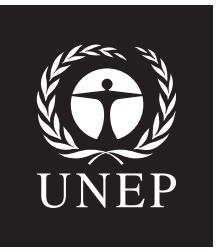
UNEP

Economic Instruments in Biodiversity-related Multilateral Environmental Agreements



ECONOMIC INSTRUMENTS in BIODIVERSITY-RELATED MULTILATERAL ENVIRONMENTAL AGREEMENTS

© Copyright 2004 UNEP

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder, provided acknowledgement of the source is made. UNEP would appreciate receiving a copy of any publication that uses this publication as a source.

No use of this publication may be made for resale or for any other commercial purpose whatsoever without prior permission in writing from UNEP.

First edition 2004

Reprinted in September 2004

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the United Nations Environment Programme concerning the legal status of any country, territory, city or area or of its authorities, or concerning delimitation of its frontiers or boundaries. Moreover, the views expressed do not necessarily represent the decision or the stated policy of the United Nations Environment Programme, nor does citing of trade names or commercial processes constitute endorsement.

UNEP/ETB/2003/10

UNITED NATIONS PUBLICATION

ISBN: 92-807-2390-1

printed on paper from 100 % recycled waste material
CyclusOffset

Designed and printed by TYPHON - Annecy
00 33 (0)4 50 10 00 00

Foreword

The loss and decline of biological diversity, and its economic and ecological consequences, is now widely recognized as an urgent global environmental problem. As a result, a concerted response has emerged during the past three decades, including the development of Multilateral Environmental Agreements (MEAs) that deal specifically with the conservation and wise use of biological diversity.

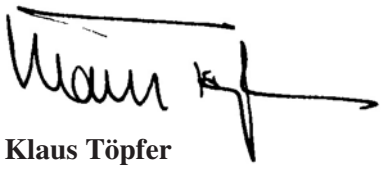
In the context of implementing these biodiversity-related conventions, the use of economic instruments has expanded significantly over the last years. This reflects a growing understanding that economic instruments can increase the efficiency and cost-effectiveness of environmental management, create incentives for investment and generate financial resources for preserving biodiversity.

Indeed, if well designed and used within the right policy framework, economic instruments such as fiscal instruments and charges, financial assistance or the introduction of property rights and liability systems can increase returns to activities that conserve valuable biological diversity while discouraging behaviour that is detrimental to species and ecosystems. As Hamdallah Zedan, the Executive Secretary of the Convention on Biological Diversity, has commented, "Such incentive measures seek to bridge the profitability gap between unsustainable activities and sustainable alternatives, thus inducing actors to conserve biological diversity or use its components in a sustainable manner."

This study looks at the current and potential role as well as the possible limitations of economic instruments in the context of the Convention on Biological Diversity, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and the Ramsar Convention. It illustrates the main types of economic instruments for biodiversity protection and identifies the three MEAs principal provisions and negotiations on economic instruments. Using numerous examples, the study suggests some thematic areas where the use of economic instruments could be further developed and discusses some of the conditions for the successful implementation of such instruments.

While there is already good cooperation among these MEAs, there are significant further opportunities to realize synergies on the local, national and international level. This includes the application of economic instruments that can assist in implementing more than one Convention and the further identification of capacity building needs of developing countries for the design and effective use of appropriate economic instruments in the future.

It is part of UNEP s mission to provide support for such cooperation between MEA Secretariats and negotiators as well as for capacity building activities aimed at policy makers in developing countries. In this way, I hope that this study will be useful in helping countries to pursue their path towards the protection of biodiversity and sustainable development. Furthermore, it should support efforts to reverse the trend of biodiversity losses by 2010, a commitment made by the world s governments at the World Summit on Sustainable Development. UNEP welcomes comments and feedback on this study.



Klaus Töpfer
Executive Director
United Nations Environment Programme

Acknowledgements

This report was prepared for the Economics and Trade Branch of the United Nations Environment Programme (UNEP-ETB) under the auspices of the UNEP Working Group on Economic Instruments for Environmental Policymaking. UNEP would like to thank the authors of the study, Nicola Borregaard from RIDES (Recursos e Investigación para el Desarrollo Sustenable) and Matthew Stilwell for their principal contribution towards this publication. The main authors were assisted by Beatrice Bustos.

The UNEP Working Group on Economic Instruments was created in June 2001 by Hussein Abaza, Chief UNEP-ETB, in response to the Governing Council's request to provide assistance to countries, particularly developing countries and countries with economies in transition, to develop and apply economic instruments at the national level, including in the context of Multilateral Environmental Agreements. The Working Group consists of developed and developing country experts from research institutions, relevant international and non-governmental organizations and governments, all of which have greatly contributed to this publication.

The report was written in close collaboration with the UN Secretariats of the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the Ramsar Convention on Wetlands of International Importance especially as a Waterfowl Habitat (Ramsar Convention). UNEP gratefully acknowledges the valuable contribution especially of Markus Lehmann (CBD), Juan Carlos Vasquez (CITES) and Alain Lambert (Ramsar).

UNEP would also like to thank other members of the Working Group for their contributions and comments, including Jean Acquatella (United Nations Economic Commission for Latin America), Jean-Philippe Barde (Organization for Economic Cooperation and Development), Debapriya Bhattacharya (Centre for Policy Dialogue, Bangladesh), Margaret Calderon, Herminia Francisco and Laksmi Dhewanthi (Indonesia), Nuria Castells and Veena Jha (United Nations Conference on Trade and Development), Charles French (Chemicals Unit, UNEP), Ulf Jaeckel (German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety), Boaz Blackie Keizire (Ministry of Agriculture, Uganda), Leslie Lipper (Food and Agriculture Organization), Konrad von Moltke (Dartmouth College), Papa Gora Ndiaye (ENDA, Senegal), Naftali Ndugire (Environment Ministry, Kenya), Adebola Okuneye (University of Agriculture, Nigeria), Maria Onestini (Centro de Estudios Ambientales, Argentina), Theodore Panayotou (Harvard Institute for International Development), Jan Pieters (Ministry of the Environment, Netherlands), Anisur Rahman (DEPI, UNEP), Andrea Repetti (Argentine Mission in Geneva), Salah El Serafy and Ronaldo Seroa da Motta (Instituto de Pesquisa Econômica Aplicada). Their contribution is gratefully acknowledged.

Anja von Moltke, Economics Affairs Officer at UNEP-ETB, was responsible for managing the project, coordinating the Working Group and editing the report, supported by Andrea Smith and Colin McKee. Administrative assistance was provided by Desirée Leon.

United Nations Environment Programme

The United Nations Environment Programme (UNEP) is the overall coordinating environmental organization of the United Nations system. Its mission is to provide leadership and encourage partnerships in caring for the environment by inspiring, informing and enabling nations and people to improve their quality of life without compromising that of future generations. In accordance with its mandate, UNEP works to observe, monitor and assess the state of the global environment, improve the scientific understanding of how environmental change occurs, and in turn, how such change can be managed by action-oriented national policies and international agreements. UNEP's capacity building work thus centers on helping countries strengthen environmental management in diverse areas that include freshwater and land resource management, the conservation and sustainable use of biodiversity, marine and coastal ecosystem management, and cleaner industrial production and eco-efficiency, among many others.

UNEP, which is headquartered in Nairobi, Kenya, marked its first 30 years of service in 2002. During this time, in partnership with a global array of collaborating organizations, UNEP has achieved major advances in the development of international environmental policy and law, environmental monitoring and assessment, and the understanding of the science of global change. This work also supports the successful development and implementation of the world's major environmental conventions. In parallel, UNEP administers several multilateral environmental agreements (MEAs) including the Vienna Convention's Montreal Protocol on Substances that Deplete the Ozone Layer, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (SBC), the Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention, PIC) and the Cartagena Protocol on Biosafety to the Convention on Biological Diversity as well as the Stockholm Convention on Persistent Organic Pollutants (POPs).

Division of Technology, Industry and Economics

The mission of the Division of Technology, Industry and Economics (DTIE) is to encourage decision makers in government, local authorities and industry to develop and adopt policies, strategies and practices that are cleaner and safer, make efficient use of natural resources, ensure environmentally sound management of chemicals, and reduce pollution and risks for humans and the environment. In addition, it seeks to enable implementation of conventions and international agreements and encourage the internalization of environmental costs. UNEP DTIE's strategy in carrying out these objectives is to influence decision-making through partnerships with other international organizations, governmental authorities, business and industry, and non-governmental organizations; facilitate knowledge management through networks; support implementation of conventions; and work closely with UNEP regional offices. The Division, with its Director and Division Office in Paris, consists of one centre and five branches located in Paris, Geneva and Osaka.

Economics and Trade Branch

The Economics and Trade Branch (ETB) is one of the five branches of DTIE. Its mission is to enhance the capacities of countries, especially of developing countries and countries with economies in transition, to integrate environmental considerations into development planning and macroeconomic policies, including trade policies. ETB helps countries to develop and use integrated assessment and incentive tools for sustainable development and poverty reduction. The Branch further works to improve the understanding of environmental, social and economic impacts of trade liberalisation and the trade impacts of environmental policies, and to strengthen coherence between Multilateral Environmental Agreements and the World Trade Organization. Through its finance initiative, ETB helps enhance the role of the financial sector in moving towards sustainability.

In the field of environmental economics, ETB aims to promote the internalization of environmental costs and enhance the use of economic instruments to contribute to sustainable development and poverty reduction, including in the specific context of Multilateral Environmental Agreements. The UNEP Working Group on Economic Instruments serves as an advisory body to UNEP-ETB's work programme on economics and has been instrumental in the preparation of UNEP publications on economic instruments.

For more information regarding UNEP's work on economic instruments and subsidies reform, please contact Anja von Moltke, Economic Affairs Officer, Economics and Trade Branch (ETB) at tel : 41-22-917 81 37, Fax : 41-22-917 8076.

For more information on the general programme of the Economics and Trade Branch, please contact:

Hussein Abaza
Chief, Economics and Trade Branch (ETB)
Division of Technology, Industry and Economics (DTIE)
United Nations Environment Programme (UNEP)
11-13 Chemin des Anémones
1219 Châtelaine/Geneva
Tel : 41-22-917 81 79
Fax : 41-22-917 8076

http://www.unep.ch/etu

Contents

Foreword 1

Acknowledgements 3

United Nations Environment Programme 5

Executive Summary 11

1 Introduction 17

2 Economic Instruments and Biodiversity 23

2.1 Using economic instruments to achieve environmental objectives 23
2.2 Economic instruments relevant to biodiversity-related MEAs 24
2.2.1 Property rights 24
2.2.2 Market creation and enhancement 25
2.2.3 Charges 26
2.2.4 Fiscal instruments 26
2.2.5 Financial assistance 27
2.2.6 Liability systems 27
2.2.7 Environmental funds 28
2.2.8 Economic instruments for biodiversity protection at the international level 29

3 References to Economic Instruments in Selected MEAs 31

3.1 Convention on Biological Diversity 31
3.1.1 Main obligations relating to economic instruments in the Convention 32
3.1.2 Main COP and subsidiary body decisions relating to economic instruments 32
3.2 Convention on International Trade in Endangered Species of Wild Fauna and Flora 35
3.2.1 Main obligations relating to economic instruments in the Convention 35
3.2.2 Main COP and subsidiary body decisions relating to economic instruments 36
3.3 Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat 38
3.3.1 Main obligations relating to economic instruments in the Convention 38
3.3.2 Main COP and subsidiary body decisions relating to economic instruments 39
3.4 Areas of commonality among selected MEAs 41

4 Use of Economic Instruments to Implement Selected Biodiversity-related MEAs 45

4.1 Thematic areas for the use of economic instruments 46
4.1.1 In-situ conservation 46
4.1.2 Sustainable or wise use and the role of sustainable trade 54
4.1.3 Payments for ecosystem services 63
4.1.4 Raising financial resources 72
4.1.5 Addressing perverse economic incentives 78
4.2 Supporting the effective use of economic instruments for biodiversity protection 84

4.2.1 Valuation and economic instruments 84
4.2.2 Including local communities 87
4.2.3 Capacity building for economic instruments 92
4.3 The role of the State in implementing economic instruments 94

5 Conclusions 101

Strengthen cooperation 101
Improve understanding of economic instruments in specific contexts 102
Support the introduction of economic instruments for biodiversity protection 104
Looking forward 104

6 Bibliography 105

Boxes

Box 1: Conservation easements 48
Box 2: Tradable development rights and conservation banks 48
Box 3: Tradable fishing quotas 49
Box 4: Tenure reform, Mankote Mangrove (St. Lucia) 49
Box 5: Perverse incentives from land tenure (Trinidad and Tobago) 50
Box 6: United States National Coastal Wetlands Conservation Grant Programme 51
Box 7: Brazil forest tax 52
Box 8: Trinidad and Tobago Green Fund Levy 53
Box 9: Private certification schemes 57
Box 10: Government certification of organic agriculture 58
Box 11: Bolsa Amazonia eco-region scheme 59
Box 12: BIOTRADE Initiative (UNCTAD) 60
Box 13: Certification and labelling of captive breeding 61
Box 14: Environmental services - climate care 64
Box 15: Quitoís water conservation fund 65
Box 16: Bioprospecting ñ PROBEM in Brazil 66
Box 17: Ecotourism in Chile 67
Box 18: Ecotourism in Belarus 67
Box 19: Ecotourism in the Philippines 68
Box 20: Costa Rica environmental services payment system 70
Box 21: The Ramsar Small Grant Fund 73
Box 22: The Mgahinga and Bwindi Impenetrable Forest Conservation Trust, Uganda 74
Box 23: Bilateral debt swaps in Peru 75
Box 24: Kiwi Recovery Programme 76
Box 25: The Peregrine Fund 76
Box 26: Terra Capital venture capital fund, Latin America 77
Box 27: Subsidies in the fishing industry 80
Box 28: Tax incentives in Colombia 81
Box 29: The elimination of tax incentives to wetland conversion in the United States 81
Box 30: Over-use of grazing lands in Botswana 82
Box 31: Valuation in the context of biodiversity prospecting 86
Box 32: Cattle ranching and deforestation in the Brazilian Pantanal 87
Box 33: Communal property rights: CAMPFIRE, Zimbabwe 89
Box 34: Benefit sharing: Costa Rica and the Merck Company 89

Box 35: Bioprospecting and benefit sharing between the South African CSIR and the San community 90
Box 36: Maintaining biodiversity in Pakistan with rural community development 91

Tables

Table 1: Summary of selected areas for further consideration 96

Executive Summary

Economic instruments are increasingly recognized as having an important role to play in the implementation of many multilateral environmental agreements (MEAs), including those that protect biological diversity. Well-defined property and use rights can promote the conservation and sustainable use of biodiversity, tradable catch and export permits can encourage the protection of endangered species of fauna and flora, and incentives such as charges and taxes can help to maintain critical habitats, including wetlands. For the purpose of this study economic instruments are defined as "Instruments that affect estimates of costs and benefits of alternative actions open to economic agents. Economic instruments, in contrast to direct regulations, thus allow agents the freedom to respond to certain stimuli in a way they themselves think most beneficial." (OECD, 1994, p.17.)

The importance of economic instruments and other incentives in implementing MEAs is recognized in the text of a number of agreements, and in the discussions and decisions of their respective Conference of the Parties (COP) and other subsidiary bodies. This paper looks at the role and importance of economic instruments in the context of three specific biodiversity-related MEAs – the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention).

These MEAs have already taken important steps to cooperate in achieving their shared objectives. To complement these existing cooperative efforts and efforts involving other actors regarding economic instruments and related incentives, this paper:

- Summarizes the main types of economic instruments relevant to biodiversity protection;
- Identifies the three MEAs principal obligations and discussions regarding economic instruments and incentives;
- Explores existing and potential synergies between these conventions and identifies cross-cutting thematic areas where the use of economic instruments can be explored in further detail;
- Discusses some of the conditions, such as valuation, stakeholder participation and capacity building, for the successful use of economic instruments; and
- Offers preliminary suggestions for future work, both at the multilateral level within and between the MEAs, and at the national level in designing and implementing economic instruments.

The paper does not offer a definitive treatment of this complex subject, but rather seeks to contribute to the ongoing discussions on ways to encourage and improve the use of economic instruments to support the conservation and sustainable use of biological diversity.

Economic instruments and biodiversity

The use of economic instruments in the context of environmental protection has expanded significantly over the last few decades. This reflects a growing understanding that economic

instruments can increase the efficiency and cost-effectiveness of environmental management, generate financial resources, create incentives for investment, and expand the involvement of private agents in environmental protection. There is a wide range of different types of economic instruments relevant to policy makers seeing to protect biological diversity and to implement biodiversity-related MEAs. These instruments are summarized in this paper as follows:

- ***Property rights*** can be established or strengthened to reinforce private incentives for conservation, and to underpin other market-based conservation tools. Property rights-based approaches include establishing clear ownership rights, conservation easements, and communal property rights.
- ***Market creation and enhancement*** can be used to strengthen the role of the market in guiding the allocation and use of resources, and providing economic incentives for conservation. Market creation and enhancement includes establishment of carbon sequestration offsets, tradable development rights, tradable quota systems, eco-labelling and environmental certification, and bioprospecting.
- ***Charges*** can be used to align private and social incentives, promote environmentally sound behaviour, and raise funds for conservation efforts. Charges can include entrance fees for protected areas, payments for water services, and schemes to internalize the costs of pesticide or fertilizer use.
- ***Fiscal instruments*** can be used to discourage unsustainable production and consumption practices and raise public revenues. Fiscal instruments include tax exemptions or deductions, differential land use taxation and deforestation taxes.
- ***Financial assistance*** can be used to promote sustainable production and consumption practices. Financial assistance includes targeted grants to promote sustainable livelihoods and conservation, bounties or other cash rewards, conservation leasing and soft credits and loans designed to encourage conservation activities.
- ***Liability systems*** can be used to modify behaviour by increasing the likely costs associated with non-compliance with environmental rules. Liability systems include environmental fines for non-compliance or environmental damage, and environmental performance bonds and deposits.
- ***Environmental funds***, while not *per se* economic instruments, can be used to complement such instruments by financing conservation activities. Environmental funds include endowment funds to support long-term projects, sinking funds and revolving funds, and biodiversity venture capital funds.

These instruments, if well designed and used within the right policy framework, can promote the conservation and sustainable use of biological diversity and help implement the goals of biodiversity-related MEAs.

Reference to economic instruments in selected biodiversity-related MEAs

This paper examines what each of the above-mentioned MEAs says about economic instruments and other incentives, and which of their obligations national policy makers can implement by using economic instruments.

- ***The Convention on Biological Diversity,*** as one of the principal international agreements for the conservation of biological diversity, requires Parties to "adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity" (Article 11). The CBD s Conference

of the Parties (COP) has referred to the importance of economic incentives in a number of COP Decisions, and has offered recommendations on the design and implementation of incentive measures (Decision VI/15).

- ***The Convention on International Trade in Endangered Species of Wild Fauna and Flora*** aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival, and has emphasized that "for trade to be responsible and based on sustainable use, social and economic incentives are needed". (Strategic Vision Through 2005, Goal 1). Its COP has called for a "review of … national policy regarding the use of and trade in CITES-listed species, taking into account economic incentives." (Decision 12.22, Economic Incentives and Trade Policy).
- ***The Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat*** protects wetlands of international importance and has established the goal of promoting "incentive measures that encourage the application of the wise use principle, and the removal of perverse incentives" (Strategic Plan 2003-2008, Objective 8). Additionally, Resolution VIII:23, entitled Incentive Measures as Tools for Achieving the Wise Use of Wetlands, urges Contracting Parties to develop supportive legal and policy frameworks for the design and implementation of incentive measures.

