are supposed to be resolved by the end of the year 2000. Indeed, in the Buenos Aires Plan of Action that emerged from CoP4 of the FCCC (see Section 1.1), priority was given to finalizing arrangements for the CDM.

Nevertheless, it is appearing increasingly likely that forestry might not be included within the initial CDM remit, which instead will focus on less controversial energy sector projects. The negotiators at CoP4 bought time on forestry issues by effectively deferring them until after the report, due in late 2000 of the specially convened IPCC Working Group on forestry. Of course, such a deferment made good sense as many of the issues are complex. However, there is a danger that the particular characteristics and requirements of forestry projects will be excluded from the formative discussions on the CDM, perhaps making it difficult for them to be included at a later



date. In this regard, it is vital that synergies are exploited between ongoing international policy processes on climate change, and on forestry.<sup>5</sup> UNDP and the IFF are ideally positioned to mediate such interactions.

It is also worth mentioning that the benefits of including forestry-based carbon offsets within the CDM are potentially widespread, not just in terms of SFM, but in terms of the small and large-scale forest users and operators who may see additional financing streams for implementing sustainable forestry practices come on stream. In this regard, one notable but overlooked event in the run-up to CoP4 in Buenos Aires was the so-called “Letter to Brasilia” addressed to the Brazilian government and co-authored by a myriad of small Brazilian NGOs involved in forestry. The thrust of the letter was akin to the thrust of this section include forestry within the CDM.

### **13. CASE STUDIES**

This chapter includes four selected case studies on forestry-based carbon offset projects in developing countries which are summarised in Table 3.

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<sup>5</sup> Forestry-based carbon offset projects can also provide support for the Convention on Biodiversity (CBD) by promoting direct preservation, sustainable forestry practices, or reforestation.

**Table 3 Selected Case Studies of Forestry-Based Carbon Offset Projects in Developing Countries**

Summary matrix of case studies (see below for more detailed descriptions)

Case Study Name & Location	Objectives / Activities	Forest type and area (ha)	Partners	Investment committed & price of carbon	Impacts expected	Current status and future plans
1 INFAPRO Innoprise-Face Foundation Project  Sabah, Malaysia	Enrichment planting and forest rehabilitation	25,000 ha of selectively logged dipterocarp forests	Innoprise Corporation (forestry arm of the Sabah Foundation) and the FACE (Forests Absorbing CO <sub>2</sub> Emissions) Foundation (a foundation of the Dutch Electricity Board)	US\$15 million, over 25 years (US\$3.52/t C)	The project will fix 4.3 million t C, and generate US\$800 million in timber revenue to be used in the social programmes of the Sabah Foundation. At least 25,000 ha of degraded logged forests will be improved. Indirect impacts of the project include training, information dissemination, etc.	The project is in the 7th year of its planned 25 year implementation phase. There is a threat that without the CDM, the implementation of this project may be halted.
2 ICSB-NEP Reduced Impact Logging Project  Sabah, Malaysia	Reduce the impacts of uncontrolled selective logging operations	10,400 ha of primary dipterocarp forests	Innoprise Corporation and New England Power, an American electricity power company	US\$3 million, over 8 years (US\$7.6/t C)	The project will avoid the emission of 58,000 t C, and prevent unnecessary damage to 10,400 ha of forests. It is also expected to have a catalytic effect in other operations in the region (including other operations of Innoprise).	The project is in the last year of implementation. It is unclear if it will be renewed. Long- term monitoring and research of logged areas is to be done by CIFOR.
3 Rio Bravo Conservation & Management Area Carbon Sequestration Pilot Project  Belize	Forest conservation and sustainable forestry	87,000 ha of tropical forests (to be protected) and degraded land (to be reforested with broad leaf plantations)	Project implemented by Programme for Belize (a private conservation and development organisation) and The Nature Conservancy (US NGO), financed by a consortium of U.S. electric utilities.	US\$2.6 million (US\$1.90/t C)	The project will sequester 1,3 million t C. It will have additional positive effects on biodiversity, soil stability, water and air quality. It will also result in the creation of local jobs and long-term improvements in the local economy through the development of minor forest product industries.	The project is half way through its implementation phase, and will be continued for a total life time of 40 years.
4 Costa Rican Joint Implementation programme  Costa Rica	Forest conservation, reforestation, and selective logging	Approximately 1,2 million ha of primary and secondary forest, and pasture land	OCIC (Costa Rican Joint Implementation Office), other government agencies, local NGOs and farmers.	Project costs unknown (confidential to OCIC). Carbon offsets sold at US\$10/ t C and higher.	This programme will fix and/or avoid the emission of at least 30 million t C, and consolidate a forest estate of at least 1 million ha. It will also provide an important example of a Joint Implementation project wholly conceived and implemented by the host country in accordance with its national priorities.	Carbon savings from the forest protection component have already been independently certified, with some carbon credits sold to Norway. If funds become available, the project will be continued for at least another 25 years.