These conventions have also emphasized the importance of cooperation in areas of shared interest, and exhibit commonalities on a number of levels, including their subject matter and objectives, their rights and obligations, and their programmes and processes. Parties to the MEAs have stressed the importance of building on their existing areas of cooperation, and establishing further linkages on areas of common interest. In particular:

- ***The CBD s*** COP has requested the Executive Secretary to promote coordinated action on incentives with other international biodiversity-related agreements and relevant organizations, noting specifically that the joint work plan of the Convention on Biological Diversity and the Convention on Wetlands includes consideration of incentive measures (Decision V/15).
- ***The CITES*** Strategic Plan notes that "numerous linkages also exist between the aims of CITES and those of other multilateral environmental agreements. Specifically, the missions of CBD and CITES are closely related, thus necessitating a high degree of cooperation and synergy. Cooperation and coordination with species management conventions and agreements are equally important" (Strategic Plan Goal 5).
- ***The Ramsar Convention*** seeks to "work as partners with international and regional multilateral environmental agreements (MEAs) and other agencies" and specifically to "continue to strengthen cooperation and synergy with the Convention on Biological Diversity" and to "establish working relations with CITES" (Strategic Plan, Operational Objective 13). It has also noted the references to cooperation by other bodies, such as recommendation VII/9 of the CBD s Subsidiary Body on Scientific, Technical and Technological Advice, which stressed the need to examine the policies and programmes under different multilateral environmental agreements to ensure that they provide mutually reinforcing incentives.

To support further cooperation between these conventions, this paper explores some of the main thematic areas where economic instruments can be used by national policy makers to enhance synergies between the MEAs.

Thematic areas for enhanced use of economic instruments

While the three conventions adopt somewhat different terminology and approaches, they all share the overarching concern of conserving biological diversity in its various forms, while encouraging its sustainable or wise use. Under this overarching theme, this paper has identified a number of cross-cutting thematic areas where two or more MEAs have overlapping competence, and where economic instruments could form a policy tool to achieve their common objectives. In some cases, MEAs have already developed important initiatives to work in these areas, either individually or collectively; in other cases opportunities for synergy remain to be realized. The thematic areas identified in this paper include:

- ***In-situ conservation.*** Protecting biodiversity in-situ is a fundamental focus of the CBD and Ramsar. As principally a trade-related treaty, CITES has focused less on in-situ conservation, although this topic has been raised in discussions on the relationship between preserving species in-situ and captive breeding to produce species for trade. The paper suggests an array of economic instruments, including property rights approaches, market creation, fiscal instruments, charges and liability mechanisms that are available to promote the goals of the conventions and protect biodiversity in-situ.

- ***Sustainable or wise use.*** The CBD encourages use of the components of biodiversity "in a way and at a rate that does not lead to long–term decline of biological diversity" (definition, Article 2). CITES COP has stated, "trade in wildlife products may be beneficial … when carried out at levels that are not detrimental to the survival of species" (Resolution Conf. 8.3). Ramsar promotes the "wise use of wetlands", which means "sustainable utilization for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem". Synergies for sustainable use may be realized through mechanisms that support sustainable trade, promote eco-labelling and certification, and encourage eco-region initiatives to enhance sustainable use of biodiversity from specific geographic areas.

- ***Ecosystem services***. The need to preserve environmental or ecosystem services, such as watershed protection, has been discussed extensively in the contexts of Ramsar and the CBD. Economic instruments can both create markets for ecosystem services and ensure markets reflect the full social costs and benefits of environmental conservation and use.

- ***Financing conservation***. Discussions within the three conventions have continually emphasized the need for additional financing of efforts to conserve biodiversity. Financing the conventions, and national activities to implement them, remains a major challenge. Economic instruments such as charges and taxes can enhance incentives to conserve biodiversity and provide funds to support other conservation efforts. Funds can also be established at the project, national or international level to finance specific activities.

- ***Addressing perverse incentives.*** Providing positive incentives must be matched with removing or mitigating perverse ones. CBD has given extensive consideration to "perverse incentives and their removal or mitigation" (see, for example, Decision VI/15). Ramsar has emphasized the removal of perverse incentives, including tax benefits and subsidies, which encourage the destruction of wetlands (Resolution V.6). The proposed CITES voluntary review of national legislation will take into account "CITES-relevant taxation and subsidy schemes" (Decision 12.22). Sectors with a strong occurrence of perverse incentives include agriculture, fisheries and forestry. Perverse subsidies in these sectors include, for example, direct payments, preferential interest rates and immunity from taxes. Potential synergies between the MEAs on this topic are thus significant.

Supporting the introduction of economic instruments for biodiversity protection

What are the fundamental conditions for the effective introduction of economic instruments? The MEAs have, to varying extents, offered guidance on the factors that underpin the successful design and implementation of economic instruments (see, for example, CBD Decision VI/15).

Economic instruments are often best implemented as part of carefully tailored packages of measures. They function well in situations that allow for accurate pricing and valuation. Their use, on the other hand, may be hindered by institutional constraints and lack of inclusion of local communities or by ideological resistance. When seeking to implement economic incentives the following factors, among others, are important:

- ***Valuation of environmental resources and services.*** The CBD s COP has "recognized the importance of valuation as a tool for designing appropriate incentives" (Decision VI/15). CITES refers to economic valuation in Decision 12.22 on economic incentives. And Ramsar has also recognized that economic valuation is an important tool for well-targeted and calibrated economic incentive measures (Resolution VII.15). Potential synergies between the Conventions in the area of valuation are significant. Given the key function of valuation in biodiversity protection, analysis of methodologies and methods for valuation of biodiversity might be expanded in cooperative work.
- ***Integration of local communities.*** Each of the MEAs has emphasized the links between local communities and ecosystems, and the importance of involving these communities in conservation efforts. Participation matters when identifying ways to share the benefits of genetic resources. It also matters in scientific research and development, in the use of the findings of scientific research, and in the transfer of technologies. Efforts to integrate local communities into the process of designing and implementing economic instruments can help policy makers to learn about local needs and perspectives and to tailor instruments to better address these underlying conditions.
- ***Capacity building.*** Limited experience with economic instruments has been identified as a major obstacle to their enhanced use. Capacity building is recognized as a central element in the implementation of biodiversity-related Conventions. The CBD, for example, identifies capacity building as a key element to the effective implementation of incentive measures (Decision VI/15). Capacity building is needed in different fields and at different levels, including scientific and technical capacity for gathering information, analysing and disseminating information and properly designing economic instruments. It is also required in relation to administrative, educational and communications capacity, which is needed for the design and implementation of economic instruments. Finally, there may also be a need for building capacity to assist with the installation and utilization of necessary monitoring or other equipment. Capacity building on economic instruments thus seems an area ripe for further cooperation among the MEAs.

Suggestions for enhanced use of economic instruments

This study explores the use of economic instruments in the context of these thematic areas and supporting conditions, and presents a number of examples of national experiences, particularly in developing countries. In relation to each it suggests opportunities to deepen analysis of the use of economic instruments to implement biodiversity-related MEAs in a synergistic way, and to further encourage cooperation among the MEAs to achieve their mutual objectives.

While cooperation among the MEAs is already significant, there remain further opportunities to realize additional synergies, particularly in the use of economic instruments. This study suggests the need to strengthen cooperation and offers some suggestions for future collaborative efforts at a number of levels. At the level of the MEAs, it notes that cooperation could be expanded among MEA parties, formal bodies and secretariats in certain areas. At the national level cooperation is an essential prerequisite for designing and implementing effective economic instruments. Further work to build usable knowledge about implementing economic instruments, particularly in developing countries is required. The paper also notes that cooperation with other institutions and stakeholders could support efforts on incentive measures in specific contexts. Closer cooperation could help to identify in more detail areas of overlapping interests and competences, develop a deeper understanding of past successes and failures, as well as identify and address the capacity building needs of developing countries for the effective use of economic instruments in the future.

A lack of experience with economic instruments has been identified as one of the major obstacles to their use. Enhancing the use of economic instruments requires a more systematic effort to understand the role and limits of specific economic instruments in specific settings. To be most effective, such an effort could be organized in a manner that reflects and supports synergies among the principal MEAs, and that empowers national policy makers by focusing on thematic areas that reflect overlapping competences in the MEAs and defined areas of national policy-making. In realizing these opportunities, UNEP looks forward to further cooperation with governments, MEA secretariats, relevant international organizations and other stakeholders to support the appropriate design and use of economic instruments to capitalize on synergies and achieve the shared objectives of biodiversity-related MEAs.

1. Introduction

The purpose of this study is to review and discuss the use of economic instruments in the context of three biodiversity-related multilateral environmental agreements (MEAs): the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention). It is an exploratory investigation into the kinds of economic measures that have been taken to confront biodiversity loss in a range of countries in their efforts to implement the obligations and objectives of biodiversity-related MEAs.

In addition, the paper identifies opportunities for the conventions to strengthen cooperation and build synergies in areas of commonality. It thus also examines how the work of biodiversity-related MEAs can contribute to strengthening the use of economic instruments for biodiversity protection at the national level. It addresses the following questions:

- What are the main types of economic instruments available to national policy makers when seeking to protect biodiversity?
- What is the role of economic instruments in implementing biodiversity-related MEAs, such as the CBD, CITES and Ramsar?
- What does each MEA say about economic instruments or incentives, and which of their obligations can national policy makers implement using economic instruments?
- What are the main thematic areas where economic instruments can be used by national policy makers to increase synergies among these MEAs, and achieve their objectives in a coordinated manner?
- What are the fundamental conditions (such as the accurate valuation of biodiversity, involvement of local communities or access to capacity building), for the effective introduction of economic instruments?
- Looking forward, what are the prospects for further enhancing synergies among biodiversity-related MEAs – at the national and international levels – in the area of economic instruments?

The study is primarily addressed to policy makers and negotiators of MEA Parties, environmental and protected area managers, civil servants, private sector representatives concerned with the implementation of biodiversity-related MEAs, and other interested stakeholders well versed in the field.

Some background

Biological diversity is the central focus of the three MEAs addressed in this study. The CBD has defined biological diversity as: “the variability among living organisms from all sources

including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."[1] In practice, biodiversity is most often used as a collective noun synonymous with nature or 'Life on Earth . The concern for biodiversity derives from its significance for human life and the increasing threats it faces. Indeed, the Global Environment Outlook 3 (UNEP, 2002a) has stated:

> "global biodiversity is changing at an unprecedented rate, the most important drivers being land conversion, climate change, pollution, unsustainable harvesting of natural resources and the introduction of species….overall it appears that the drivers of biodiversity loss are so pervasive that conservation efforts have at best only slowed the rate of change at the global level."

A central challenge facing the MEAs is to systematically identify and confront the different drivers behind decline of biodiversity, and to suggest adequate policy instruments in each case.

The main policy tools used to achieve environmental objectives have traditionally been command and control (CAC) instruments. Over the last decade, however, there is increasing recognition of the need to complement these with the use of other policy instruments, with an emphasis on economic instruments. Economic instruments provide a means to internalize environmental and social costs, and to correct market and policy failures. Appropriately designed and implemented within the right policy framework, they can provide an important tool for implementing MEAs and contribute to achieving sustainable development.

A variety of terms have been used in the literature to refer to policy instruments or measures that affect economic incentives, calling for a brief definition of terminology. Economic instruments are traditionally defined as:

> "Instruments that affect estimates of costs and benefits of alternative actions open to economic agents. Economic instruments, in contrast to direct regulations, thus allow agents the freedom to respond to certain stimuli in a way they themselves think most beneficial." (OECD, 1994, p.17.)

The term economic instrument may be juxtaposed against a number of related terms. More common than the term economic instrument in the context of biodiversity protection are the terms economic incentives or incentive measures. Arguably, the notion of economic incentives is slightly broader and may cover incentives that are not strictly speaking policy instruments, such as market price signals. The two, however, are often used interchangeably. A focus on economic measures or instruments also highlights that there are a range of other incentive measures – social, institutional, legal and cultural – that interplay with economic incentives to form an appropriate policy mix.

Economic incentive measures operate to change behaviour in a number of different ways. Positive economic incentives are monetary inducements which encourage or motivate governments, organizations and individuals to safeguard biological diversity. Economic disincentives are mechanisms that internalize the costs of use of and/or damage to biological resources in order to discourage activities that deplete it. Indirect economic incentives

[1] Article2.Use of Terms.

include trading mechanisms and other institutional arrangements that create or improve upon markets and price signals for biological resources, encouraging the conservation and sustainable use of biological diversity. Perverse economic incentives are incentives which induce behaviour that reduces biodiversity; most of them are unanticipated side-effects of policies designed to attain other objectives.[2]

This paper uses the term economic instruments, reflecting the use of the term in economics literature, but it recognizes that instruments and incentive measures can be used interchangeably in many cases. The terms incentives or incentive measures will be used in the text when referring to references from other documents that use these terms.[3]

Multilateral Environmental Agreements

The three MEAs discussed in this paper share a common goal: protection of the Earth s biological diversity. CITES addresses the protection of certain species affected by trade; Ramsar addresses the protection of certain ecosystems; and the CBD seeks to protect ecosystem, species and genetic diversity and to further their sustainable use. In attaining their objectives, each convention has identified the value of using economic instruments:

- The CBD requires Parties to "adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity" (Article 11). The CBD s Conference of the Parties (COP) has referred to the importance of economic incentives in a number of COP decisions, notably Decision V/15.
- CITES has emphasized, "for trade to be responsible and based on sustainable use, social and economic incentives are needed" (Strategic Vision Through 2005, Goal 1), and has called for a "review of … national policy regarding the use of and trade in CITES-listed species, taking into account economic incentives." (Decision 12.22, Economic incentives and trade policy).
- Ramsar has established the goal of promoting "incentive measures that encourage the application of the wise use principle, and the removal of perverse incentives" (Strategic Plan 2003-2008, Objective 8). Resolution VIII:13, entitled Incentive measures as tools for achieving the wise use of wetlands, urges Contracting Parties to develop supportive legal and policy frameworks for the design and implementation of incentive measures.

These MEAs, and others, have taken important steps to cooperate in achieving their shared objectives. Collaboration through joint working programmes, mutual participation in Conference of the Parties (COP) meetings and workshops, memoranda of understanding, as well as a range of other initiatives have all enhanced cooperation.[4] Collaboration has also been extended to a diverse set of other partners with relevant expertise. However, while in many areas cooperation is well developed, in the area of economic instruments is still relatively nascent. Only recently have COP decisions emphasized the importance of cooperating in the area of economic instruments.[5]

---

[2] OECD (1997) Saving Biological Diversity: Economic Incentives.
[3] For definitions of economic incentives in MEAs, see CITES: Background document nº 18, COP 12; CBD: Convention, Article 20; Ramsar: COP7 doc.18.3, 1999.
[4] See joint website http://www.biodiv.org/convention/partners-websites.asp.
[5] See Section 3.4 for a full discussion of relevant cooperative efforts.

Structure and scope of the study

The study has five parts. Following this introduction, Section 2 examines the use of economic instruments in achieving environmental objectives, and provides an overview of the different types of economic instruments that may be used to help implement biodiversity related MEAs. Section 3 describes how economic instruments have been addressed in the CBD, CITES and in the Ramsar Convention. It notes their most relevant obligations, discussions by their COPs, and areas of commonality. Section 4 draws on the preceding two sections and explores how economic instruments have been used to implement relevant MEA obligations. Rather than examining each MEA individually, this section examines a set of cross-cutting themes for the use of economic instruments in implementing these MEAs. Commencing with the overarching goal of promoting the conservation and sustainable use of biodiversity, it illustrates areas where economic instruments may be used to further promote in-situ conservation, sustainable use, payments for environmental services, and to raise financial resources across each of the three MEAs. It also outlines some of the main conditions for the successful use of economic instruments, such as valuation of biodiversity, local community involvement, capacity building and the definition of the role of the state. In each of these areas, the paper offers some preliminary ideas on how economic instruments may be used to realize synergies between the three MEAs, and summarizes a number of examples that may serve as the basis for future discussions and analysis. The paper concludes in Section 5 by summarizing the major aspects of the study on how EIs have been used in the context of biodiversity protection, and drawing up some preliminary recommendations for enhancing the use of economic instruments in the biodiversity-related conventions.

While the paper recognizes the role and responsibility of developing country officials and citizens as custodians of a large proportion of the world s biological diversity, it also acknowledges the special challenges they face, and so seeks to address their particular issues and concerns. Practical examples and case studies are therefore drawn primarily (but not exclusively) from developing countries. To the extent possible in a general review paper of this kind, discussion acknowledges that distinct institutional, socio-economic and cultural framework conditions exist in different countries and contexts, and that these conditions have to be taken into account when designing and implementing economic instruments.[6] At the same time, it recognizes that there are valuable lessons that can be learned by examining the use of economic instruments in different settings, and thinking proactively about how to improve their use.

The scope of this study is limited to the use of economic instruments in the context of the three MEAs identified above. It does not aim to provide a definitive word on the use of economic instruments in the context of these MEAs, but rather seeks to contribute to an ongoing discussion of ways to improve their use. Nor does it consider the use of economic instruments to implement other key MEAs – such as the Convention to Combat Desertification, the Convention on Migratory Species and its Agreements, the World Heritage Convention, and the United Nations Framework Convention on Climate Change. Further analysis of the use of economic instruments in the context of these other agreements, and to promote synergistic implementation of a range of international environmental obligations, would, however, be a valuable exercise.

---

[6] Also see UNEP (2004).

UNEP's role

UNEP s role is to help countries shift towards more sustainable production and consumption patterns. UNEP s member governments, through its Governing Council, have in recent years specifically requested UNEP to provide assistance to countries, particularly developing countries and countries with economies in transition in the development and application of economic instruments at the national level.

UNEP established a Working Group on Economic Instruments for Environmental Policy-Making in 2001 to help define the work programme and to implement the objectives set by the Governing Council. The Working Group is made up of 30 experts from academic, governmental, non-governmental, intergovernmental institutions, and provides a forum to help define modalities for the use of economic instruments for environmental management and sustainable development. A key aim of the Group is to identify ways to enhance policy coordination at the national level as related to the design and use of economic instruments. The Working Group specified that: "…particular attention will be given to how work under this initiative can contribute to the work undertaken under MEAs on the use of economic instruments to achieve their objectives." As well as helping to achieve these objectives, the study supports the goal emphasized by the UNEP Governing Council at its 20th session of promoting and strengthening interlinkages among MEAs to improve international policy-making.

2. Economic Instruments and Biodiversity

2.1 Using economic instruments to achieve environmental objectives

The use of economic instruments has expanded significantly over the last few decades. In the early 1970s, environmental policy was largely carried out through direct regulation. Today, however, the importance of balanced policy packages is increasingly emphasized. Command and control regulation is progressively more complemented with economic instruments, as well as educational and other measures. This policy shift is being reflected in the discussions and decisions of major MEAs. While the Ramsar Convention (1971) and CITES (1973) contain no explicit reference to the use of economic instruments or incentives in their original texts, the CBD (1992) includes several references to the use of incentive measures, including economic incentives. This is analysed in detail in Section 3.

This growth in the use of economic instruments reflects a growing understanding that such instruments can increase efficiency and cost-effectiveness of environmental management. Well designed and implemented, they can lead to patterns of economic activity, and production and consumption patterns which better reflect real costs and benefits. They can promote synergies between economic activity and the environment, and help to ensure that international obligations, such as those in the field of trade and environment, are implemented in a mutually supportive way. The use of economic instruments has been discussed in the context of a number of MEAs, where the need for capacity building, exchange of experiences and additional research on the use of economic instruments has been emphasized.

Economic instruments can generate financial resources, divert funds to environmentally friendly technologies, create incentives for investment, and increase the involvement of private agents in environmental protection.[7] The policy shift towards the increased use of economic instruments has been motivated in part by changes in the role of the state and other civil actors in guaranteeing social well-being and regulating the private sector, and by recognition of the need to complement traditional policy-making with new and innovative approaches. Such insights suggest that:

- Heavy reliance on command and control has, in the absence of other measures, often resulted in poor environmental performance;
- A mix of different instruments, taking into account various conditions and interests, can be mutually supportive of environmental and economic aims;
- The public and private sectors, along with other actors, are responsive to economic instruments and are increasingly working cooperatively towards improved environmental performance; and
- Financial resource limitations for environmental management in both developing and developed countries have required more focused attention on efficiency and cost effectiveness in the implementation of MEAs, calling for an increased use of economic instruments.

[7] According to the UN´s Fourth Expert Group Meeting on *Financing for Sustainable Development* (1997), a conservative estimate of the amount of resources that could be generated through reforming the present tax system, levying appropriate levels of user charges and fees and imposing environmental taxes, exceeds US$500 billion annually on a global basis.

Economic instruments can therefore contribute substantially to addressing the escalating loss of biodiversity. The Conservation Finance Alliance stated that "escalating biodiversity loss is due, in large part, to several critical economic and financial factors."[8] These factors include the lack of investments and long-term financing for biodiversity conservation, adverse impacts of private financial flows, lack of capitalization on new environmental business opportunities that contribute to biodiversity conservation, and lack of markets that value and pay for biodiversity services. Economic instruments can play a key role in reversing these trends. The OECD (1999) has noted that "without incentives to use biological resources conservatively, biodiversity will be increasingly depleted", and a recent publication by OECD (2003) is directed specifically at harnessing markets for biodiversity.

While economic instruments can support biodiversity protection, they also have some significant limitations and can encounter obstacles in their application. To begin with, the difficulty of measuring and valuing biodiversity has crucial implications for the application of economic instruments. Economic instruments work on the basis of market principles and thus respond best in situations that allow for accurate pricing and valuation. In addition, when species are threatened to a point of extinction, economic instruments may not provide a sufficiently immediate or stringent action. Beyond economic instruments technical limitations, there are further constraints that can hinder their effective application. These include institutional constraints, undefined property rights, lack of inclusion of local communities, ideological resistance, administrative complexity, and limited capacity and trained personnel.[9]

A variety of these constraints and challenges are addressed in Section 4.2, Supporting the introduction of economic instruments for biodiversity protection. While some of these constraints are inherent to economic instruments (e.g. the need for accurate valuation), others are more related to the contexts in which they are implemented (e.g. the policy, cultural and/or institutional environment existing in many country contexts). Regardless of the source, these limitations and obstacles should be considered carefully when assessing the adequate base for the introduction of economic instruments. In general, most obstacles do not create insurmountable barriers, but if ignored they can create significant challenges to the effective application of economic instruments.[10]

2.2 Economic instruments relevant to biodiversity-related MEAs

A range of economic instruments is available to protect biodiversity. This section provides a typology and summary of the main categories of economic instruments. This typology will be drawn on in Section 4, which identifies how specific economic instruments can be used to implement biodiversity-related MEAs at the national level according to thematic areas.[11]

2.2.1 Property rights

Establishing property rights is often identified as a first step in improving patterns of resource use. In the context of biodiversity, property rights can be established on land or other elements of an ecosystem, such as specimens of flora and fauna.[12] In some cases, specific property rights may originate from environmental measures such as conservation easements and communal property rights. They may also arise in the context of instruments designed

---

[8] Conservation Finance Alliance (2003), emphasis added.
[9] See for example Markandya (1997), Huber et al. (1997) and Borregaard and Sepúlveda (1998).
[10] UNEP (2004) provides a detailed analysis of the conditions for successful applications of EIs.
[11] See Table 1 for summary of the case study examples of each category of economic instruments in Section 4.
[12] Furubotn and Richter (1997).

to create markets, such as tradable development rights, and carbon sequestration offsets or credits.

- *Conservation easements* are voluntary legal agreements that allow landowners to permanently restrict the type and amount of development on their property. Easements are made in partnership with land trusts, which monitor and enforce land use restrictions on current and subsequent owners. The creation of property easements among private landowners can be promoted through fiscal instruments such as tax deductions or exemptions. Easements may include restrictions on the use of the land, as well as obligations to carry out management practices.
- *Communal property rights* are a form of land right that limits access to public land and establish governance rules for community users. Communal property rights operate as common property inside and as private property to outside the group, and have the potential to promote local community participation in biodiversity conservation. Communal property rights often establish a unitary and exclusive management system for a given natural resource or area.[13]

2.2.2 Market creation and enhancement

Once property rights are clearly established, additional mechanisms that function on the basis of the market can be created. Development of new markets may enhance the capacity of interested parties to delineate attributes of biological resources, and to capture the value of different functions of this natural capital. They may also trigger the creation of new products, services and corresponding markets. Existing markets may be enhanced from an environmental perspective by increasing the rents (and thus the incentives) available to environmentally sound producers. The following measures may be characterized broadly as market creation and/or enhancement:

- *Carbon sequestration offsets* encourage landowners to conserve natural vegetation and to reforest land, by providing a market that allows them to be compensated for their costs and forgone profits. These services are "commodified" through sequestration offsets. By providing a guarantee to maintain a certain level of carbon sequestration, they can be sold commercially to investors interested in offsetting their carbon emissions.
- *Tradable development rights* are marketable rights awarded to landowners in areas reserved for conservation. These rights can be sold to the owners of land in development areas to satisfy requirements that they hold a certain number of credits before gaining permission to develop, for example in the context of Environmental Impact Assessment (EIA) requirements. Or they can be sold to public or private organizations with conservation interests.
- *Tradable quota systems* in the context of biodiversity have been applied in a number of areas including fisheries management. Quota systems are a means of addressing the over exploitation by allocating quotas to individual fishers, so that the sum of the individual quotas does not exceed the carrying capacity of the fishery. These quotas can be traded between groups of producers or individually. Those who wish to reduce or curtail their effort can sell quotas to others who wish to enter or to expand production at rates set by the market.

---

[13] Carol (1997), p.50.

- *Eco-labelling and environmental certification* have gained significant market importance particularly in the area of natural resource extraction and management.[14] These schemes are often voluntary, and often created by private agents in the market. They seek to increase incentives for environmentally-sound production by enabling consumers to differentiate between production techniques, product qualities or producing organizations. They are designed to reward producers that integrate environmental considerations into production.
- *Bioprospecting* is the process of conducting scientific research into the useful application of genetic resources in various commercial markets extending to pharmaceutical, horticultural, cosmetic, botanical, or agricultural ends. The goal of bioprospecting is to identify genetic resources that may be used to develop products of commercial value, thereby supplying consumer needs and wants, and providing enhanced incentives for biodiversity conservation.

2.2.3 Charges

Charging users for ecosystem services and products is another form of promoting natural resource conservation and creating markets. The applicability of user charges in areas requiring strict conservation will generally be relatively limited. In areas capable of supporting use, however, charges can encourage more sustainable consumption and provide financial revenues for resource management and protection.

The types of charge schemes that are appropriate will depend on the nature of the area being conserved. In protected areas, charge schemes can include entrance fees, concession payments for tourism, and hunting and fishing fees. When protecting agricultural biodiversity, charge schemes can include pesticide and fertilizer charges. These can be set up as requiring a charge per unit of product or contained substances, or as a tax scheme accruing directly to the fiscal authorities.

Charges for forestry services related to water – such as for improving the quality of water for downstream users, regulating water levels, reducing sediment loads or reducing water run-off – are all ways to protect and conserve water services, which are often sourced in biodiversity-rich habitats, especially forest ecosystems. The revenues from these charges can be applied towards the protection of the forests that are the base of these services.

2.2.4 Fiscal instruments

Fiscal instruments – such as taxes and tax exemptions – may be applied by governments with the aim of promoting sustainable production and consumption practices and raising revenues that can be applied towards biodiversity protection,[15] for instance:

- *Differential land use taxation* involves establishing incentives by applying different tax rates to land activities for which the environmental impact differs. Higher taxes, for instance, would be applied to land used for development purposes rather than to land designated as a protected area, thus providing an incentive for environmentally favourable land use.
- *Deforestation taxes* apply a high(er) tax rate to certain logging activities thus providing a disincentive for activities that cause deforestation. In general, deforestation taxes

[14] In general, certification is used for producing organizations and eco-labelling is used for the product that enters the market.
[15] Achieving the second objective depends largely on the government s ability to earmark collected funds.

are unit payments applied to each hectare or cubic metre of wood extracted. They can be partially refunded if the logging enterprises engage in reforestation within a certain time period.

- *Tax exemptions or tax deductions* can be applied against the existing tax base to provide incentives for activities that support nature conservation and sustainable use. Exemptions or deductions can be applied against a range of taxes – including land tax, income tax, inheritance tax, and sales tax – to protect biodiversity.
- *Removal or mitigation of perverse fiscal policies relevant to biodiversity protection* involves the reform of a range of measures such as subsidies in the agricultural sector, the fisheries sector or other natural resource sectors, and import taxes related to technology transfer relevant to biodiversity protection. Their removal or mitigation involves a complex policy process for which a solid assessment of the existing adverse effects is essential.[16]

2.2.5 Financial assistance

Beyond the use of charges and fiscal mechanisms, the main financial mechanisms that may be used to promote conservation and sustainable activities are the following:

- *Small targeted grants* are transfer payments designed to provide financial support to NGOs and community based organizations involved in activities related to sustainable livelihoods and environmental conservation. These grants are often financed from non-commercial (private and public) sources. They are typically established as part of integrated conservation and development programmes to support community participation and to offset economic costs associated with conservation activities. Generally, these grants have a limited duration of one or two years.[17]
- *Bounties and other cash rewards* can be characterized as a specific form of economic instrument designed to encourage the conservation of endangered species on private lands. Under these systems, private landowners are rewarded for every additional individual/breeding pair of an endangered species found on their land.
- *Conservation leasing* is the payment by a government agency or private organization to landowners who voluntarily undertake activities to conserve endangered species on their property for a prescribed amount of time. [18]
- *Soft credits* are loans with flexible forms of payment or lower interest rates to help finance activities that provide both conservation value and economic benefits to the land owners. Ecotourism, organic agriculture, and the sustainable extraction of forest products are examples of these.[19]

2.2.6 Liability systems

Liability mechanisms may change the economic incentives associated with environmentally risky behaviour by increasing the likelihood that perpetrators of environmental damage pay for its consequences.

---

[16] See for example UNEP (2003).
[17] Conservation Finance Alliance (2003).
[18] Environmental defense (2000).
[19] Mejías (2000).

- *Environmental fines* can for instance be applied to companies that conduct certain environmentally irresponsible activities in contravention of environmental regulations. They are designed to provide a disincentive for environmentally unsound behaviour, and should be set to reflect the opportunity cost of non-compliance, the likelihood that non-compliance will be discovered, and an element of sanction. Money raised through fines can be applied to environmental clean up, decommissioning and site restoration, or more broadly, to support environmental projects (e.g. small conservation projects).
- *Environmental performance bonds* are used mainly to guarantee compliance with environmental or natural resource requirements. Polluters or users may be required to pay a deposit in the form of a bond. The deposit is refunded when compliance is achieved.[20]

2.2.7 Environmental funds

National environmental funds are not *per se* an economic instrument, but they can be used in a manner that complements the use of economic instruments. A number of different types of funds exist:

- *Endowment funds* may be established from public and/or private resources. The interest earned on an endowment fund is applied to conservation purposes, while the original capital remains invested. Grants from international donors, in combination with host country government contribution, have been used to establish biodiversity funds (e.g. the Mexican Conservation Fund that received funds from USAID and GEF[21]). Other funds have been established using the proceeds of debt for nature swaps (e.g. the Foundation for the Philippine Environment).
- *Sinking funds* involve an initial capital investment, which is invested to generate income but is also gradually used over a fixed period. Brazil s FUNBIO s Fund is an example of this kind of fund. FUNBIO was set up with resources from the Global Environment Facility, but is now in the process of attracting new funds in the form of private investments and donations.[22]
- *Revolving funds* continually receive new revenues (e.g. Belizes s Protected Areas Trust Fund[23]) that are funded by membership fees and individual donations, by charges for specific environmental services, or through a "conservation fee" paid, for example, by all foreign tourists (these latter two being a form of economic instrument).
- *Biodiversity venture capital funds* are programmes – such as sector investment programmes or venture funds – that are designed to address the special needs of inherently high-risk biodiversity-based business. By providing access to funds, they counterbalance risks that may act as barriers to innovation, and help to increase recognition of the value of biodiversity in enterprises.
- *Ethical investment funds* are other broad-based instruments that cover more conservative equity portfolio but are screened against certain ethical, social or environmental criteria.

The disbursement of the financial resources of a fund can also constitute an economic instru-

---

[20] http://www.iucn.org/themes/fcp/activities/subsidies3.html., Conservation Finance Alliance (2003).
[21] Bayon et al. (2000).
[22] See www.funbio.org.br
[23] See http://www.pactbelize.org/pact.html

ment, for example in the form of grants for biodiversity projects, or as soft loans for biodiversity protecting enterprises.

2.2.8 Economic instruments for biodiversity protection at the international level

The economic instruments identified above are available to policy makers at the national level. However, economic instruments may also be developed and applied at the international level. Since it is the national level application of economic instruments to help implement biodiversity-related MEAs that forms the main focus of this paper, these measures are not explored in detail, but a few basic observations are offered in the present context of discussion of national-level measures:

- Just as funds can be developed at the national level, funds designed to finance the activities of MEAs can be created multilaterally. Some existing funds in the biodiversity-related MEAs, such as the Ramsar Small Grants Funds, are significantly based on bilateral, voluntary contributions. Funds can also be supplied from internationally established funding mechanisms such as GEF or from other multilaterally agreed mechanisms.
- There is currently no international tax scheme that could provide a base for funding biodiversity-related activities, and adoption of such a scheme does not seem imminent. Nevertheless, in the future, an international tax scheme (such as a proposed Tobin Tax[24] on currency exchange transactions) might, if adopted, be applied to conservation purposes. Other mechanisms such as an international carbon emissions tax could conceivably be applied in part to promote biodiversity conservation and sustainable use.
- Tariff exemptions for environmental goods and services negotiated at the international level can also affect biodiversity conservation. The World Trade Organization s (WTO) Doha mandate includes negotiations on the reductions or elimination of tariff and non-tariff barriers to environmental goods and services. The final definition of environmental goods and services might conceivably include products or services mentioned above in Section 2.2.2 on market creation (e.g. products from sustainably managed forests, non-timber forest products, carbon offsets, etc.). The reduction of tariff and non-tariff barriers to trade in these goods and services could constitute an incentive for more environmentally friendly production and trade.[25]

In summary, this section has shown the wide range of economic instruments available to policy makers seeking to protect biodiversity and implement biodiversity-related MEAs in a synergistic manner. The overview here is designed to complement the summaries in other relevant documents, such as the Conservation Finance Alliance s *Guidebook on mobilizing funding for biodiversity conservation* (2002), the OECD s *Handbook on economic incentives for biodiversity conservation* (1999), and the OECD s earlier publication on *Economic instruments for pollution control and natural resources management in OECD countries: A survey* (1999). In addition to these publications, the MEAs themselves have undertaken valuable work on the use of incentive measures in the context of their conventions. This work is discussed in the following section.

---

[24] See for example Wachtel (2000).
[25] For a more detailed discussion of this issue and the limitations around it, see for example Borregaard et al. (2002).

3. References to Economic Instruments in Selected MEAs

Economic instruments clearly have a significant role to play in the implementation of many MEAs, and their importance is recognized both in the text of a number of agreements, and in the discussions and decisions of the Conferences of the Parties (COP) and other subsidiary bodies. This section examines three specific MEAs – the CBD, CITES and the Ramsar Convention – that may benefit from enhanced use of economic instruments. It identifies their relevant obligations, as well as their explicit discussions of economic instruments in major convention bodies, such as the COPs. This analysis of the overarching legal framework provides the context for a discussion in Section 4 of practical ways that economic instruments can be used by policy makers at the national level to implement and achieve the goals of these key MEAs.

3.1 Convention on Biological Diversity

The CBD is one of the principal international agreements for the conservation of biological diversity. It was agreed at the 1992 Earth Summit in Rio de Janeiro, and sets out commitments for maintaining the world's biological diversity. The Convention has three main goals:

- The conservation of biodiversity;
- Sustainable use of the components of biodiversity; and
- Sharing the benefits arising from the commercial and other utilization of genetic resources in a fair and equitable way.

To achieve these goals, the Convention identifies a range of measures and approaches, including the use of economic incentives and other incentive-based measures. Incentive measures, according to the COP, "are essential elements in developing effective approaches to conservation and sustainable use of biological diversity especially at the level of local communities" (Decision V/14, paragraph 4).

The Convention recognizes the increasing loss of biodiversity, the value of biodiversity and the interdependence between the planet's biodiversity, the economy, and human societies. It covers all ecosystems, species, and genetic resources. To date, five thematic work programmes have been initiated to address: 1) marine and coastal biodiversity, 2) agricultural biodiversity, 3) forest biodiversity, 4) the biodiversity of inland waters, and 5) dry and sub-humid lands. Each thematic programme establishes a vision and basic principles to guide future work, sets out key issues for consideration, identifies potential outputs, and suggests a timetable and means for achieving these outputs. Certain cross-cutting issues are integrated into these thematic work programmes. Essentially, these cross-cutting issues correspond to those addressed in the Convention's substantive provisions, including: biosafety; access to genetic resources; traditional knowledge, innovations and practices (Article 8(j)); intellectual property rights; indicators; taxonomy; public education and awareness; technical cooperation; provision of financial resources; alien species; and incentives.

3.1.1 Main obligations relating to economic instruments in the Convention

The Convention includes a number of obligations that may be implemented through the use of economic instruments. The Convention stresses the role of incentives for the conservation and sustainable use of components of biological diversity. Article 11 states:

> "Each Contracting Party shall, as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity."

Economic instruments have been used at the national level for the in-situ conservation of biological diversity. Article 8, entitled *In-situ Conservation*, requires parties to:

> "(c) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;
> (i) Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components;"

In relation to the sustainable use of biological diversity, the Convention defines sustainable use as "the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations" (Article 2). Article 10, entitled *Sustainable Use of the Components of Biological Diversity*, requires Parties to:

> "(a) Integrate consideration of the conservation and sustainable use of biological resources into national decision-making;
> (b) Adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity;
> (c) Encourage cooperation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources."

Economic instruments may also conceivably have a role in implementing other obligations, including those on access to and transfer of technologies (see Article 16). Taxes and other direct financial incentives, for instance, can be used to promote research and development or to provide incentives for the transfer of technology.

3.1.2 Main COP and subsidiary body decisions relating to economic instruments

The Convention's COP and other subsidiary bodies have considered economic instruments extensively as part of their work on incentive measures. This work has focused principally on the use of incentives for the conservation and sustainable use of biological diversity in the context of Article 11.

The COP has considered economic incentives at a number of COP meetings. The COP commenced work on incentive measures at its third meeting, at which Parties were invited to share experiences on incentive measures and provide relevant case studies to the Secretariat

(seeDecisionIII/18). At its fourth meeting, the COP recognized that incentive measures should be designed using an ecosystem approach, and that economic valuation of biodiversity and biological resources is an important tool for well-targeted and calibrated economic incentive measures (see Decision IV/10). At its fifth meeting, the COP established a work programme to promote development and implementation of social, economic and legal incentive measures with the goals of (a) supporting Parties, governments and organizations in developing practical policies and projects; and (b) developing practical guidance to the financial mechanism for effective support and prioritization of these policies and projects (see Decision IV/15).

Among the most important COP decisions on economic incentives is Decision VI/15, adopted at the sixth meeting of the COP. Decision VI/15 deserves careful consideration by policy makers. It underlines the importance of incentive measures in reaching the Convention's objectives, especially in regard to the sustainable use of biological diversity, and in removing negative impacts on biodiversity. It also recognizes the importance of incentive measures for other cross-cutting issues, such as access to genetic resources and the fair and equitable sharing of benefits arising from their utilization.

Decision VI/15 recognizes that further work is needed on positive incentives and their performance, and on removing or mitigating perverse incentives. It requests the Executive Secretary, in collaboration with relevant organizations, to elaborate proposals for the application of ways and means to remove or mitigate perverse incentives, for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) at a meeting prior to the seventh COP. And, among other things, it encourages Parties and relevant organizations to submit case-studies, lessons learned and other relevant information on incentive measures (especially on positive and perverse incentives) to the Executive Secretary, and requests him to compile and disseminate this information.

Importantly, the Decision invites Parties to take a range of factors into consideration when designing and implementing incentive measures for the conservation and sustainable use of biological diversity. Annex 1 of the Decision, entitled *Proposals for the Design and Implementation of Incentive Measures*, notes that incentive measures should be designed to address the conservation and sustainable use of biological diversity, while taking into account:

- Local and regional knowledge, geography, circumstances and institutions;
- The mix of policy measures and structures in place including sectoral considerations;
- The need to match the scale of the measure to the scale of the problem; and
- The measures' relationship to existing international agreements.