### Case Study 1. Enrichment planting and forest rehabilitation in Sabah, Malaysia

The logging of dipterocarp forests accounts for about 50-70% of Sabah's state revenue (Sabah Forestry Department 1989). In order to maintain the economic returns derived from this sector, forest regeneration must be managed for sustainable yields. The high densities of natural stands in Sabah allow extraction rates of up to 120 m<sup>3</sup>/ha (Silam Forest Products, timber extraction figures). However, this results in substantial disturbance to the residual stand (Nussbaum et al. 1995; Appanah and Weinland 1990). In some areas the residual stocking and seedling bank of timber species is much reduced and artificial regeneration needs to be employed (Primack et al. 1987; Appanah and Weinland 1990). Enrichment planting is a technique for promoting artificial regeneration in which seedlings of preferred timber trees are planted in the under-story of existing logged-over forests and then given preferential treatment to encourage their growth (Lamprecht 1989). However, the costs involved in artificial regeneration are often prohibitive, and in some cases funds are not available from local sources.

Energy supply in the Netherlands is mainly provided by coal-fired power stations, leading to high levels of CO<sub>2</sub> emissions to the atmosphere. However, it is not possible to find large enough areas in the Netherlands to offset this level of emissions, since most of the land is already under agricultural or urban use. The problems faced by Malaysia and the Netherlands were combined to generate practical solutions for both parties.

The Innoprise-FACE Foundation Rainforest Rehabilitation Project (INFAPRO) is a cooperative venture between Innoprise Corporation, a semi-government forestry organisation which has the largest forest concession in the state of Sabah, Malaysia, and the FACE Foundation of the Netherlands. This was the first large scale forestry-based carbon offset project in the world. The objective of the project is to rehabilitate 25,000 ha of logged forests by enrichment planting and reclamation of degraded areas using indigenous tree species such as dipterocarps, fast growing pioneers, and forest fruit trees, over a period of twenty-five years (Moura Costa et al. 1996). The total investment committed by the FACE Foundation amounts to US\$15 million over twenty-five years.

In the pilot phase (1992-1994), 2,000 ha of logged-over forests were planted as an initial trial of the effectiveness of this system. The planting phase will be extended for twenty-five years and the forests maintained for ninety-nine years. The long term nature of the project should enable the maintenance and silvicultural treatments required to sustain growth rates during the project life. It is expected that at the end of the first sixty-year growth cycle, these forests will be exploited for timber, which belongs exclusively to Innoprise. However, timber harvesting will have to be done in a careful way so that a healthy residual stand can again regenerate a well-stocked forest in order to maintain a carbon pool for the FACE Foundation, which has the exclusive rights to the carbon sequestered through the ninety-nine years of the project. It is expected that the project will sequester at least 4.25 million tons of carbon (15.6 million tons CO<sub>2</sub>) during its lifetime (Stibbe et al. 1994) at an average cost of US\$3.52 per ton of carbon (US\$0.95 per t CO<sub>2</sub>).

It has been estimated that the project will also produce over four million m<sup>3</sup> of hardwood sawn timber, worth close to US\$800 million, which belongs to Innoprise Corporation. Given that Innoprise is fully owned by the Sabah Foundation, a semi-government organisation with the mandate of improving people's welfare in the state of Sabah, it is expected that the project will

generate considerable social spin-offs. Additionally, during its initial twenty-five year planting phase, the project will directly generate 230 jobs per year, for various activities such as field planting, silviculture, nursery work, mapping and GIS (geographical information systems), computing, financial control, and research. It is important to note that 90 percent of the project's budget is spent on personnel.