It also offers detailed recommendations on a number of elements that should be taken into consideration in the design and implementation of incentive measures for the conservation and sustainable use of biological diversity, including:

- Identification of the problem (e.g. goals, underlying causes, targets and indicators);
- The design of incentive measures (e.g. efficiency, equity, cultural and political considerations);
- Provision of capacity and building of support to facilitate implementation (e.g. institutional mechanisms, transparency, stakeholder involvement);

- Approaches to management, monitoring and enforcement (e.g. administrative and legal capacity, information systems and funding); as well as
- Guidelines for selecting appropriate and complementary measures.

Annex 2 of the Decision offers recommendations for further cooperation on incentive measures. It recommends that cooperation to assist Governments in designing and implementing incentive measures should build on work already under way. It offers recommendations on a number of elements, summarized below:

- *Information.* The effective design and implementation of incentive measures requires a sound body of knowledge and information. The Annex offers suggestions for measures that would assist Parties in ensuring the availability of the required information.
- *The involvement of stakeholders including indigenous and local communities.* States should develop and apply participatory and coherent approaches to policy-making for biodiversity conservation and sustainable use that fully engage all stakeholders including indigenous and local communities.
- *Capacity building.* Another key to the effective development and implementation of incentive measures is the existence of appropriate legal and policy frameworks and the support of human capacity.
- *Valuation.* It is important to pursue ways of creating market signals for the social, cultural and economic values of biodiversity. Valuation is an important tool for designing appropriate incentives.
- *Interlinkages between multilateral environmental agreements (MEAs).* There is a need to examine the policies and programmes under different MEAs to ensure that they provide mutually reinforcing incentives.
- *Linking biodiversity to macroeconomic policies.* It is important to explore the linkages with international organizations/agreements focused on economic policies, as well as to link national biodiversity strategies and action plans with economic development strategies at the macroeconomic public sector planning and sectoral levels.
- *Ecosystem focus.* Assessments should be prioritized in line with the thematic programmes adopted by the COP.
- *Pilot projects/case studies/workshops.* There is a need to launch pilot projects to strengthen the understanding and capacity to design, implement and assess incentive measures. Workshops can be valuable means to exchange both positive and negative experiences and best practices with respect to the design and implementation of incentive measures. Country driven case studies that reflect both the experiences of developing and developed countries could provide a good basis through which the strengths and weaknesses of specific incentive measures could be evaluated
- *Role of international organizations.* Competent international organizations are invited to support the efforts of Parties in their work on incentive measures, in particular through the dissemination of information, the provision of expertise and technical guidance, and training.

Of particular relevance to the subject of this paper is the Decision's recommendation in relation to cooperation among MEAs. It notes:

> "There is a need to examine the policies and programmes under different multilateral environmental agreements to ensure that they provide mutually reinforcing incentives. In this respect, the Conference of the Parties noted the joint work programme between the Convention on Biological Diversity and the Convention on Wetlands (Ramsar, Iran, 1971), which includes a focus on incentives, and suggested attention to incentives with regard to other linkages, such as the Convention to Combat Desertification with regard to dryland biodiversity, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora with respect to conservation and sustainable use of species, and the United Nations Framework Convention on Climate Change with respect to land-use change and forest biodiversity. In addition, the United Nations Framework Convention on Climate Change is encouraged to give priority to incentives to avoid deforestation, as a substantial amount of greenhouse gas emissions is due to the destruction of forests, the greatest terrestrial repository of biodiversity."

3.2 Convention on International Trade in Endangered Species of Wild Flora and Fauna

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The CITES preamble notes "the ever-growing value of wild fauna and flora from aesthetic, scientific, cultural, recreational and economic points of view" and recognizes "that international cooperation is essential for the protection of certain species of wild fauna and flora against over-exploitation through international trade".

CITES protects approximately 5,000 species of animals and 25,000 species of plants against over-exploitation through international trade. It works by subjecting international trade in specimens of selected species to certain controls. These controls require, among other things, all import, export, re-export and introduction from the sea, of species covered by the Convention to be authorized through a licensing system. The species covered by CITES are listed in three Appendices, according to the degree of protection:

- Appendix I includes species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.
- Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival.
- Appendix III contains species that are protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade.

3.2.1 Main obligations relating to economic instruments in the Convention

CITES was adopted before the benefits of incentive measures to promote species conservation were widely recognized. Consequently, CITES makes no explicit reference in its original text to economic instruments or incentives as a tool to achieve its goals. However, with the growing recognition of the need to enhance incentives for the conservation and sustainable use of certain species, the COP has adopted a number of decisions that harness market forces in service of wildlife conservation.

These decisions address a range of innovative measures, such as quotas for Appendix I species (see Resolution Conf. 10.14), trade in specimens of animals bred in captivity (see Resolution Conf. 10.16), and ranching and trade in species transferred from Appendix I to II (see Resolution Conf. 11.16). Measures such as these have allowed CITES to evolve, reflecting a changing theory and practice of wildlife conservation. In some cases, they involve moving a species from Appendix I to Appendix II to allow some trade in wildlife, subject to certain conditions (see Resolution Conf. 11.21). Although not strictly economic instruments, these measures do provide an economic incentive for conservation and provide a degree of flexibility in the application of the Convention's provisions.

Complementing these international developments, policy makers are increasingly recognizing that economic incentives, such as well-defined property and use rights, tradable catch and export quotas, export taxes, access fees and user charges, can support national implementation of CITES. Economic incentives, both at the national and international level, can in certain situations provide an impetus to conserve species. The role of these incentives, and of proper regulatory mechanisms to govern trade has been recently discussed by the COP.

3.2.2 Main COP and subsidiary body decisions relating to economic instruments

At its 12th meeting, the COP adopted Decision 12.22 entitled *Economic Incentives and Trade Policy*. The Decision provides that the Secretariat should, in cooperation with certain other organizations:

- Organize a technical workshop on wildlife trade policies and economic incentives applicable to the management of and trade in CITES-listed species, in particular in order to develop a methodology to review those policies and to make targeted recommendations on the use of those incentives;
- Report at the 49th meeting of the Standing Committee the findings and recommendations of the workshop;
- Invite Parties to inform the Secretariat, on the basis of the results of the workshop, if they wish to be included in the trade policy review;
- Conduct, in cooperation with the Parties, a review of their national policy regarding the use of and trade in CITES-listed species, taking into account economic incentives, production systems, consumption patterns, market access strategies, price structures, certification schemes, CITES-relevant taxation and subsidy schemes, property rights, mechanisms for benefit sharing and reinvestment in conservation, as well as stricter domestic measures that Parties apply or are affected by;
- Compile and synthesize the information provided by the Parties, and produce a report analysing the economic impacts of wildlife trade policies in terms of socio-economic and conservation benefits and costs, economic value, levels of legal and illegal trade, improvement of the livelihood of local communities, and the role of the private sector involved in wildlife trade;
- Report at the 13th meeting of the Conference of the Parties on the progress made with regard to the implementation of this Decision; and
- Prepare and submit a project proposal to the Global Environment Facility, and other funding institutions and developing agencies, to seek financial support to prepare the

> trade-policy reviews in the selected countries, in the context of their national and regional strategies for biodiversity conservation.

The adoption of this Decision follows from the *Strategic Plan for the Convention* adopted at the 11th meeting of the COP in April 2000. The Strategic Plan stresses the importance of the economic dimension of CITES, and recognizes the need for economic incentives to ensure that wildlife trade is carried out in a responsible and sustainable manner. It confirms the recognition by Parties that "sustainable trade in wild fauna and flora can make a major contribution to securing the broader and not incompatible objectives of sustainable development and biodiversity conservation".

The Strategic Plan notes the importance of economic instruments in a number of contexts including national implementation of the Convention and elimination of illegal trade. A major goal of the Strategic Plan is to enhance the ability of Parties to implement the Convention. The Strategic Plan states the need for:

> "… a coordinated process has grown as the Convention faces up to trade issues involving species that often fall beyond the direct reach of the management and scientific authorities. Also, it is recognized that *for trade to be responsible and based on sustainable use, social and economic incentives are needed* to bring local communities and local authorities into partnership with government under an appropriate legislative, policy and financial framework" (emphasis added).

In furtherance of this goal, the Strategic Plan identifies the need:

> "to assist in the development of appropriate domestic legislation and policies that encourage the adoption and implementation of social and economic incentives allied to legal instruments that:

- Promote and regulate sustainable management of wild fauna and flora;
- Promote and regulate responsible trade in wild fauna and flora; and
- Promote the effective enforcement of the Convention."

Another goal identified in the Strategic Plan is to contribute to the "reduction and elimination of illegal trade in wild species of flora and fauna". Here the Strategic Plan establishes the objective of developing "appropriate management strategies and incentives for promoting a change from illegal to legal use of wild fauna and flora".

Document 18, prepared for the 12th Meeting of the COP, also focuses explicitly on the role of economic incentives in achieving the goals of CITES. Entitled *Economic Incentives and Trade Policy*, it states:

> "Over the past few decades, there has been an increasing recognition that economic incentives could make an important contribution to achieving the goals of the Convention. Although CITES has engaged in using balanced packages of measures, including both incentives and various forms of trade facilitating and restricting regulations, the measures it has adopted have so far been mainly focused on command and control regulations aimed at controlling international trade in listed species as a separate, freestanding concern.

Command and control regulations allow relatively little flexibility in the means of achieving goals and heavily rely on monitoring and evaluation, complex administrative systems, as well as a high capacity for enforcement. By combining command and control regulations with incentive measures targeted to specific situations, there is a greater likelihood that the objectives of the Convention will be achieved in a cost-effective manner."

In light of these references, economic instruments and other incentive-based approaches are likely to feature significantly in the future work of CITES, and in efforts by national policy makers to implement the Convention. Activities to further the CITES Strategic Plan and the Decision 12.22 will support national policy makers when seeking to implement CITES (and other biodiversity-related conventions such as the Convention on Biological Diversity and the Ramsar Convention). Economic incentives may prove particularly relevant in the context of some products that are traded commercially, including sturgeon, ivory and mahogany, for which command and control regulations may usefully be complemented with other incentive-based approaches.

3.3 Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat

The Convention on Wetlands, concluded in 1971 at Ramsar, Iran, is one of the oldest of the global MEAs. It responds to the urgent need to combat widespread drainage and destruction of wetlands and the habitats they provide for a large number of species, particularly water-birds.

The Ramsar Convention's preamble emphasizes the "fundamental ecological functions of wetlands as regulators of water regimes and as habitats supporting a characteristic flora and fauna" and notes "that wetlands constitute a resource of great economic, cultural, scientific, and recreational value, the loss of which would be irreparable". It identifies its Parties' desire "to stem the progressive encroachment on and loss of wetlands now and in the future" and emphasizes "that the conservation of wetlands and their flora and fauna can be ensured by combining far-sighted national policies with coordinated international action".

Among other things, the Convention requires Parties to designate suitable wetlands within their territory for inclusion in a List of Wetlands of International Importance (Article 2). And it calls on Parties to formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory (Article 3). The Ramsar Convention promotes "the conservation and wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".

3.3.1 Main obligations relating to economic instruments in the Convention

Like CITES, the text of the Ramsar Convention does not contain explicit references to economic instruments or incentives. However, the COP has recognized the importance of economic instruments in promoting the goals of the Convention. There are a number of general obligations that may be implemented through the use of economic instruments. Article 3.1, for example, states:

> "The Contracting Parties shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory."

Article 5 similarly requires parties to *"*…endeavour to coordinate and support present and future policies and regulations concerning the conservation of wetlands and their flora and fauna".

Recently, economic instruments and incentives have been identified by the COP (COP-8), the Convention Bureau and other subsidiary bodies as important means of protecting and promoting the wise use of wetlands. In this context, the term "wise use" is considered to be synonymous with the term "sustainable use" in the Convention on Biological Diversity.

3.3.2 Main COP and subsidiary body decisions relating to economic instruments

At its eighth meeting, the COP adopted a resolution entitled, *Incentive Measures as a Tool for Achieving Wise Use of Wetlands* (Resolution VIII.23), as well as a Strategic Plan that includes a range of operational objectives, a number of which have particular significance for the use of economic instruments in the conservation of wetlands.

Resolution VIII.23 builds on previous resolutions of the COP. Resolution V.6 on *Additional Guidance for the Implementation of the Wise Use Concept* encouraged the removal of perverse incentives, including tax benefits and subsidies, which encourage the destruction of wetlands, and the introduction of positive incentives that are compatible with, and encourage their wise use and conservation. Subsequently, Resolution VII.15 called upon Contracting Parties to ensure that incentive measures are taken into consideration when applying Resolution VII.6 concerning the development and implementation of National Wetland Policies, and Resolution VII.7 concerning the review of laws and institutions to promote the conservation and wise use of wetlands.

Resolution VIII.23 itself restates the "fundamental importance of assessing, revising, and developing incentive measures as tools for the conservation and wise use of wetlands, and the removal of perverse incentives that impede the delivery of such conservation and wise use". In addition, it notes the Parties' awareness that "that financing mechanisms, trade, impact assessment and economic valuation are intricately linked with the use and success of incentive measures in achieving the conservation and wise use of wetlands". Among other things, the Resolution:

- Urges Parties to continue to review existing legislation and practices in order to identify and remove perverse incentives such as taxes and subsidies, and to carry out participatory consultative processes to define clear and target-oriented incentive measures which address the underlying causes of wetland loss.

- Urges Parties to continue to review existing legislation and practices in order to identify and remove perverse incentives such as taxes and subsidies, and to carry out participatory consultative processes to define clear and target-oriented incentive measures which address the underlying causes of wetland loss.

- Calls on Parties to use the internet-based resource kit (http://www.biodiversityeconomics.org/ assessment/ramsar-503-01.htm) as a source of information and guidance to assist in their design and implementation of incentive measures for wetland conservation and wise use.

- Calls on Parties and others to provide appropriate materials, case studies indicating lessons learned, guidelines, and sources of advice on incentive measures relevant to wetlands to the Ramsar Bureau for incorporation on the Internet-based resource kit.

References to incentives in Resolution VIII.23 are complimented by references in the Ramsar Strategic Plan. The Strategic Plan explicitly discusses *incentives* (in Operational Objective 8) and establishes the goal of promoting "incentive measures that encourage the application of the wise use principle, and the removal of perverse incentives". To achieve this goal, the Strategic Plan sets out a number of actions. These, in summary, include:

- Continuing to review existing, or evolving, policy, legal and institutional frameworks to identify and promote those measures which encourage conservation and wise use of wetlands and to identify and remove measures which discourage conservation and wise use, and develop supportive legal and policy frameworks for the design and implementation of incentive measures. (Resolution VIII.23)
- When reviewing agricultural policies, identifying possible subsidies or incentives that may be having negative impacts on water resources and wetlands and remove or replace them by incentives that would contribute to wetland conservation. (Resolution VIII.34)
- Reviewing programmes of subsidies concerning the use of groundwater in order to guarantee that those programmes do not lead to negative consequences for the conservation of wetlands. (Resolution VIII.40)
- Making use of and continuing to develop and improve upon the Internet-based resource kit on positive incentives prepared and maintained by IUCN–the World Conservation Union. (Resolution VIII.23)
- Reporting to COP-9 on progress in the design, implementation, monitoring and assessment of positive incentive measures and the identification and removal of perverse incentives, including those relating to agriculture.
- In collaboration with relevant bodies and experts and the Bureau, investigating linkages between incentives and related topics including financial mechanisms, trade, impact assessment and valuation. (Resolution VIII.23)
- In collaboration with relevant organizations, continue in identifying wetland-related elements of existing guidelines on incentive measures, so as to recognize important gaps where such guidance is failing to meet fully the needs of the Parties, investigate possible ways of filling such gaps, and to prepare a report on these matters for COP-9. (Resolution VIII.23)

In addition to this explicit focus on incentives, the Strategic Plan also refers to incentives in a number of other contexts, or identifies areas where incentives could conceivably be used at the national level by policy makers. These include:

- *Restoration and rehabilitation* of wetlands (Operational Objective 4). The Strategic Plan emphasizes the need to "identify priority wetlands where restoration or rehabilitation would be beneficial and yield long-term environmental, social or economic benefits, and implement the necessary measures to recover these sites". It specifically refers to incentive measures in calls for action to "integrate fully *the principles and guidelines for wetland restoration* (Resolution VIII.16) into National Wetland Policies and plans, paying particular attention to issues of legislation, impact assessment, *incentive measures*, and the mitigation of impacts of climate change and sea-level rise" (emphases added).
- *Local communities, indigenous people and cultural values* (Operational Objective 6). The Strategic Plan identifies the need to "Encourage active and informed participation of local communities and indigenous people, in particular women and youth, in the conservation and wise use of wetlands." It calls for action to apply the *Guidelines for establishing and strengthening local communities' and indigenous people's participation in the management of wetlands*, "giving particular attention to the importance of incentive measures…"
- *Private sector involvement* (Operational Objective 7) the Strategic Plan identifies ways to "promote the involvement of the private sector in the conservation and wise use of wetlands". It calls for a review in cooperation with the private sector, domestic and international trade in wetland-derived plant and animal products, both exports and imports, and as appropriate implement the necessary legal, institutional and administrative measures to ensure that harvesting is sustainable, and in accordance with the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). Managed appropriately, trade in wetland products can provide an incentive for wetland conservation and wise uses.

Finally, economic instruments may also play a role in providing a sustainable source of funding for wetland conservation. Further, the Strategic Plan calls for a range of efforts to *finance wetlands conservation and wise use* (Operational Objective 15) which include promoting "international assistance to support the conservation and wise use of wetlands." It also addresses issues relating to *financing the convention* (Operational Objective 16) and calls for efforts to "provide the financial resources required for the Convention's governance mechanisms and programmes to achieve the expectations of the Conference of the Contracting Parties."

3.4 Areas of commonality among selected MEAs

While each convention defines its own specific objectives and commitments, there are also significant linkages and overlaps between the three MEAs discussed in this paper. Overlaps may arise among all three MEAs, or between two of them.[26] The analysis above, as well as much of the discussion in the following sections, suggests that a number of these commonalities are relevant to the use of economic instruments, and that the work undertaken by these conventions should be complementary and mutually reinforcing. At the most general level, and with relevance to economic instruments, the MEAs share commonalities in the following areas:

[26] Please note that important commonalities will also arise between other MEAs not discussed in this paper such as the Bonn Convention on Migratory Species, the Convention on Desertification and the Climate Change Convention. Further examination of these relationships – including in the context of economic instruments – would be useful.

- *Subject matter.* The three MEAs share a common focus on biodiversity and operate in the same ecosystems. CBD addresses biodiversity within species, between species and of ecosystems. Ramsar focuses on certain wetland ecosystems and resident species. CITES focuses on those species of flora and fauna that are listed in its annexes. They also address common actors, such as governments or local communities, and common processes, such as the causes and consequences of biodiversity loss and conservation.
- *Objectives.* In addition to sharing common subject matter, the MEAs share a common global objective of conserving biodiversity, and in certain cases promoting its sustainable or wise use. As the broadest convention, the CBD promotes, among other things, the conservation and sustainable use of all aspects of biodiversity. Ramsar focuses on conservation and wise use of wetlands. CITES focuses principally on conserving listed species by protecting them against over-exploitation through international trade.
- *Rights and obligations.* To achieve these shared or overlapping objectives, the conventions include a range of overlapping rules, giving rise to common rights and obligations. For instance, the CBD and Ramsar include rules on reserves and protected areas. CITES, Ramsar and CBD each address, either in their texts or COP decisions, the transboundary movement of species and other components of biodiversity.
- *Programmes and processes.* To implement their common objectives and rules, each of the conventions adopts a range of plans, programmes and other processes. Formal joint programmes exist between CBD and Ramsar, such as the River Basins Initiative.[27] Ramsar has identified cooperation with CITES as a priority (Strategic Plan, Action 13.9.1). And CITES is mandated to collaborate with the CBD and other institutions, including in relation to economic incentives and trade policy (see Decision 12.22). Additionally, cooperation among the Secretariats is well established.
- *Desired outcomes – changing behaviour.* These formal objectives, rules and programmes have been developed by their Parties to help guide real-world human behaviour in a manner that conserves and harnesses, not harms, their common subject matter of biodiversity. They address who must change what and how. And they identify the role of various measures, including economic instruments, in helping to achieve this change.

These areas of overlap suggest the opportunity for significant synergies to be gained in the implementation and evolution of the conventions. In light of these overlaps, Parties to the MEAs have identified the importance of building on their existing cooperation, and further enhancing cooperation on areas of common interest. Specifically:

- ***The CBD*** COP has requested the Executive Secretary to promote coordinated action on incentives with other international biodiversity-related agreements and relevant organizations, noting specifically that the joint work plan of the CBD and the Ramsar Convention includes consideration of incentive measures. (Decision V/15 on incentive measures)

[27] For a description of this initiative see http://www.ramsar.org/key_rbi_brochure_e.htm

- ***The CITES*** Strategic Plan notes that "numerous linkages also exist between the aims of CITES and those of other multilateral environmental agreements. Specifically, the missions of CBD and CITES are closely related, thus necessitating a high degree of cooperation and synergy. Cooperation and coordination with species management conventions and agreements are equally important." (Strategic Plan Goal 5)
- ***Ramsar*** seeks to "work as partners with international and regional multilateral environmental agreements (MEAs) and other agencies" and specifically to "continue to strengthen cooperation and synergy with the Convention on Biological Diversity" and to "establish working relations with CITES" (Strategic Plan, Operational Objective 13). It has also noted the references to cooperation by other bodies, such as Recommendation VII/9 of the CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), which stressed the need to examine the policies and programmes under different MEAs to ensure that they provide mutually reinforcing incentives.

Additionally, each of the MEAs has identified the importance of using economic instruments to achieve their objectives. As noted earlier in this section:

- ***The CBD*** requires Parties to "adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity". (Article 11)
- ***CITES*** has through its COP called for a review of "national policy regarding the use of and trade in CITES-listed species, taking into account economic incentives". (Decision 12.22)
- ***Ramsar*** has adopted a resolution entitled *Incentive Measures as a Tool for Achieving Wise Use of Wetlands* that emphasizes "the fundamental importance of assessing, revising, and developing incentive measures as tools for the conservation and wise use of wetlands, and the removal of perverse incentives that impede the delivery of such conservation and wise use". (Resolution VIII.23)

Of the three conventions under analysis the CBD is the most advanced in its activities regarding the use of economic instruments. CITES and Ramsar also have important insights, initiatives and perspectives and have conducted important activites to contribute to a wider effort to explore the use of economic instruments. Indeed, the areas of commonality between the MEAs discussed above, the emphasis given by each to cooperation, and the importance of the role of economic instruments and incentives to achieve their goals, all suggest concrete possibilities for further cooperation on using economic instruments to prevent the further loss of biodiversity.

As currently CITES and Ramsar do not have extensive work programmes on economic instruments, and as cooperation is evolving, MEA parties and other interested stakeholders may consider it useful to explore commonalities that could serve as the basis of future work on economic instruments. Indeed, in the joint website of several biodiversity-related conventions it is stated that:

> "The work undertaken by these conventions should be complementary and mutually reinforcing.... It is thus widely recognized that while each convention does stand on its own, with its own defined objectives and commitments, there are also linkages and potential synergies to be gained. The conventions operate in the same ecosystems. If they are implemented collaboratively, progress can be made on all fronts…".

The following section identifies a range of concrete examples where economic instruments have been used, and explores some key questions in a preliminary fashion: How might economic instruments be used to implement biodiversity-related MEAs in practice? What lessons can be learned from past experience with using various economic instruments in protecting biodiversity? What are the main areas of synergy among the MEAs in relation to economic instruments? Given the number of available economic instruments, the complexity of different local, national and regional circumstances, and the diversity of the "thematic areas" to which economic instruments can be applied, the following review is preliminary. It is designed to offer examples, raise issues, and suggest some areas for future cooperation, thinking and research, thereby contributing to the ongoing discussion of the role of economic instruments in conserving biodiversity.

4. Use of Economic Instruments to Implement Selected Biodiversity-related MEAs

This section examines how economic instruments can be applied to help implement the goals of biodiversity-related MEAs, and explores how the use of economic instruments can themselves contribute to enhancing synergies between the MEAs. It identifies a range of cross-cutting thematic areas for the use of economic instruments, under the overarching theme of conservation and sustainable use of resources. Within this theme, it explores how economic instruments can be used where two or more MEAs have overlapping competence, such as promoting in-situ conservation or encouraging sustainable trade. The section also explores the underlying conditions, such as environmental valuation, local community involvement, and capacity building, which are fundamental to the successful use of economic instruments to implement biodiversity-related MEAs.

As indicated above, a range of cross-cutting thematic areas have been identified where economic instruments may be used at the national level to implement biodiversity-related MEAs. While each of the three conventions discussed in this paper adopt somewhat different terminology and approaches, they nevertheless share the broad concern of protecting and preserving biological diversity in its various forms, while encouraging its use in a manner consistent with these goals. The purpose of this section is to identify areas of potential synergy, which could then be followed up by more detailed study.

Analysis in Section 3 of the obligations identified in these MEAs and the discussions and decisions of the respective COPs, have suggested the following cross-cutting thematic areas where economic instruments may be useful:

- ***In-situ conservation.*** Protecting biodiversity in-situ is a fundamental focus of the CBD and Ramsar. As a principally trade-related convention, CITES has focused less on in-situ conservation, although the topic has been raised in discussions of the relationship between preserving species in-situ and captive breeding to produce species for trade.

  – How can economic instruments be used to promote in-situ conservation, and how can they best help achieve the objectives of the three conventions?

- ***Sustainable or wise use.*** The CBD encourages use of the components of biodiversity "in a way and at a rate that does not lead to long-term decline of biological diversity" (definition, Article 2). The CITES COP has stated that "trade in wildlife products may be beneficial … when carried out at levels that are not detrimental to the survival of species" (Resolution Conf. 8.3). Ramsar promotes the "wise use of wetlands", which means "sustainable utilization for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem".[28]

  – How can economic instruments encourage sustainable or wise use – particularly in the area of trade?

- ***Environmental services.*** The need to preserve environmental or ecosystem services – such as watershed protection – has been discussed extensively in the contexts of

[28] See Ramsar Information Paper no.7, The Ramsar concept of "wise use" (referring to the Ramsar third Conference of the Parties).

Ramsar and the CBD. Economic instruments may play an important role here, both in creating markets for ecosystem services, and in ensuring that markets reflect the full economic and social costs and benefits of protecting the environment.

– What is the experience of countries in using economic instruments to preserve environmental services, and how can they be improved through additional cooperation among MEAs?

- ***Financing conservation.*** Discussions within the three conventions have continually emphasized the need for financing of efforts to conserve biodiversity. Financing the conventions themselves and national activities to implement them, remains a major challenge. Economic instruments, as well as enhancing incentives to conserve biodiversity, can provide a major source of funds to support conservation efforts.

  – How can funds and other financing measures be better applied to achieve the common goals of the MEAs?

- ***Addressing perverse incentives.*** Providing positive incentives must be matched with removing or mitigating perverse ones. Ramsar has emphasized the need for the removal of perverse incentives, including tax benefits and subsidies that encourage the destruction of wetlands (Resolution V.6). The CBD has given extensive consideration to "perverse incentives and their removal or mitigation" (see Decision VI/15). And the proposed CITES voluntary review of national legislation will take into account "CITES-relevant taxation and subsidy schemes" (Decision 12.22).

  – What are the main areas of commonality between the MEA discussions – and how can the removal of perverse incentives best promote the joint goals of the three MEAs?

In this section, some observations on the use of economic instruments in each of these areas are offered. The section has two parts. The first part explores the use of economic instruments in the context of the above-mentioned cross-cutting thematic areas, drawing on national experiences, particularly in developing countries. The second identifies the underlying conditions that are necessary to support the effective introduction and use of economic instruments for biodiversity protection. The primary purpose of these sections is to provide illustrative (boxed) examples that demonstrate experience with the use of economic instruments to support ongoing discussions on their use to help conserve biodiversity and achieve the goals of the CBD, CITES and Ramsar. Table 1 summarizes the boxed examples according to the cross-cutting thematic areas. Table 2 provides a summary of areas for possible future consideration by policy-makers when seeking to enhance their use of economic instruments.

4.1 Thematic areas for the use of economic instruments

4.1.1 In-situ conservation

In-situ conservation provides a primary means for preserving biodiversity by ensuring protection of ecosystems and natural habitats. It is aimed at an integral ecosystem-based approach, which is supportive of local communities. In-situ conservation, to varying degrees, is important in each of the three MEAs discussed in this paper:

- According to the CBD, in-situ conservation means "the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties" (preamble).

The CBD promotes in-situ conservation through a variety of measures (see Article 8), including through the use of economic and other incentives for the conservation and sustainable use of the components of biodiversity (see Article 11).

- CITES does not explicitly refer to in-situ conservation in its text, given that its focus is on trade in endangered species. However, discussions have recently addressed the role of in-situ conservation in the context of the relationship between in-situ conservation of species covered by CITES, and the use of captive breeding to produce species for trade under certain circumstances.[29]
- For Ramsar – a convention dedicated to protecting wetland ecosystems – in-situ conservation forms a core of the Convention. Thus, even though it is not explicitly referred to in its text, in-situ conservation is reflected in its various articles and activities. Ramsar recognizes the "fundamental ecological functions of wetlands" and seeks to "stem the progressive encroachment on and loss" of these habitats (preamble). The Convention's Strategic Plan calls "to develop and disseminate methodologies to achieve the conservation and wise use of wetlands" (Operational Objective 3.1) and "to integrate policies on the conservation and wise use of wetlands in the planning activities in all Contracting Parties" (Operational Objective 3.4).

Economic instruments can play an important role in promoting the in-situ conservation of biological diversity. A range of instruments may be useful, depending on the specific goals, policy and institutional environment and country context. The following text provides an overview of how some economic instruments have been applied successfully in the past, with some specific examples.

Property rights approaches

Property rights approaches, combined with the creation of markets, can provide significant support to in-situ biodiversity protection. As illustrated in Box 1, conservation easements, tradable fishing quotas, or tradable development rights, can be important instruments for in-situ conservation, as can the creation of community property rights over specific resources. While developing country applications of these instruments exist, as demonstrated by the experiences of Costa Rica and Chile, the more complex schemes of markets for easements and tradable development rights have so far been implemented primarily in industrialized countries. Reasons for this include shortcomings in some developing country legal framework conditions as well as the requirements for effectively functioning markets. The examples below demonstrate that these instruments can make a considerable contribution to biodiversity protection, but require significant legal and administrative institution building.

[29] See Notification to the Parties No.2001/091, December 2001

Box 1: Conservation easements

Conservation easements have been applied for several decades now in some developed countries such as the United States, and more recently in developing countries, such as in Costa Rica. In 1992, Costa Rica inscribed a first easement in the Public Property Register. The easement was implemented with the help of a partnership between Nature Conservancy and the Centro de Derecho Ambiental y de los Recursos Naturales. Today, Costa Rica has more than 60 contracts of conservation easements, comprising about 3000 hectares. Similar efforts to introduce conservation easements have, in recent years, been initiated in other Latin American countries such as Mexico, Guatemala, Ecuador, Paraguay and Belize.[30]

In the United States, the Michigan Natural Resources and Environmental Code (Act 451 of 1994) provides a good example of legislation concerning conservation easements. It authorizes the creation of voluntary conservation easements. A conservation easement under this statute can provide limitation on the use of, or can indicate certain acts on, a part of the land. The easement, which is generally linked to a transfer of money, is considered a conveyance of real property and must be recorded with the registrar of deeds in the appropriate county to be enforceable against a subsequent purchaser of the property.

Easements concerning wetlands are an element of the United States Wildlife Refuge System. Currently, in the States of North Dakota, South Dakota, and Montana, there are over 1,200,000 wetland acres protected permanently. Partners for Fish and Wildlife restored drained pothole wetlands, which makes them eligible for wetland easement protection. About 20 percent of the wetlands restored through Partners for Fish and Wildlife become permanently protected at the landowner's request.

Source: extracted from UNEP (2004).

Box 2: Tradable development rights and conservation banks

As discussed in Section 2, conservation banks are based on tradable development rights. The Sacramento Conservation Bank in the United States is supervised by the Sacramento Fish and Wildlife Office (the Service). The goal is "the protection and recovery of endangered and threatened vernal pool species... Conservation banking will assist in accomplishing this goal."[31] The Service determines the number of preservation credits available in conservation banks, applying a specific methodology developed for that purpose. Once the available credits and the area (i.e., the geographic area within which the bank may sell credits) are agreed upon by the Service and the bank sponsor, and all conservation bank enabling documents are finalized, the conservation bank is approved. The conservation bank can then sell credits within its designated service area, or as otherwise approved by the Service. When all the credits in the conservation bank are sold, the bank closes and remains as a preserve in perpetuity. An endowment or other funding mechanism is established when the bank opens to maintain the bank site, the monitor listed and the rare species in perpetuity. Currently there are 20 conservations banks in the Sacramento area, covering an area of 20540 acres.

Source: extracted from UNEP (2004).

---

[30] Updated from: Chacón and Meza (2002) *Servidumbres ecológicas para la protección ambiental en tierras privadas costarricenses.* www.una.ac.cr/ambi/Ambien-Tico/90/cchacon.htm

[31] Taken from Federal Wildlife Service Sacramento website: http://sacramento.fws.gov/es/cons_bank.htm. As on November 2002.

Box 3: Tradable fishing quotas

In 1991, Chile introduced Individual Transferable Quotas (ITQ) for management in the fishing sector. So far ITQ usage remains experimental, and more than 90 per cent of the catch remains under the «Full Exploitation System," governed by standard command and control techniques. Nevertheless, while a detailed evaluation of the system is still pending, the system has shown promising initial results in the three species to which it has been applied. Better management, an ability to time catch to highest market values, and incentives to manage fisheries for the long-term has increased returns to fishermen, and promoted recovery of the stock. However, confidence in the system is limited by concerns that the Total Allowable Catch limits are not scientifically based. Exemptions for artisanal fishermen also need to be addressed.

Source: extracted from UNEP (2004).

The way that property rights are allocated may have a significant implication on the economic, social and environmental outcomes associated with an economic instrument. Identifying an appropriate allocation will depend on the specific context. In the following case, communal tenure rights over charcoal extraction helped to preserve environmentally valuable mangrove tracts in St. Lucia. This case also illustrates the importance of long-term commitments and certainty, as well as of the need for complementary measures such as training and adequate monitoring tools so that the system of communal property rights can be implemented adequately.

Box 4: Tenure reform, Mankote Mangrove (St. Lucia)

The Mankote mangrove comprises the largest contiguous tract of mangrove in St. Lucia, and 20 per cent of the total mangrove area in the country. Widespread and uncontrolled charcoal harvesting from the trees put the mangroves into severe environmental decline. The loss posed a significant threat to the many ecosystem services mangroves provide, including maintaining coastal stability and water quality, serving as a fish breeding and nursery ground, trapping silt, and providing important bird habitat. Most of the charcoal was harvested by subsistence populations. These people were extremely poor and had no legal right to any use of the publicly-owned mangrove resources. They did not have obvious alternative employment should their access to the mangroves be cut off due to resource depletion or degradation.

To address the core problem of protecting the mangrove, the subsistence users were organized into a collective and granted communal tenure rights to charcoal extraction. For the first time, they had a direct stake in the sustainability of the resource base. The group tenure also gave each individual harvester an incentive to monitor his peers to ensure cutting regimes were being properly followed. Technical training in effective ways to manage cuts was provided, as well as periodic monitoring of the overall mangrove health (as measured by tree size and number of new stems). Longer-term efforts to reduce the economic pressure on the mangrove were implemented using job training programs and the development of a hardwood forest outside of the mangrove. This last element has been of limited success. Finally, in addition to securing the tenure of the charcoal harvesters, the programme worked to prevent threats to subsistence harvesting from large scale development or fishing by establishing Mankote as a nature reserve.

Source: UNEP (2004).

Just as well-defined and allocated property rights can promote biodiversity conservation, ill-defined or inadequately allocated property rights can, in certain cases, act against the in-situ conservation of biodiversity. This is illustrated in the following example (Box 3) in which laws regarding squatting in Trinidad and Tobago raise a rather complex set of social and environmental issues. The trade-offs between social and environmental objectives implied by some subsidy schemes are apparent in this case, illustrating the need to be conscious and explicit about these trade-offs when incentive schemes are implemented. This case depicts a perverse incentive arising from land tenure rules (rather than from perverse subsidies, which forms the focus of much work on perverse incentives).

Box 5: Perverse incentives from land tenure (Trinidad and Tobago)

One aspect of the land tenure system in Trinidad and Tobago can provide an example of perverse incentives, and their effect of biodiversity conservation. Arising out of a combination of factors, the Trinidadian law on illegal occupation of government lands is very protective of the infringing individuals ("squatters"). In a number of instances, it affords the squatters a claim to the illegally occupied government lands (including government forests and protected areas), if they have cleared and planted them, built a structure thereon, and occupied them for a specified time period. In order to evict such squatters, the government would have to pay them compensation under eminent domain laws. The objective of this provision is obviously the protection of squatters – some of the country´s poorest citizens. In impact, however, it is essentially an incentive to clear and plant government forests and other lands, since they will thereby obtain either compensation or outright possessory rights in the land.

Source: Young, T. (2001).

Property rights approaches can be effective in providing private incentives for conservation, but are generally not sufficient in those cases where positive or negative externalities remain for society as a whole. In these latter cases, instruments such as financial payments can be an appropriate supplement to property rights approaches in producing socially desirable outcomes at the national level. In other cases, private rights may even be turned over to the government, to facilitate additional financing and conservation efforts. This can be demonstrated in the following example of the Hamakua Wetlands, in which private property in wetlands was turned over to the State, so that State funds could be applied to restore and conserve this valuable biological reserve.

Box 6: United States National Coastal Wetlands Conservation Grant Programme

Hamakua Wetlands, Hawaii

The Hamakua wetlands restoration project was completed in the spring of 1995. The project was designed to restore a 22.7 acre wetland in Honolulu County that had been donated to the State by Ducks Unlimited. Ducks Unlimited had received the land as a donation from a private landowner, the Kaneohe Ranch. The wetland is connected to the Kawainiu Marsh, which at 800 acres is the largest wetland in Hawaii. An important goal of this project was to restore habitat to benefit four endangered birds – the Hawaiian stilt, the Hawaiian moorhen, the Hawaiian coot, and the Hawaiian duck.

Critical to the restoration of the wetlands was the removal of non-native plant and animal species. Once non-native plants like Indian fleabane and red mangrove were removed, native plants like akulikuli (Sesuvium sp.), water hyssop (BaCOPa), and knotgrass (Paspalum) returned. Volunteers from the community work on a continuous basis to maintain the habitat improvements under the supervision of the Hawaii Division of Forestry and Wildlife. Reducing non-native predation was another part of the plan to restore habitat for Hawaiian birds. A perimeter fence now excludes large predators and grazers. A trapping programme run by the State removes cats and mongooses from the wetlands. The birds that this restoration project was targeted to help are using wetlands now in greater numbers. Migratory shorebirds and ducks are also taking advantage of the improved habitat.

In addition to the direct benefits to wildlife, the Hamakua Wetlands is important as a model for the multi-partner approach to wetlands conservation projects in Hawaii. Finally, its location in the urban setting of the city of Kailua in Honolulu County provides public education opportunities on the importance of conserving and restoring wetlands.

Source: extracted from Environmental Defense website:
http://www.environmentaldefense.org/documents/1807_HINeneReintrofulltext.pdf
(as on December 2002).

Charges and fiscal instruments

At least three forms of charges and fiscal instruments have proven effective in different contexts: entrance fees to natural protected areas; deforestation taxes; and charges on fertilizers and pesticides. Charges on fertilizers and pesticides have been applied effectively, but so far almost exclusively in industrialized country contexts. Some developing countries have applied deforestation taxes. Charges for entrance into natural parks are now applied by virtually every country that maintains a system of protected areas.

Tax differentiation and tax exemptions have not been widely used by developing countries, a fact that might be attributed, in some part, to the often precarious state of the tax system in general. There are, however, some excellent examples of the use of taxes to promote in-situ conservation of biological diversity and to raise financial resources, as illustrated by the following two examples. The use of a special tax on forestry products in the Brazilian state of Minas Gerais (Box 5) illustrates the difficulties of introducing fiscal instruments arising from the pressure of affected interest groups. Nevertheless, the persistence and gradual implementation of the tax has seemed to pay off not only in financial, but also in environmental terms.