A key feature of the project is the integration of a substantial research and training component with the main operation. Ten percent of the total budget is to be directed towards research and training with the objective of developing strategies for rehabilitation of logged forests. Training is provided at all levels, from Ph.D. level, to practical training provided to field crews. The project has also been very active in disseminating its findings through various means. During the last six years, it has yielded fifty-three research papers, two Ph.D. theses, three B.Sc. reports, two training videos, ten journalistic reports (published in Malaysian and international magazines and newspapers) and more than twenty conference communications.

The project is in its sixth year and, to date, over two million seedlings have been planted on 5,000 hectares of degraded rainforests. Seedling survival and growth rates have been satisfactory (Moura-Costa et al. 1996). The project has also generated general knowledge on a variety of subjects from plant propagation, silviculture, nutrition, large scale planting, and GIS. The contract for the next five-year phase of the project has just been signed.

### **Case Study 2. Reduced Impact Logging in Sabah, Malaysia**

In the process of extracting eight to fifteen trees ( $80 \text{ m}^3$ , with approximately twenty-two tons of carbon per hectare) from a hectare of forest in East Malaysia, often as many as 50 percent of the remaining trees are damaged and up to 40 percent of the area is crushed by bulldozers (Sabah Forest Department 1989). The effect of uncontrolled logging on biodiversity and ecosystem function is also severe: soil erosion, weed infestations, and incidence of fire all increase in logged-over forests. These effects combine with the disruption of much of the pre-existing regeneration of commercially valuable trees to make such logging extremely detrimental to long-term ecological and economic productivity.

Damages incurred during conventional timber felling and extraction also result in reduced forest biomass and substantial releases of carbon dioxide (Houghton 1996) and possibly other radioactively important gases (e.g., methane). It is possible therefore, to reduce the release of  $\text{CO}_2$  from logging by adoption of less destructive logging techniques. Carbon dioxide sequestration in tropical forests through controlled logging has a number of benefits. Immediate carbon benefits are realised at low expense as native species are maintained on site, and soils are less likely to be degraded or eroded. Post-logging carbon accumulation rates are also likely to be elevated and the future potential for production of timber and non-timber forest products enhanced. These benefits derive from the reduced likelihood of vine infestations as well as from the retention of many undamaged trees with the capacity to grow to be very large.

The ICSB-NEP Reduced Impact Logging (RIL) Project is a cooperative venture between Innoprise Corporation Sdn. Bhd. (ICSB), a semi-government organisation which has the largest forest concession in the state of Sabah, Malaysia, and the New England Power (NEP) Company,

an American utility trying to address the challenge of reducing its net CO<sub>2</sub> emissions. The objective of the project is to introduce the use of reduced impact logging (RIL) techniques in order to lower the level of damage caused by selective harvesting operations, reducing the release of CO<sub>2</sub> from decomposing vegetation and soil loss.

In an initial phase, 1,400 ha of forests were logged according to the RIL techniques from 1992 to 1994. The project managed to reduce logging damage by 50%, thus saving approximately 40 tons of carbon per hectare and a total of 58,000 tons of carbon (212,860 tons of CO<sub>2</sub>, Pinard and Putz 1996). Given the project cost of US\$450,000, the cost of carbon saved was US\$7.60 per ton of carbon (US\$2.00 per ton CO<sub>2</sub>) at two years after logging (Moura-Costa and Tay 1996, Moura-Costa 1997). Higher savings are expected in the longer term. All the incremental costs of training and implementation of the project were paid by NEP, which has full rights to the carbon savings. At the same time, ICSB benefits from improved management of its forests, and a better residual stand after logging.

Apart from the direct benefits to the forest derived from RIL techniques, the project has had a broader impact. The initial phase of the project included a substantial training component aimed at all levels in the ICSB hierarchy, including the senior management, foresters, forest rangers, tree-fellers, and tractor operators. The training of a few logging crews has triggered positive attitudes among loggers around the region. Professional pride and competition has led to an unexpected improvement of the performance of other logging crews operating in the ICSB's concession, with an overall improvement in logging efficiency beyond the project's boundaries.