Box 7: Brazil forest tax

The state of Minas Gerais introduced a forest tax in order to finance the state Forest Institute in its activities of monitoring and enforcement. Taxation is exercised on all forest products - from logs and firewood to roots and seeds - consumed or transformed in economic activities. That is, this tax is, in fact, a kind of user charge, although it is aimed to finance the environmental agency rather than to fund reforestation. The tax was a response of the environmental agencies to financially cope with the needs to monitor and enforcement the legislation on forestry. Taxes are also due in the case of legal deforestation for agricultural purposes. The tax value was defined at 3 per cent over the value of forest products and collected by the state Treasury.

A long judicial dispute between legislators and tax payers took place between 1975 and 1992, when finally the tax was fully applied and, since then, has been a key factor to change the pattern of charcoal consumption in the state. The judicial dispute was based on the fact that the existing state value added tax (ICMS) was supposed to fulfil any budgetary need and, therefore, the forest tax was a double taxation.

The outcome of this dispute was a mandatory change in the law introducing a tax level based on percentages of an indexed currency varying according to each type of forest product. Also, reductions up to 50 per cent of the tax due can now be granted for those undertaking reforestation, which will generate forest production equivalent to their consumption level. Today this fiscal device is almost a deforestation tax since it varies with species and products and allows that the Forest Institute penalizes certain uses by altering the percentages.

In December 1993 a new table with tax levels was published. The use of charcoal and firewood from native forest, important sources of deforestation in the state, were charged, respectively, four and five times as much as in the last list whereas other item's values have increased no more than 100 per cent. It is estimated that revenues of US$ 17 million are received annually. The revenue generated from this tax was a key factor to enhance the institutional capacity of the Forest Institute in the various locations within the state. That strength allowed that monitoring was improved and, consequently, tax revenue.

Although it is very early to assess, the current pattern of wood consumption in the state seems to be changing. For example, the share of wood supply from native forests in total charcoal and firewood production has declined from 70 per cent in the 80s to almost 50 per cent in recent years. The total environmental effects are, however, very difficult to determine. Whereas an increase on reforestation initiatives has been noted, it is also known that part of the state demand of wood has been met by supply from other neighbour states where such taxes are not applied.

Source: Seroa da Motta, R. (2000).

The Trinidad and Tobago Green Fund Levy is a clear example of a revenue raising rather than incentive oriented instrument. The value of imposing charges and taxes for revenue raising purposes, especially in developing countries, should not be underestimated. To ensure the effectiveness of such schemes, the earmarking of funds and the plan for their allocation becomes crucial. In the case of the Trinidad and Tobago Green Fund Levy, the adequate allocation of funds is sought through the participation of a wide range of actors in the Board of the Fund.

Box 8: Trinidad and Tobago Green Fund Levy

In Trinidad and Tobago a Green Fund was established, based on financial flows from a Green Fund Levy, amounting to a tax of 1 per cent of corporate income. The Fund is directed at a range of environmental objectives, including the protection of biodiversity. The Green Fund Levy has been collected since March 2001. More money has been collected than was first anticipated. Collections to August 2001 were US$7 million. The original estimate of income was US$5.7 million for that same year. An amount not exceeding 20 per cent of the annual receipts under the Green Fund Levy will be allocated to the Environmental Management Agency to finance expenditure in carrying out the purposes of the Environmental Management Agency, other than its operational expenses. The Board of the Fund comprises the participation of a wide range of actors, including NGOs, the public sector as well as the private sector.

Source: The Conservation Alliance, www.conservationalliance.org.

Other instruments

Market mechanisms, such as eco-labelling and carbon offsets, can also prove valuable incentives for in-situ conservation.[32] Finally, the use of liability mechanisms such as environmental fines can constitute an important instrument to stimulate biodiversity protection. While they provide an effective measure in theory, enforcement is often poor in practice, and fines are often set too low to constitute an adequate disincentive. Hardly ever does legislation on fines in developing country contexts integrate a variable element to the fine, oriented towards capturing the opportunity cost of non-compliance.

Areas for further consideration

In-situ conservation can be secured through the use of a combination of different measures, of which one or several economic instruments can form integral parts. Experience with the use of economic instruments for in-situ conservation is well developed in many industrialized countries. While developing countries are increasingly using economic instruments to promote in-situ conservation, case studies are still relatively scarce. Looking forward, the following observations may be considered in the ongoing dialogue:

- Comprehensive country-wide reviews of the use of economic instruments (including both incentives and disincentives) would provide further insights into the existing strategies of different countries, and support a more coherent development of strategies. An important step in this regard is the CBD's call for country case studies, with some countries such as Pakistan, providing rather comprehensive answers.[33]
- More research is required on the impact of economic instruments in specific contexts. Existing case studies[34] could be revisited and re-evaluated for their medium-term impact on biodiversity protection. The CBD could update selected examples of the cases they have collected, or the cases could be reviewed by independent researchers.
- Additional guidance on the criteria and necessary preconditions for MEA implementation based on a deeper understanding of individual cases and county experiences, would help policy makers select appropriate economic instruments (which depend for their effectiveness on the existing framework conditions in the country). The OECD

[32] For examples of these see next section. In general, almost all the examples of applications of economic instruments mentioned in the subsequent sections are applicable for in-situ conservation.
[33] See CBD website.
[34] Such as in the work of McNeely (1988).

Handbook on Incentive Measures (1999) offers valuable analysis, but is primarily directed to industrialized rather than developing countries, and not specifically at economic instruments. Further work involving cooperation among relevant organizations (including the MEAs, UNEP and the OECD) would be beneficial. The UNEP Working Group on Economic Instruments for Environmental Policy-Making could provide the forum.

- More exchange of information about specific instruments, particularly recent ones such as conservation easements and tradable development rights, would be useful. Countries with protected area systems would benefit from a combined effort across the CBD, CITES and Ramsar to analyse the use of economic instruments to promote and strengthen these areas.
- In the context of CITES, further analysis of economic instruments for in-situ conservation and species protection would be valuable. The process established by Decision 12.22 on economic incentives and trade policy provides a useful vehicle to further explore the role of economic incentives in the management of and trade in CITES-listed species. Can, for example, economic instruments assist in conserving certain CITES-listed species? How might they play a role, in cooperation with other measures, to protect species that are under discussion for a change of Appendix or for CITES listing?

4.1.2 Sustainable or wise use and the role of sustainable trade

Closely linked to the concept of in-situ conservation are approaches that seek to promote the sustainable or wise use of biological diversity. The sustainable use of the components of biodiversity can provide rents and other benefits that create an incentive for their conservation. Sustainable use – including through trade in sustainably produced products – has been a significant focus of the three MEAs discussed in this paper.

- The CBD refers to "sustainable use" as the "use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations" (Article 2). Sustainable use of the components of biodiversity forms one of the CBD's fundamental objectives (Article 1) and it is reflected in a number of the CBD's principal obligations (see, for example, Article 10).

- CITES has emphasized that "for trade to be responsible and based on sustainable use, social and economic incentives are needed" (Strategic Plan, Goal 1), and has called for a "review of … national policy regarding the use of and trade in CITES-listed species, taking into account economic incentives." As noted above, trade has in certain instances been recognized as providing an incentive for conservation. As noted in Section 3 above, the CITES Strategic plan, in the context of enhancing *the ability of Parties to implement the Convention*, states "for trade to be responsible and based on sustainable use, social and economic incentives are needed to bring local communities and local authorities into partnership with government under an appropriate legislative, policy and financial framework".
- The Ramsar Convention requires its Parties to "formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the *wise use of wetlands* in their territory" (Article 3.1, emphasis added).

Wise use was defined by the third COP as "*sustainable utilization* for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem".[35] The term *sustainable utilization* is further defined as "human use of a wetland so that it may yield the greatest continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations."[36] It has established the goal of promoting "incentive measures that encourage the application of the wise use principle, and the removal of perverse incentives" (Strategic Plan, Objective 8). Resolution VIII:13, entitled *Incentive measures as tools for achieving the wise use of wetlands,* urges Contracting Parties to develop supportive legal and policy frameworks for the design and implementation of incentive measures. Specifically, Ramsar refers to sustainable trade in its Strategic Plan in Art. 7.1.5, 15.1.13 and 15.1.14.

Sustainable use can be promoted by a wide variety of approaches. The existence of markets is a precondition for most activities related to sustainable or wise use. Within the category of market creation, trade in sustainably produced goods – including products that are specifically labelled or certified as sustainable – has figured prominently in recent discussions. Sustainable trade takes place when the international exchange of goods and services yields positive social, economic and environmental benefits.[37]

Work in each of the three conventions – CBD, CITES and Ramsar – addresses the importance of providing incentives for biodiversity conservation through the legal exchange of goods and services internationally.

- The CBD, in its Decision V/15 refers to indirect incentives as "trading mechanisms and other institutional arrangements that create or improve markets for biological resources, thus encouraging the conservation and sustainable use of biological diversity. Examples include, inter alia, individual transferable fishing quotas, property right mechanisms, species commercialization, biodiversity prospecting, emissions trading schemes or certification and eco-labelling initiatives." Also, Decision V/15 foresees "the development of methods to promote information on biodiversity in consumer decisions, for example through eco-labelling, if appropriate" as one activity under its programme of work on incentive measures.

- CITES allows some trade in Appendix II species as long as these transfers are appropriately certified, and "sustainable use" is reflected in the present criteria for inclusion of species in the Appendices. CITES also states in Resolution Conf. 8.3, the *Recognition of the Benefits of Trade in Wildlife* that "the Conference of the Parties recognises that commercial trade may be beneficial to the conservation of species and ecosystems and/or to the development of local people when carried out at levels that are not detrimental to the survival of the species in question." The Strategic Plan (adopted at April 2000 11th COP Meeting) reflects the Parties' recognition that:

  "…sustainable trade in wild fauna and flora can make a major contribution to securing the broader and not incompatible objectives of sustainable development and biodiversity conservation. However, it also recognizes that the Convention must continue to ensure that proper trade mechanisms are put in place. Such mechanisms depend upon availability of and access to reliable scientific data and to information

---

35 See, Ramsar Information Paper no.7, The Ramsar concept of "wise use".
36 idem.
37 In this sense sustainable trade goes well beyond trade in sustainable products, to include measures such as the assessment of sustainability effects from trade policy.

generated by effective monitoring systems to counter over-exploitation. However, information by itself is not enough. Such trade mechanisms also require strong national capacity backed by good cooperation at national, regional and global levels".

- Ramsar's draft Strategic Plan 2003-2008 encourages Contracting Parties to review, in cooperation with the private sector, domestic and international trade in wetland-derived plant and animal products, and as appropriate implement the necessary legal, institutional and administrative measures to ensure that harvesting is sustainable.

Initiatives to promote trade in sustainably produced products have been widely recognized as a valid tool for poverty alleviation and environmental conservation.[38] Specifically, the creation of sustainable commodity chains, including through certification schemes, can help producers (who are often the main users and custodians of biodiversity) to make enough profit to be able take care of the environment in a sustainable manner. Main approaches to trade in sustainable products include: private eco-labelling and certification initiatives; government regulated eco-labelling and certification initiatives; eco-region oriented initiatives; government programmes; and certification of trade under CITES. Each approach is discussed below.

Eco-labelling and certification

Sustainable trade can be promoted through eco-labelling, where products or production processes are identified to consumers as being more environmentally benign than conventional ones. In the context of biodiversity protection, certification seeks to distinguish between businesses that accomplish high standards regarding sustainable use and protection of habitat or species and those that do not. Combined with mechanisms such as these, trade can make a significant contribution to biodiversity conservation and sustainable use.

The proportion of labelled goods in international trade is increasing. Currently, about 2 per cent of world trade is in these markets. In 2001, 85 million hectares of forests were certified for sustainable management, representing about 10 per cent of productive forests.[39] The market for organic products was estimated in 2001 to be worth around US$20 billion, with expected annual growth rates of 5-10 per cent over the next decade.[40] In 2000, between 40 and 60 per cent of tourism was estimated to be nature-related, some of which was officially labelled eco-tourism.

Labelling and certification schemes can be publicly or privately administered. The labelling of forest products, for example, is largely privately administered. The labelling of organic agricultural products, by contrast, often involves government participation and regulation.

The following box provides examples of private certification schemes, the first of which - the Forest Stewardship Council, has become an important player in the market for forestry products. The integration of biodiversity criteria in such schemes can ensure their contribution to the goals shared by biodiversity-related MEAs. The Forest Stewardship Council also demonstrates how mechanisms applied in the MEAs can help the implementation of certification schemes, and how the certification schemes can contribute with information to the work of MEAs.

---

[38] See for example the report of the 2003 Global Biodiversity Forum, supported by the CBD and Ramsar, www.gbf.ch

[39] See FAO (2001).

[40] See Willer and Yussefi (2001).

Box 9: Private certification schemes

The *Forest Stewardship Council (FSC)* is an international non-profit organization founded in 1993. It has developed a certification scheme to support environmentally appropriate, socially beneficial, and economically viable management of the world's forests. FSC's principles guide the practice of forest management, and include principles related to endangered species protection.[41] They provide that "safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas)" and require "plans for the identification and protection of rare, threatened and endangered species". In their certification criterion the FSC refers to the forest owner's respect of and knowledge about binding international agreements such as CITES, CBD and others (criterion 1.3). The FSC has become one of the most important voluntary certification programmes for sustainable forestry covering to date about 30 million hectares of forests in 56 countries.

The *Rainforest Alliance*[42] certification programme began in 1991 as a labelling programme called Eco-O.K. that was targeted towards agricultural products. Rainforest Alliance currently has certification programmes for bananas, coffee and oranges. As of November 2002, the programme had certified 59,976 hectares in Latin America. In order for certification to be granted, products must comply with criteria regarding the protection of wildlife and native plants and, in particular, protection for threatened or endangered species.

Other developments: recently, the use of certification as a means to protect endangered species has spread to the promotion of certification for traditional medicine users. This proposal, by the Chinese Medicine Association of Suppliers in collaboration with the UK´s Medicines Control Agency, is aimed, amongst other aspects, at encouraging Chinese physicians not to use or recommend the use of traditional medicines that contain endangered species products. In the United Kingdom, there is an initiative aiming to kitemark the process of importation and the management of herbal or animal products used in traditional medicines. This will protect the safety of both the public and practicing herbal doctors. The idea is to establish a monitoring system that will track the process from start (harvesting of products) to finish (delivery as traditional medicine to patients in UK). This will ensure that the herbs and other products utilized meet CITES regulation. Medicines that are approved by this monitoring system will obtain a certificate or kitemark that will distinguish them from other medicines. Similar ideas exist in California, where a petition bill is being promoted to implement a voluntary traditional Asian medicine certification programme.[43]

Sources: http://www.fscoax.org/index.html,
http://www.epa.gov/opptintr/epp/pubs/envlab/rainforest.pdf,
http://www.savechinastigers.org/kitemktg.htm

Government regulated eco-labelling and certification initiatives

Government certification and labelling schemes are probably best exemplified by the organic agriculture schemes in many industrialized countries, in which technical regulations stipulate definitions and conditions for the certification of products from organic agriculture.

The 1991 EU regulation on organic agriculture is one of the earliest and best known of these schemes. Similar schemes can offer opportunities for developing country producers, although they may also impose significant challenges in terms of the necessary institutional arrangements and additional costs. The challenge is to make these schemes more accessible and appropriate to developing country producers by adjusting criteria to developing country realities and addressing issues such as harmonization and equivalence of schemes.

---

41 http://www.fscoax.org/index.html
42 http://www.epa.gov/opptintr/epp/pubs/envlab/rainforest.pdf
43 http://www.savechinastigers.org/kitemktg.htm

Box 10: Government certification of organic agriculture

Developing country exports to the EU

Whereas markets for organic agriculture historically relied on privately administered certification procedures, during the 1990s most industrialized countries introduced regulations concerning certification and labelling procedures. In the EU, for example, Regulation 2092/91 regulates organic farming. It refers to the method of production, labelling, processing, inspection and marketing of organic products within the EU, and to the import of organic products from non-member states. Imports from third countries are subject to a system of equivalence. Citing EC (2001):

> "In order to ascertain equivalence, the Commission makes a thorough investigation into the arrangements in the country concerned, examining not only the requirements imposed on production but also the measures applied to ensure effective control. Where rules are found to be equivalent, the third country is entered on the list of authorized countries, which means that organic products from that country can be imported and move freely within the European Union. A parallel scheme has been introduced, valid until 2005, to enable Member States to issue import authorizations for consignments from third countries not included in the Community list drawn up by the Commission. It is up to the importer to prove that the imported products were obtained according to production rules equivalent to those laid down in Community legislation and were subject to inspection measures of equivalent effectiveness to the inspection measures imposed on Community products. The Member State notifies the Commission and the other Member States of the third countries and products for which it has issued an authorization." (p.22).

By 2003 only two developing countries had obtained equivalence status: Argentina and Costa Rica. Statistics on organic product imports are scarce, making it difficult to see how imports have fared with this system. The few available estimates indicate that imports into EU countries originate mainly from other EU member countries, and, with the notable case of Argentinean products, imports stemming from developing countries are limited largely to fruits not available in the EU region, such as Papaya, Pineapple, Banana and Mango.

Source: Borregaard et al. (2002).

Eco-region oriented initiatives

Sustainable trade initiatives may also be related to the promotion of sustainable production and trade from an eco-region. While these may involve eco-labelling approaches, they may also involve directed assistance programmes, small grants or other types of financial assistance. A Brazilian NGO, with the active involvement of Ramsar, has initiated a scheme seeking to promote trade in sustainably produced products from the Amazonian region. Today, this scheme is expanding within the Amazonian region to other countries, and other regions in the world have also initiated similar schemes.[44] These bottom-up, comprehensive initiatives rely not only on a substantial degree of civic entrepreneurship and work by associations of small producers, but also often on some minimal amount of external seed funds.

[44] Development of Bolsa Nusantara in Indonesia was initiated in 2003, and a Bolsa South Africa is also in the process of being formed.

Box 11: Bolsa Amazonia eco-region schem

In 1998 the Brazilian NGO POEMA (Poverty and Environment Programme of the University of Pará – Brazil), in partnership with the UNCTAD BIOTRADE Initiative, created a trade facilitation scheme called the Bolsa Amazonia (www.bolsaamazonia.com) to promote the sustainable trade of Amazonian products, alleviate poverty, and help conserve ecosystems. Currently the initiative is implemented in Bolivia, Brazil, Colombia and Ecuador. The direct beneficiaries are those poor people living in and around the forest: agro-extractive small producers engaged in the sustainable use of biodiversity, rural cooperatives, and micro enterprises. The basic and driving principles of Bolsa Amazonia are:

(1) the protection of Amazonian ecosystems for current and future generations;

(2) the alleviation of poverty through the sustainable use of natural resources generating employment and income; and

(3) the promotion of economic, social and ecological responsibility in producing and marketing natural resources

The general objective is to promote the sustainable use of the Amazon's natural resources through the establishment of an efficient network of economic relationships between organized, agro-extractive cooperatives and micro-enterprises from the Amazon region with local, national and international companies or interested buyers. The Bolsa Amazonia is promoting the sustainable trade of more than 55 products from the major wetland on Earth – the Amazon forest. It is now exporting for example, Brazil nuts, vegetable oils and resins, fruit pulps and natural dyes to Europe, Australia and the United States. It has successfully developed new products and technologies for processing abundant and unused local natural resources like coconut fibers, which today are being processed in four rural factories managed by local communities to make truck seats for the Daimler-Chrysler company in Brazil. It is also promoting research and innovation for new products, like coconut mattresses, fiber flour vases, curauá or miriti fiber luxury papers.

Source: Lambert (2002).

The BIOTRADE Initiative launched by UNCTAD in 1996, assists developing countries and partner organizations to create an enabling environment for the development of biodiversity-related sectors by building partnerships with key public and private actors, promoting sustainable business ventures, and providing inputs to policy making.[45]

UNCTAD is assisting the development and implementation of national BIOTRADE programmes in Bolivia, Colombia, Ecuador, Peru, Venezuela and Uganda. In each country a policy focal point and a technical focal point is established. The former is usually a government entity, such as the Ministry of Environment, which can assist with the development of policies and legislation that facilitate and promote biodiversity-based development. The latter executes the national programme and undertakes concrete interventions that facilitate 'biotrade'.