Another positive effect of the project is in the raising of awareness. The project has received substantial attention by local and international media, has served as a demonstration area for better logging practices, and attracted hundreds of local and international visitors since its inception. It has also been the target of research projects conducted by foreign and local scientists. The project has also attracted the attention of institutions such as CIFOR and ITTO, which became interested in using the project as a basis for spreading the use of RIL techniques throughout the region. Another similar carbon offset project based on RIL has already been approved by the USJI.

The first phase of the ICSB-NEP RIL project demonstrated that the technical impediments to better logging practices can be overcome without major difficulty. A second phase was initiated early 1996, consists of 9,000 ha of RIL during a three-year period. In 1996, NEP placed the project into the EEI Utilitree Carbon Company (the financing entity of the Utility Forest Carbon Management Programme), which will pay for 1,000 hectares of RIL.

The Innoprise RIL CO<sub>2</sub> offset offerings are substantially different from those provided by the Project for Belize (see next case study). First of all, it is an explicitly commercial contract for services between two huge private sector entities. While there has been some modest assistance from third parties in developing the quantification methodologies, this project is comparatively "unleveraged"; the cost of the contract truly reflects the cost of the emissions savings. The project was initiated well before the development of the USJI and other JI programmes, and its contractual nature – involving arbitration, defined credit assignment, credit re-sale clauses, insurance and the like – points to a more business-like carbon offset arrangement. The project also has great potential to be scaled up, given that Innoprise harvests between 10,000 and 20,000

hectares of its own concession holdings each year, and could easily transfer the techniques to other concessions which it is managing (though the costs and carbon estimates would clearly change). This is substantially different to project level investments that tend to have much more defined parameters and are not necessarily able to expand quickly in the event of market demand for the CO<sub>2</sub> offset service.

### **Case study 3. Conservation areas and sustainable forestry programme, Belize**

The Rio Bravo Conservation and Management Area Carbon Sequestration Pilot Project (RBCMA) located in north-west Belize, combines land acquisition with a sustainable forestry **programme** to achieve carbon sequestration. RBCMA is run by the Programme for Belize (PfB), a private conservation and development organisation. The project is financed by various U.S. electric utilities, namely the Wisconsin Power Company (WEPCO), Cinergy, Detroit Edison, PacifiCorp, and the EEI Utilitree Carbon Company. The participating utilities will contribute US\$2.6 million to The Nature Conservancy (TNC) and PfB to fund the first component of the project (USIJI 1995).

PfB owns the RBCMA in perpetual trust for the people of Belize. PfB was established in 1988 by private citizens to promote conservation of the natural heritage of Belize and the wise use of the country's natural resources, and to conserve a representative area of natural forest. With 86,928 hectares of forest land, RBCMA is PfB's flagship project. The primary hardwood stock of the RBCMA and its environs had been seriously depleted through almost a century of unsustainable harvesting. PfB has undertaken extensive biological surveys of RBCMA's lands and, by 1994, had developed a preliminary land use plan which included a sustainable forestry operation in the eastern part of the parcel while the western portion was to be set aside for conservation, scientific and educational purposes. Had it not been for PfB's acquisition of the land that is now the RBCMA, it is likely that the forested portions would have been converted to farm land.

RBCMA has two components. Component A involves the purchase of an area of endangered forest land, thereby expanding RBCMA's existing protected forest areas. Under Component A, PfB would exercise its option to purchase 6,014 hectares of endangered forest land that intersects the eastern portion of the RBCMA. If not protected, this property will be converted to agricultural use, permanently dividing the RBCMA ecosystem. Component B involves the development of a sustainable forestry management programme that will increase the level and rate of carbon sequestered within approximately half of the RBCMA, including the purchased parcel. The remaining RBCMA lands will be left undisturbed as experimental control areas, as well as for conservation and research purposes. Component A is expected to yield 767,681 t C after five years. Component B is expected to yield 541,814 t C after twenty years. The cost estimates outlined in the proposal were US\$1.91 per ton of carbon (US\$0.52 per ton CO<sub>2</sub>), with benefits projected over the forty-year life of the project (USIJI 1995).

The project was designed from the outset as a USIJI project. It also conforms to requirements for carbon offset registration under Section 1605(b) of the 1992 U.S. Energy Policy Act and to PfB's sustainable development mandate. The RBCMA project was developed in conjunction with the Wisconsin Electric Power Company (WEPCO), to demonstrate a model carbon offset project case. After screening more than twenty potential projects being planned by The Nature

Conservancy's (TNC) Latin American and Caribbean partner organisations, TNC presented five candidate projects to WEPCO, of which it was agreed that the Rio Bravo in Northwest Belize was the most suitable. TNC and WEPCO approached PfB to sign a Memorandum of Understanding agreeing "to develop a joint proposal for a pilot carbon sequestration project" for submission to the USJI.