[45] See www.biotrade.org

Box 12: BIOTRADE Initiative (UNCTAD)

In 1997 the Government of Colombia with
the support of UNCTAD initiated a BIOTRADE programme. A biodiversity research institute, the Alexander von Humboldt Institute, took the lead and started to devise strategies to provide concrete support to those interested in promoting products derived from biodiversity. Five years later the sustainable commercial use of biodiversity has been included in the Government's priorities. The Humboldt Institute has created a network of regional offices, business incubators, export organizations, banks, large supermarkets chains, private sector associations and local communities. All work towards the same goal: providing prosperity to local communities living in Colombia's biodiversity-rich countryside.

One such community is located in the Pacific Coast of Colombia, a very poor region populated with Afro-Colombians. A network of 75 women producers and trades of medical and aromatic plants, spices are delivering to local markets and Colombian supermarkets, taking care of production collection, processing, certification, and investigation. The women have received support from the Espave Foundation, but also from the BIOTRADE country programme that channeled technical assistance from various sources. For example, the women won a grant through a contest for bio-businesses that was organized by the Humboldt Institute and the Andean Development Corporation CAF.

Source: UNCTAD (2003), personal communication.

To further promote exports of biodiversity products, UNCTAD and the International Trade Centre (ITC) initiated the BioTrade Facilitation Programme (BTFP). This programme helps enterprises in developing countries (for example small, medium, and community-based enterprises) with export promotion. To achieve this, it joins several partners in developing and developed countries. The programme supports products that have market potential and can be produced without harming biodiversity. To develop and trade these products, export plans are formulated and then implemented through a set of practical trade promotion services, including market information collection, products development, quality improvement certification, labelling, trade fairs participation and matchmaking.

Additionally, special governmental programmes may contribute to the sustainable use of biodiversity-related services and products. These programmes would normally operate by guaranteeing, in some form, the sustainability of the generation process and would normally subsidize, or provide technical support, to a stage or stages of the process. An example of this is the Guanaco Magallánico Programme, in which the Chilean Ministry of Agriculture, after implementing a successful conservation policy for the Guanaco, is now promoting its commercialization through private business.[46]

Trade under CITES

Under CITES, Appendix II listed species can be traded if they present a document of non-detriment finding.[47] This trade is directly related to the idea of sustainable use, motivated by the need to generate local interest in the protection of the species. Article VI of the Convention regulates the content and administrative procedures related to CITES permits and certificates. There are currently three species that receive special attention in the CITES programmes:

---

[46] See www.sag.cl

[47] For Appendix I listed species trade may be allowed under exceptional circumstances, e.g. for scientific research. In these cases, trade may be authorized by the granting of both an export permit (or re-export certificate) and an import permit. International trade in specimens of Appendix-II species may be authorized by the granting an export permit or re-export certificate; no import permit is necessary. Permits or certificates should only be granted if the relevant authorities are satisfied that certain conditions are met, above all that trade will not be detrimental to the survival of the species in the wild.

sturgeon, elephants, and hawksbill turtles. In these cases different trade restrictions have been applied. It should be noted that there have been attempts, for example, in the case of the sturgeon, to go beyond the CITES certification procedures and encourage the establishment of specific labelling programmes directed at a differentiation of the product in the market.

Certification and labelling of captive breeding could be another way of fostering sustainable trade in the context of CITES. However, further analysis as to the effects of captive breeding would be required.[48] The following box summarizes the state of discussion regarding captive breeding, its potential for protection, and possible adverse effects. The introduction of certification in this context might help to distinguish situations of captive breeding that have positive effects.

Box 13: Certification and labelling of captive breeding

CITES : Captive breeding

Captive breeding is the reproduction of endangered species in captivity. In order to increase the world population of certain species, captive breeding can replace, to a certain extent, the need for that species breeding in the wild. This measure has been applied for example to crocodiles, falcons and Asian bonytongues.[49] According to the CITES Secretariat (as cited in OECD, 1999), a total of 68 registered commercial captive breeding operations were in progress in 1999. Most of these concentrated on the Peregrine Falcon and the Asian Bonytongue. Regarding crocodiles, a report prepared by the IUCN Crocodile Specialist Group (2001),[50] established that "captive breeding may be a valuable strategy to boost production, or reduce dependence on an unpredictable wild resource (or regulator), but it breaks the link between the market and the wild population, removing incentives for conservation." Another study, by Damania and Bulte (2001), analyzing the benefits and cost of captive breeding, concludes that there are "potential dangers of introducing supply side policies (for example promotion of captive breeding) without carefully scrutinizing the microeconomic structure of the market". Instead of curbing poaching, the policies might have the reverse effect. This analysis recognizes imperfect competition in the market for endangered species, as well as the high cost of conservation or enforcement activities (US$200 to $500 per hectare in Africa) (Damania and Bulte, 2001). These are important issues to be addressed when considering captive breeding as a mechanism to protect species. One possibility to take these issues into account would be the implementation of a fee for captive breeding activities, to support a fund that protects endangered wildlife or to increase consumer awareness. No case of such a fee was found in practice. Another more positive mechanism would be the certification and labelling of captive breeding activities that are thought sustainable and complementary to conservation in-situ.

Source: Author's elaboration.

Areas for further consideration

As noted above, sustainable use of the components of biodiversity can provide rents and other benefits that provide an incentive for their conservation. Sustainable use, including through trade in sustainably produced products, can thus offer an important means for achieving the objectives of the CBD, CITES and Ramsar. Looking forward, market-based approaches continue to offer potential both for the conservation of biological diversity, and for achieving a range of other important social and economic objectives. Some observations for future discussion among policy makers and stakeholders interested in the role of economic instruments include:

---

[48] Information to undertake such analysis has been requested by the CITES Secretariat in Notification to Parties No.2001/091 in December 2001.

[49] OECD, 1999. "Trade measures in multilateral environmental agreements".

[50] http://biodiversityeconomics.org/pdf/topics-344-01.PDF

- Eco-labelling and certification initiatives are increasingly important in international and national markets. By differentiating businesses, products and production processes according to their environmental and social commitments and characteristics, they provide incentives for more sustainable economic activity. Their role in conserving biodiversity has been demonstrated in a number of experiences summarized in the box examples. Further analysis of the main linkages between existing eco-labelling and certification schemes and the work of the MEAs should be conducted. Discussion should focus on how synergies can be realized to promote the sustainable use of biodiversity, including through sustainable trade.
- MEAs can play an important role in certification and eco-labelling initiatives, and in the further development of these schemes. Given the diversity and rapid development of these initiatives, potential synergies among existing initiatives should be explored. MEAs could thus; provide the forum in which the role of individual schemes in promoting the goals of the MEAs can be explored; promote an exploration of synergies among existing certification schemes; and support the creation of new certification and/or labelling schemes or other initiatives relating to sustainable trade.
- MEAs could also become more active in developing appropriate criteria and/or indicators for certification schemes. The use of "indicator species"[51] is common and might create synergies between certification schemes, the CBD and CITES. Also, the International Organisation for Standardization (ISO) is currently discussing the introduction of a management standard for Corporate Social Responsibility. There could be a role for one or several MEAs to participate in the definition of criteria with regard to biodiversity-related aspects in this management standard.
- The majority of certification and labelling schemes applied in international trade have been established in industrialized countries. MEAs could make important efforts on capacity and institution building in developing countries in the context of certification and labelling – both to build understanding and develop schemes at the national level that meet the requirements of developed country schemes.
- There is scope for further work in the context of CITES with regard to the enhanced synergies with existing certification schemes. TRAFFIC International's proposal (2002)[52] to examine whether principles and practice of sustainable forest management certification could meet the requirements of a scientific non-detriment finding for exports of CITES Appendix II timber species merits further consideration. Schemes such as the FSC (Box 6) can also help identify "on the ground" synergies, for example by discussing with companies and other stakeholders how they see the implementation of CBD, CITES and Ramsar.
- The Ramsar-supported Bolsa Amazonia initiative (and Bolsas in other regions) provides an excellent example of an eco-region approach to supporting sustainable trade. Initiatives of this type could come under the auspices of one or more of the biodiversity-related MEAs. Projects such as BIOTRADE, launched by UNCTAD in 1996, also present opportunities to promote sustainable trade. Initiatives such as these are important, but have often lacked the financial and political support required to induce major change in production and consumption patterns, and to ensure their economic

---

[51] Indicator species are those species that are associated highly with a specific habitat type, and that can indicate sustainable use and forest change.

[52] IUCN and TRAFFIC briefing document, October 2002, CITES priority: Timber and the Twelfth meeting of the conference of the parties to CITES, Santiago, Chile 2002.

feasibility over time. Stronger support for these initiatives in the context of the MEAs is required.

4.1.3 Payments for ecosystem services

Ecosystems such as wetlands or forests provide a wide range of services that, in many cases, can be valued and conserved through the use of economic instruments. Economic instruments can provide market-based incentives for the protection of ecosystem services such as carbon sequestration, watershed protection, and other functions provided by biodiversity.

The term *ecosystem service* may be contrasted with the term *environmental service*. In this paper, the former refers to amenities provided by the natural world such as carbon sequestration or watershed protection, whereas the latter connotes human economic activity in the service sector, i.e. tertiary economic activities such as ecotourism, carbon offset trading, payments for watershed protection, or bioprospecting that relate to the environment. In many cases, environmental services are founded upon and often designed to protect, underlying ecosystem services. Economic instruments can provide incentives to support environmental services, with attendant benefits to the conservation of the underlying ecosystem services provided by biodiversity.

The texts of the three MEAs do not make general reference to "environmental services" or "payments for ecosystem services". They do, however, undertake extensive treatment of selected environmental services:

- Biodiversity prospecting, carbon offsets and ecotourism, for instance, have been discussed extensively in the CBD's COP and in relevant working groups.
- Deliberations in CITES have referred to bioprospecting and resource ownership when discussing the relationship between ex-situ production and in-situ conservation.[53] Additionally, Decision 12.30 refers to ecotourism in the context of conserving Asian big cats: "Each range State Party should consider ways in which local communities might be encouraged to play a part in, and benefit from, the conservation of Asian big cats, for example, through ecotourism."
- For Ramsar, as water-related services are a key element of wetlands, they are included in all decisions. Ramsar's discussions of climate change have raised forest-related environmental services. Its 2003-2005 global implementation targets refer to the need for parties to assess implications of the Kyoto Protocol for wetlands. Operational Objective 3.4.9 provides that national policy responses, including re-vegetation and management, afforestation and reforestation, should not lead to damage to the ecological character of wetlands. Ramsar also refers to ecotourism in COP 8 DOC. 7, which refers to the relation between the WSSD and Ramsar, noting that Ramsar may have a role in implementing the WSSD´s section devoted to sustainable tourism.

Recent publications provide comprehensive overviews of the current status of payments for forest ecosystem services.[54] Payments are carried out by private or public institutions, or sometimes both. Payment schemes can involve different economic instruments, including tradable quota systems such as in the case of carbon offsets, payment of licenses such as in the case of bioprospecting, entrance fees for parks or concession payments for tourist operations in the case of ecotourism. Some selected examples of these are discussed below.

---

[53] See for example Notification to Parties 2001/091.
[54] Pagioli et al. (2002) and Landell-Mills and Porra, (2002).

Overcoming difficulties in the implementation of these payments lie in the clear delineation and monitoring of the objectives of biodiversity protection, and balancing these objectives with social goals. The advantages of creating such payment schemes are income generation for conservation activities, helping to identify and appreciate the value of ecosystems and achieve a more adequate distribution of conservation costs.

Carbon offsets

Good examples of markets for ecosystem services are those related to carbon sequestration. CO_2 sequestration offsets operate internationally to further sustainable forestry and agricultural projects.[55] There have been some interesting voluntary initiatives to promote conservation through carbon sequestration projects.

The Climate Care Programme, a not-for-profit organization, is an early example of such an initiative. This programme demonstrates how (even without formal frameworks within the Kyoto Protocol) initiatives can be established that involve biodiversity protection. It also illustrates how the management of national parks involves not only the maintenance of the existing resources but also the recuperation of resources, also implying, as in this case, reforestation activities.

Box 14: Environmental services - climate care

Climate Care Programme

Launched in United Kingdom in 1999, this scheme, carried out by a not-for-profit Trust Fund, established voluntary payments for companies or individuals to 'offset' the emissions created by their use of products such as petrol and diesel, electricity and gas, and air travel. The payments are used to fund CO_2 reduction projects in areas such as renewable energy, energy efficiency or forest restoration. Regarding the latter, for some years, Climate Care has been contributing to the restoration of the Kibale National Park in Uganda. This project aims to recreate the natural forest area that suffered deforestation in the 1970s and 80s. The Park also has one of the highest concentrations of primate species in the world with 13 different species, including chimpanzees. Deforested land is cleared of invasive elephant grass that would choke out seedlings and is planted with 30 species of native tree in order to re-establish a forest canopy. The resultant forest is not used for commercial timber and the project is a valuable source of employment for the local population.

Source: extracted from www.climatecare.org (as of September 2003).

Water-related services

With increasing intervention in pristine areas, and with increasing awareness of the value of water-related services, for both consumers and producers, there have been several cases of payment for water services. As demonstrated in Costa Rica,[56] the fewer and more clearly defined the beneficiaries, the more likely is the creation of a market for water services. The role of NGOs as facilitators of agreements between the providers and beneficiaries can, at times, be crucial.[57] An example of the establishment of payments for environmental services is the Water Conservation Fund for Quito (a private non profit organization).

---

[55] Due to a decision of a recent COP of the UN Framework Convention on Climate Change to limit credits from forestry and other land-based sinks, the Clean Development Mechanism and Joint Implementation are regarded as limited tools for conservation finance.

[56] See Box 17.

[57] See Pagiola (2002).

Box 15: Quito's water conservation fund

Launched in 1998 with the support of The Nature Conservancy, USAID and Fundacion Antisana, this initiative represents the first attempt to set up a trust fund payment system for watershed protection in Ecuador. Finance will be primarily sourced from water users fees levied on domestic, industrial and agricultural users. The main users are private farmers and hydropower projects. Water fees will be differentiated between non-extractive users and extractive users. The improved water supplies are to be achieved through investment in watershed protection, initially in the Cayambe - Coca (400,000 hectares) and Antisana Ecological Reserves (120,000 hectares) surrounding Quito. Activities that could be financed through this scheme include: land acquisition in critical areas, provision of alternative income for local residents, supervision, implementation of agriculture best management practices, education and training. The Fund – independent from government – is managed by a private asset manager (Enlace Fondos) and has a board of Directors with representatives from local communities, hydropower companies, the national protected area authority, local NGOs and government.

Source: Extracted from Landell-Mills and Porras (2002) Box 27; based on Echavarria and Lochman (1998); Johnson (2000), Troya (1998).

Bioprospecting

Bioprospecting provides a further vehicle for realizing the value of ecosystem services. Biodiversity prospecting is the systematic search for biochemical and genetic information in natural sources that can be developed into commercially-valuable products for pharmaceutical, agricultural, and other applications. Diverse valuations of the bioprospecting market have been offered, with some authors considering them important, while others emphasize their limitations, especially for local communities.[58] Schemes supporting biosprospecting vary, ranging from partnerships between local, public and private agents to private activities undertaken directly and exclusively by companies or individuals.[59]

A number of economic instruments can be implemented to promote and enhance the benefits arising from bioprospecting. Tax incentives, such as reductions in value added tax or general tax, can be implemented to promote the creation and transfer of technology-related to bioprospecting activities. Industrialized country experiences encompass a large array of measures involving different institutional set ups, different types of partnerships between private and public sectors and between countries, and different instruments and amounts of financial resources.[60] In the context of biodiversity protection in developing countries these instruments are less well known, and experiences have to be sought from primary sources.

The Brazilian programme PROBEM is one such example that demonstrates how the sustainable use of biodiversity resources might be promoted through the creation of infrastructure, tax incentives and the integration of local stakeholders.

---

58 For a detailed discussion of these studies see Laird (2002).
59 See ibid for a discussion of these.
60 Documents that have summarized these experiences include: Clayton et al. (1999),OECD (2001) and UNEP´s clean production website www.emcentre.com/unepweb/policy/

Box 16: Bioprospecting – PROBEM in Brazil

The Brazilian Programme for Molecular Ecology for the Sustainable Use of Amazonian Biodiversity (PROBEM)

An example of an institutional framework at the national level for bioprospecting and technology transfer is the Brazilian Programme of Molecular Ecology for the sustainable use of biodiversity in the Amazon area (PROBEM), in Manaos. Its mission is high quality basic research on the potential of natural resources for the exploitation and the conservation of biodiversity in the Amazon. Its objective is to attract national and foreign investment in biotechnology enterprises interested in activities ranging from pharmaceutical products to environmentally friendly pesticides. This programme provides financial and tax incentives to individuals and industries willing to invest in biotechnology. Also, it provides financial help to establish biotechnological enterprises in Manaos.

Specifically, a tax free zone has been set up in Manaos, implying on the one hand a 45 per cent reduction in VAT of products for final consumption, a 55 to 100 per cent reduction in VAT for capital goods, intermediary goods, and specifically those products produced through small scale technology, those that use medicinal plants, or those that are based on other natural products of the region. Import tariffs for intermediary or capital goods necessary in bioprospection and industrial use of biological resources are reduced by up to 88 per cent.

Source: extracted from Superintendencia da Zona Franca da Manaus; www.suframa.gov.br and the Brazilian Embassy in London.

Ecotourism

Ecotourism is a growing services market. The International Ecotourism Society (TIES) defines ecotourism as "responsible travel to natural areas, which conserves the environment and sustains the well-being of local people." There still is a high degree of uncertainty regarding the size and growth of the ecotourism market. Lindberg (1997) reports a World Tourism Organization estimate that nature tourism generates 7 per cent of all international travel expenditure. A subsequent estimate by the World Tourism Organization (1998) stated that ecotourism and all nature-related forms of tourism account for approximately 20 per cent of total international travel. Estimates of growth rates of the industry during the 1990s are in the range of 10 – 30 per cent, considerably above growth rates in other forms of tourism.[61] The ecotourism market is linked not only to the instrument of market creation, but also to economic instruments such as charges, entrance fees to parks, concession payments for tourism, and hunting and fishing fees.

While many developing countries are still in the initial phase of implementing more systematic approaches towards ecotourism, there has been substantial progress in projects regarding specific nature services, such as in the cases of the Berezinsky Biosphere Reserve and the Makiling Forest Reserve, noted below (Box 13). The different cases show how existing institutions and infrastructure can be used, and how very often, it is not a question of introducing new instruments, but using those that already exist and modifying or adapting them slightly.

[61] See The International Ecotourism Society (2000) – this estimate is for nature-related tourism.

Box 17: Ecotourism in Chile

Ecotourism challenge in Chile

In Chile, the tourism industry is valued at US$823.6 million,[62] representing an important sector of the economy. Chile does not have an officially accepted definition for sustainable tourism, so measuring its value is extremely difficult. It can, however, be broken down into different sectors - ecotourism and rural tourism. Ecotourism has been defined more specifically in Chile as tourism based on green areas or protected areas. The value of ecotourism could be measured by studying visits to the parks that belong to the National System of Protected Areas (SNAPSE) and activities based in these areas. Based on this approach, ecotourism has been valued by Chilean industry representatives as representing around 30 per cent of tourism receipts, while rural tourism could be in the region of 10 per cent. There are no hard figures available, but initiatives to promote these two sub sectors of sustainable tourism, including seeing ways to certify and/or label tourism operations, are underway. In terms of national park entries there has been a considerable increase in foreign visitors. Figures have more than trebled in the past decade, indicating that green tourism is growing faster than tourism generally.[63] Nevertheless, income has not grown as quickly: income from entrance fees to state run parks has risen slightly from US$1 million in 1995 to US$1.3 million in 2002. Concession payments for camping, motels, cabins and related services in state run parks have even declined from US$120,000 in 1993 to US$40,000 in 2002.

Source: Author's elaboration.