The Memorandum includes the participants' explicit intent to develop a model project that conforms to the requirements of the USJI, the FCCC, and the U.S. Department of Energy Section 1605(b) offset registry requirements. When approved by the USJI Evaluation Panel, WEPCO pledged to fund up to 25 percent of the project costs and to seek the additional financial participation from other private concerns, a task which it has completed with the inclusion of Cinergy, Detroit Edison and PacifiCorp. On 17 October 1994, in response to the Rio Bravo Pilot Project, the Government of Belize ratified the FCCC and issued a letter endorsing the project and the concept of carbon offset trading (USJI 1995).

One of the goals of the Rio Bravo Pilot Project is to demonstrate that environmentally sustainable forest management practices can become more economically sustainable when the value of carbon offsets is factored into the equation. If successful, the project will demonstrate the optimal balance between conservation, economic development and environmental protection. A total of 25,866 hectares of the RBCMA eastern area is zoned for forestry development. The land in this zone has a limestone base with a broadleaf forest cover. It has no slope, soil moisture, biodiversity or cultural characteristics warranting special conservation considerations. This development programme would require a forty-year annual rotation regime, with the annual working area of the broadleaf forest limited to 640 hectares. To be economically sustainable, the programme would have to integrate forest extraction, with milling and woodworking capabilities, the latter being used to add value to the logged timber before sale.

An additional 10,010 hectares of the total area has poor, sandy soils with open woodland savannahs. The area has been damaged by uncontrolled seasonal wildfires and fires set by poachers. Some 2,500 hectares of this area will be managed to improve pine stocks through regeneration. The remainder of the area is zoned as protected for environmental and conservation management reasons. Forested portions of the area, totalling 5,308 hectares, will be allowed to regenerate (USJI 1995).

In addition to GHG, the project can potentially generate a number of other benefits. These include the protection of biodiversity, improvements in soil stability, water and air quality, the creation of local jobs, and long-term improvements in the local economy through the development of minor forest product industries.

#### **Case study 4. Direct payment to farmers for environmental services, Costa Rica**

Costa Rica has a history of innovative approaches to development. In the 1950s, in the middle of the cold war, the army was abolished releasing 15% of the country's gross national product for use in development and social programmes. In the 1980s, Costa Rica was the first country to carry out a "debt for nature" transaction, which has subsequently attracted tens of millions dollars for conservation of its forests (Watson et al., 1998).

Costa Rica is now launching three national level carbon sequestration programmes, two in forestry and a third in renewable energy. Commercialisation of CO<sub>2</sub> reduction credits is achieved through the system of Certified Tradable Offsets (CTOs), which are issued by the recently created Costa Rican Office on Joint Implementation (OCIC – Executive Decree N. 25066 Minae, 1996). These CTOs are credits of carbon fixation based on the amount of CO<sub>2</sub> fixed in forests. The first batch of CTOs (200,000 tons of carbon) was sold to a Norwegian consortium at US\$10 per ton of carbon (US\$2.70 per ton of CO<sub>2</sub>), for a total of US\$2,000,000.

The Private Forestry Programme (PFP), encourages land owners to opt for forestry-related land uses by providing direct payment for environmental services. Environmental services include CO<sub>2</sub> fixation, water quality, biodiversity, and landscape beauty [Forestry Law N. 7575, April 1996; La Gaceta (1996)]. The monetary incentives aim at increasing the attractiveness of forestry compared to higher impact forms of land use. Incentives are paid to land owners over a period of five years following the signing of a contract to keep their land under a specified type of utilisation for a minimum period of twenty years. Farmers who receive these incentives assign the rights of to the environmental services to the government, which bundles them for potential sale. The resources for initiating the PFP programme were raised by a domestic 15 percent tax on fossil fuels, which is expected to raise US\$21 million per year (Franz Tattenbach, personal comment). It is hoped that future payments to farmers will be based upon successful sales of resultant CTOs.

The value of PFP incentives varies. There are three main areas of interest: conservation of existing forests, selective harvesting for sustainable wood production, and reforestation or natural regeneration of degraded pasture or agricultural land. In the case of private forest conservation, farmers receive US\$56 per hectare a year for to a total of US\$280 per hectare. They are also waived payment of land tax. Those opting for natural forest management receive US\$47 per hectare a year, to a total of US\$235/ha, in addition to the revenue derived from timber harvesting. In order to enforce compliance with low impact logging guidelines, the law requires that any harvesting operation must be supervised by a trained forester. Farmers who choose to reforest part of their agricultural land receive a series of payments related to the costs of plantation establishment, to a total of US\$558 per hectare.

Beyond CTOs, Costa Rica is also working on ways to charge the economic sectors that most benefit from these services. One example is the creation of a system to charge hydroelectric plants for the conservation of their water catchments, at a rate of US\$10 per hectare a year. A similar mechanism is being created for remunerating farmers in ecotourism regions. In the case of biodiversity, genetic prospecting contracts have been signed between INBio (the Costa Rica institute of genetic resources) and international chemical companies. The first of these contracts was signed with Merck, the large American pharmaceutical company, and stipulates that Merck will pay the Costa Rican government ten percent of the profits from any product derived from Costa Rican forests.

The institution coordinating the administration of the private sector incentives is called FONAFIFO (Fondo Nacional de Financiamiento Forestal – Forestry Financing Fund), an office created by the MINAE (Minister del Ambiente y Energia – Ministry of Energy and Environment). FONAFIFO has the role of receiving and analysing applications, conducting field



verifications, carrying out the payments, and monitoring field implementation of forestry projects.

Costa Rica is also working on a second national level land use project, called Protected Areas Programme (PAP), with the objective of reducing deforestation rates by consolidation of its national parks network. The programme aims at consolidating 570,000 ha within twenty-eight national parks, and claim the carbon savings derived from avoided deforestation, which historically has averaged three percent per year. Costa Rica expects to avoid the release of about 18 million tons of carbon (66 m t CO<sub>2</sub>) through the implementation of the PAP. These savings will be independently verified by the international certification company SGS Forestry, and CTOs will be issued accordingly. At a projected price of US\$10 per ton of carbon, Costa Rica expects to raise US\$180 million through the PAP. The sale of CTOs from the PAP will be done with the assistance of the Center Financial Products, possibly through the Chicago Board of Trade transactions. In conjunction with the Earth Council, which is providing some of the catalytic finance for the PAP, Costa Rica will use a portion of those proceeds to finance construction of the Earth Center, which is envisioned as a research/demonstration project highlighting various aspects of sustainable development and environmental values.

The Costa Rican Renewable Energy Export Programme, bundles a group of geothermal, hydroelectric, biomass and wind electricity generation projects to export energy to neighbouring countries in Central America that would otherwise use electricity generated from fossil fuels. Money from the Greenhouse Gas Fund will contribute to the renewable energy projects' overall profitability, to regional marketing and to benefit sharing within Central America.

Project participants are the Costa Rican Association of Independent Power Producers (ACOPE); the Costa Rican Investment and Trade Development Board (CINDE); the Free Zone Corporation and ICE (Instituto Costarricense de Electricidad). The projects are a fifty MW geothermal plant; a five MW electricity plant that burns biomass from a sugar mill; a twenty MW wind facility; and seven hydroelectric facilities of twenty MW each. These projects will generate a total of 215 MW of capacity to offset 1,300 gigawatt-hours of fossil fuel generation in the importing countries for an estimated saving of 1.3 million tons of CO<sub>2</sub> per year. OCIC will certify that the GHG savings have occurred – using external verification – and bundle those savings into CTOs to be assigned to the external financing participants.

All of these Costa Rican programmes provide good examples of how JI could be utilised by developing countries to attract international investment. The whole programme has been conceived by the Costa Rican government and, consequently, conforms to government priorities. While Costa Rica managed to secure catalytic funding for the initial phase of the PAP (provided by the Earth Council and the World Bank), all other costs are borne by Costa Rica itself, which is also responsible for determining the sale price of CTOs. In this way Costa Rica maintains full control of the production costs and profits associated with the commercialisation of CTOs, which, it is hoped, will be redirected into priority areas within the country.