Box 18: Ecotourism in Belarus

Ecotourism challenges in the Berezinsky Biosphere Reserve, Belarus

The Berezinsky Biosphere Reserve was established in 1925 to protect the remaining beaver population, other rare species of fauna, and the unique ecosystems of the Southern Taiga. It was not until the late 1990s that park administrators discovered ecotourism as a potential environmental service to be managed carefully. In 1996, the park´s administration, together with tour operators from France and Great Britain, carried out six tours that provided the park with an income of more than US$25,000. After three years of experimentation with different prices, operators, and administrative adjustments, the reserve's authorities have developed a strategy to develop ecological tourism in the reserve. The strategy involves information exchange, development of more permanent contacts with tour operators and agencies, training in management skills, and integration of ecological education. The authorities emphasize ecological education: in 1997 the reserve's Museum of Nature received 13,000 tourists and delivered 444 lectures. This number increased to 26,241 visitors and 1,180 lectures in 2001.

Source: based on Babitsky (2002).

[62] Sernatur www.sernatur.cl
[63] ibid.

Box 19: Ecotourism in the Philippines

Entrance fees in the Makiling Forest Reserve, Philippines

The Makiling Forest Reserve, which is under the exclusive jurisdiction, administration and complete control of the University of the Philippines, Los Baños, typifies other forest reserves and watersheds in the Philippines managed by local government units and the Department of Environment and Natural Resources in terms of the biophysical, socio-economic and management problems. The efforts to develop and implement economic instruments under a project of the University and the Resources, Environment and Economics Center and financed by UNEP, led to the upgrading of fees in the Makiling Forest Reserve, including entrance fees and swimming fees at the Makiling Botanical Gardens, and entrance fees to the Reserve. The income generated with the change in fees is depicted in the table below. The entrance fee to the Makiling Botanic Gardens was raised by 100 per cent in 1999. While the number of visitors did not significantly change as a result of the increased fees, the increase in the revenues was substantial. The revenues for the year 2000 posted a 114 per cent increase over 1999 revenues. Likewise, the collection of entrance fees to the Reserve from visitors going to Mudspring or Peak 2 was implemented in 1999. Prior to this year, visitors could enter the Reserve for free.

Table: Number of visitors and revenues generated for the Makiling Botanic Gardens and the Makiling Forest Reserve, 1997-2000

YEAR	MAKILING BOTANIC GARDENS		MAKILING FOREST RESERVE	
	No. of Visitors	Revenue (PhP/year)	No. of Visitors	Revenue (PhP/year)
1997[64]	100,002	572,616	No data	0
1998	102,381	579,229	No data	0
1999[65]	105,185	781,495	19,726	118,002
2000	112,804	1,670,105	27,561	144,373

The implementation of the economic instruments for forest recreation and ecotourism was found to be financially feasible using the Incremental Net Present Value (Incremental NPV) and the Incremental Benefit-Cost Ratio (incremental BCR).

Although the University manages the reserve, conservation, development and protection are also governed by the same policies being applied in other forest reserves and watersheds in the country. Whatever management innovations may be developed for the forest reserve can be replicated easily in other similar areas through policy standardization and outright replication.

Source: Makiling Centre for Mountain Ecosystems (2002).

[64] For MBG, Entrance: PhP3 (UP), PhP5 (non-UP); Swimming: PhP15 (UP), PhP30 (non-UP)
For MFR: PhP0 entrance fee.

[65] For MBG, Entrance: PhP6 (UP), PhP10 (non-UP); Swimming: PhP30 (UP), PhP50 (non-UP)
For MFR: PhP2 entrance fee (UP), PhP5 (non-UP).

Bundling of services

Services such as carbon sequestration, bioprospecting and ecotourism will often complement each other. The sum of these complementarities might be crucial for creating a sufficient incentive for conservation. Landell-Mills and Porras (2002) note that "at the margin where forest protection for environmental services is in direct competition with alternative land uses such as ranching or agriculture, the little bit extra earned from selling biodiversity access rights on top of the sale of carbon sequestration rights can make all the difference" (p.185). Identifying ways to bundle services may in specific instances be necessary to tip the balance in favour of conservation.

Bundling can, for example, be considered in initiatives directed at the creation of protected natural areas. In some cases, a state-sponsored incentive (e.g. in the form of tax benefits or otherwise) may prove insufficient to induce conservation activities in these areas. Joining these incentives with private incentives for conservation through markets for environmental services may yield better results. However, applying bundling at the micro level demands a high level of management skills on behalf of the private agent. Government intervention may sometimes be required to provide the necessary overview or ready-to-use infrastructure.

In Costa Rica, the Government set up a national coordination system to integrate the different environmental services, with different institutions in charge of the promotion of each, and different instruments applicable in each case.

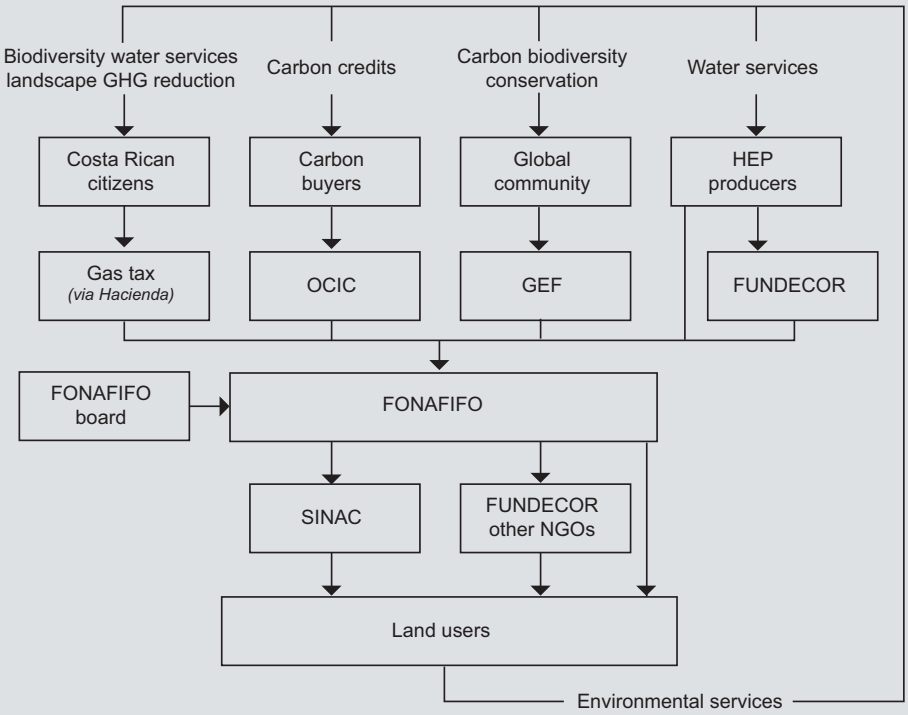
Box 20: Costa Rica environmental services payment system

Shopping basket and merged bundles of environmental services in Costa Rica

In 1995, Costa Rica established a national programme for payments for ecosystem services.
The programme seeks to encourage forest protection and management by paying forest owners for the services their forests provide, recognizing basically four of these ecosystem services:

1. carbon sequestration
2. biodiversity protection
3. watershed management
4. landscape beauty

To implement this programme, the National Forestry Fund (FONAFIFO) - depending on the Ministry of Environment – canalized payments to private forestry owners and protected areas. The amount is defined according to the activity undertaken. In return, landholders cede their environmental service rights to FONAFIFO, until the contract expires.
FONAFIFO is entitled to sell identified environmental services to buyers at local, national and international levels. Internationally, FONAFIFO has developed a system to transfer carbon sequestration rights as certified tradable offsets.
The figure below describes the Costa Rican environmental payments system.



Source: Extracted from Landell- Mills and Porras (2002) Box 42.
Figure extracted from Pagiola et al. (2002) Figure 3.1 p. 42

Areas for further consideration

Looking forward, a range of issues regarding the creation of markets around ecosystem services merit further discussion:

- On a conceptual level, it would be helpful to further clarify the interrelationship between ecosystem services (i.e. those provided by the natural environment) and environmental service (i.e. tertiary economic activity regarding the environment) in specific instances.
- Additional research and discussion is required on the absolute and relative importance of promoting markets for ecosystem services and the design of appropriate institutional frameworks.
- The biodiversity and other environmental impacts of environmental services (including those based on ecosystem services) are not clear, and on first sight do not always appear to be positive. More case studies are required to learn about experiences on the ground.[66]
- It would be useful to deepen understanding of the interdependence between different services on the ground - at the national level or in other geographically delineated areas - to help identify the areas of synergy and tension between the different environmental services such as bioprospecting and ecotourism, and assess how these relate to other important objectives such as empowering local communities.
- An important task for the MEAs is to analyse the implications of individual environmental services in relation to the MEAs' objectives. More analytical work, particularly on carbon offsets, bioprospecting and the creation of funds for watershed protection, is clearly necessary. Ramsar has identified the need for more analysis in its strategic plan, indicating the need to assess the effects of the incentive schemes generated by the Kyoto Protocol on wetland protection.
- Ecotourism is relevant to the CBD, CITES and Ramsar. To maximize the potential benefits of this rapidly growing industry, ecotourism should be carefully guided (and, where appropriate, certified) so that it enhances awareness, involves local communities, and supports biodiversity protection. Of the three MEAs, the CBD has undertaken the most detailed examination of ecotourism. There is however room for the MEAs to assume a greater role in guiding ecotourism, including through a broader assessment of its value and implications for their shared goals. MEAs may also consider additional ways to disseminate the preliminary "*International Guidelines for Activities Related to Sustainable Tourism Development in Vulnerable Ecosystems"* and support their integration into the work of member states.[67] And they could consider proposing to UNEP, UNDP, GEF and BPSP an update of their annotated bibliography on biodiversity and tourism,[68] thus contributing to more coordinated and systematized information on ecotourism. This could be of interest for CITES with regard to further developing its role in wildlife tourism.[69]
- As well as promoting cooperation among the MEAs, there is also a need to complement the work of other international organizations. The MEAs could, for instance,

---

66 See also Landell-Mills and Porra (2002).

67 Along this line, the CBD has published "Biological Diversity and Tourism: Development of Guidelines for Sustainable Tourism in Vulnerable Ecosystems".

68 UNEP, UNDP, GEF, BPSP (2001).

69 A recent initiative that should be considered in this effort is being conducted by the UK Department for International Development (DFID), 2002 which is analysing the interrelations between wildlife, poverty and tourism.

assist WTO Members in identifying what is included in the definition environmental goods and services. The MEAs have significant experience with environmental goods and services, and could help WTO Members to support the implementation of the agreements, especially given that the same governments are often parties to both.

4.1.4 Raising financial resources

Economic instruments can be an important vehicle for raising financial resources to fund conservation efforts and support the goals of the MEAs. While the role of economic instruments as incentives to change behaviour is often emphasized, their role in raising financial resources is often at least as important.[70]

The importance of financing for conservation efforts, at both the national level and the level of the MEAs, cannot be overemphasized. The various MEA Strategic Plans emphasize the need to raise financial resources, and note the use of a range of mechanisms, including taxes, self-financing of sustainable activities, and/or the creation of funds.

- In the CBD, Article 20 provides directions regarding financial resources.[71] The CBD website contains a special section on financial resource issues, detailing COP decisions, resources, databases, and useful guides for those seeking resources.
- CITES, in its Strategic Vision Through 2005, includes the objective of ensuring "the proper funding of CITES implementation and enforcement by Parties, and the adoption of national mechanisms that have resource users make a greater contribution to such funding" (Objective 1.9). And with regard to financial resources for the Convention itself, it states: "Successful implementation and enforcement of the Convention requires an appropriate level of funding as well as efficient fiscal management and a strong and professional Convention Secretariat" (Goal 7).
- Ramsar, in its Strategic Plan 2003-2008 includes the Operational Objectives of financing the conservation and wise use of wetlands, and financing of the convention (Operational Objectives 15 and 16). Different concrete alternatives are also set out under these objectives.

Many of the economic instruments presented in sections 4.1.2 and 4.1.3 (taxes, charges, conservation easements and eco-labelling schemes) can provide financial resources, as described in the previous boxed examples. Environmental funds, however, have a special role to play, especially regarding in-situ conservation. Section 2 described a range of environmental funds. Such funds have been used in over 30 countries. Often they are fed by private enterprises that obtain tax benefits and/or subsidies. Providing the appropriate incentive structure often requires a change in the legal framework. Once established, funds can be used for a wide variety of conservation-related purposes such as financing research, data collection, monitoring, short term or long-term training, environmental education, integrated conservation and sustainable practices.

Funds often do more than simply provide finance. Fund-raising can develop into complex institutions that become influential players in managing biodiversity protection, representing biodiversity interests in national policies, and/or stimulating the use of other incentive measures. Lambert (2000b) notes:

---

[70] See for instance the Conservation Finance Alliance (2002).

[71] Additionally, Article 21 and Article 39 of the Convention contain the provisions on financial mechanisms for the provision of financial resources to developing country Parties on a grant or concessional basis.

> "Environmental funds have proved to be much more than mere financial mechanisms. They are ever more becoming environmental management institutions, sometimes complex institutions." (p.8)

In another publication, the same author states that:

> "According to the GEF report (GEF, 1999a), the Funds that have done best are those that have done much more than just financial management but also played a role in building institutional capacity and private-public partnership, developing agile and non-bureaucratic management approaches, nurturing community groups becoming involved in environmental management, and contributing to the articulation of environmental priorities and strategies."[72]

Funds used at the level of the conventions

While experience with the use of environmental funds at the national level is relatively abundant, discussion of their use to systematically implement the Conventions has been more limited. An example of a Fund established at the level of a Convention is Ramsar's Small Grant Fund created in 1990 to help developing countries to protect their wetlands. Certainly the sustainability of this fund depends very much on the contributions made by Ramsar member countries.

Box 21: The Ramsar Small Grant Fund

The Wetland Conservation Fund (SGF) was created in 1990 in order to provide assistance for wetland conservation and wise use initiatives in developing countries and (since 1996) countries with economies in transition. Its allocations are not intended to support major projects traditionally covered by larger funding agencies.

The SGF offers a maximum of 40,000 Swiss Francs per project and is intended to play a catalytic role. The SGF Operational Guidelines put emphasis on the implementation of the Ramsar Strategic Plan, and thus the objective(s) of project proposals should relate to the general and operational objectives of the Strategic Plan.

In the 2001 cycle of project proposals, a total of 49 completed proposals were evaluated by Ramsar Bureau staff. Within the funds available, a total of nine project proposals were approved for funding in this year's cycle, for a total of 334,890 Swiss francs.

Voluntary contributions directly to the Small Grants Fund in the 2001 cycle were made by Austria, Germany, Japan, the UK, and the USA, and by WWF Living Waters Programme in addition to its two adopted projects.

The SGF has an important niche as a funding programme which can allow countries to address relatively small-scale projects or use SGF funds to make the necessary preparations for seeking funding from other sources for larger scale activities.

All developing countries and countries with economies in transition have access to the Fund. Countries which are not signatories to the Convention are also able to apply for so-called 'preparatory assistance'.

Source: extracted from www.ramsar.org

[72] Lambert (2002b).

National funds

Many developing countries have succeeded in setting up national funds, mostly related to debt-for-nature swaps or financing by the Global Environment Facility (GEF), to help the implementation of biodiversity-related MEAs. These have often become key in the protection of biodiversity in the respective country.

In the case of the Mgahinga and Bwindi Trust Fund in Uganda, substantial resources were supplied by the GEF, USAID and DGIS. In this example, the importance of local community involvement and of securing the economic benefits of conservation is clear.

Box 22: The Mgahinga and Bwindi Impenetrable Forest Conservation Trust, Uganda

The Mgahinga and Bwindi Impenetrable Forest Conservation Trust (MBIFCT) was established in 1995, as a result of a long process of discussion regarding the preservation of Gorilla populations.

The Bwindi forest is the most important biodiversity hotspot in Uganda and contains half of the world's mountain gorilla (*Gorilla gorilla beringei*). To protect this area, the Government of Uganda established a national park in 1991, largely without consulting local populations or attending to local needs. As a result, resentment arose among local communities, arsonists set forest fires, and threats were made against the gorillas. The forest is surrounded by densely populated agricultural land. Violence is endemic in the area. Most nearby communal swampland was converted to farmland by a few rich farmers, depriving poor people of access to once-communal land used for grazing and collection of natural commodities. Swamp clearance lead to climatic changes.

Local authorities finally agreed to discuss the problem with villagers and communities, supported by an NGO, CARE International. A consultation process started, which led to the creation of the Trust Fund. The objective of the Fund is to protect prime mountain gorilla habitats by funding park protection, research and community conservation activities in a priority conservation area. The estimated capital needs for an endowment were US$10 million. An initial GEF-funded endowment of US$4.3 million in 1994 was granted. A USAID US$900,000 grant in 1994 and a further DGIS US$ 2.7 million in 1997 completed the funding. It is estimated that by the end of 2002, the Trust will have amassed an endowment of about US$8 million, close to its original target of US$10 million.

The Trust Fund created a grant programme with the long-term aim of protecting two national parks: the Bwindi and the Mgahinga. The Trust Fund apportioned grant resources according to the following priorities: 20 per cent for research; 20 per cent for local park authorities to defray management and recurrent park costs; and 60 per cent for community projects promoting conservation and sustainable development activities

The Trust Deed allocates the majority of funds for community development activities, but it also strongly involved the community in its management by establishing community representation within both the governance structure and the organization's program management regime. Three of the nine members of the Board of Directors are community members from the area of operation of the Trust, elected by their peers. They participate in all governance issues related to the management of the Trust. A strong relationship of trust and confidence was established between the environmental managers and the communities. Recent research reveals growing local support for the Parks and the gorillas (Hamilton, 2000).

The Trust Fund helped to implement the Biodiversity Convention, the Ramsar Convention, the Climate Change Convention and maybe several others. It also helped foster democracy and peace in a region characterized by intense conflicts. Finally, it fosters poverty alleviation. Through the provision of sustainable funding, and careful management, the scheme is now helping to address both the needs of local communities and biodiversity conservation.

Source: extracted from Lambert (2002).

In some cases a combination of a variety of mechanisms such as the GEF or debt-for-nature swaps has been used. One of the best developing country examples of the use of financing mechanisms is PROFONANPE, the protected areas endowment fund in Peru. PROFONANPE was created through a five-year institutional operation carried out together with other organizations with competence for biodiversity and parks management.[73]

Box 23: Bilateral debt swaps in Peru

Peru is considered to be one of the eight most biologically "mega-diverse" countries in the world. With a total debt of about US$24 billion, Peru is also one of the most indebted countries in the world. Between 1993 and 1995, Peru was able to reduce over US$230 million face value in external debt owed to bilateral creditors (Canada, Germany, Finland and Switzerland). In these bilateral debt swaps, Peru was required to pay the equivalent of 20-25 per cent of the face value of the debt, thereby generating US$50 million in local currency resources for the environment and social development.

To date, most of the debt swap proceeds have gone to FONCODES, the social and poverty fund, and to PROFONANPE, the protected areas fund. PROFONANPE was created in 1992 with the assistance of the World Bank/GEF, the Peruvian Government and local and international NGOs. Its goal is to build an US$80 million endowment fund for Peru's protected areas system. Negotiations are currently underway to create a new umbrella fund for the environment which could absorb PROFONANPE as a sub-account and expand the range of environmental activities which could be financed through debt swaps and other funding sources.

PROFONANPE carried out the first Peruvian operation of debt for nature swaps with the Government of Canada, amounting to a total of US$ 354.920, under the modality of an intangible endowment. In April 2002, the US and the Peruvian Governments signed a US$6.6 million debt for nature swap with Nature Conservancy and the World Wildlife Fund to enable preservation of more than 27.5 million acres of rain forest that provide a habitat for rare species like scarlet macaws, jaguars, and pink river dolphins. Funding for conservation and sustainable development projects will go to Peruvian conservation organizations with successful track records for managing donated funds wisely. With funds gained from the swap, these groups will set aside parks and reserves, design better ecosystem management practices, train conservationists, develop sustainable use programmes, research medicinal properties of tropical forest plant life, and create conservation jobs for locals.

Source: UNDP (1998) and www.profonanpe.org.pe

Funds with specific objectives, based on voluntary contributions

As well as funds that are designed to protect a particular area such as the Uganda forest fund mentioned above, funds are often established to achieve a specific objective such as conservation of a particular species such as the Kiwi in New Zealand, or the Peregrine Falcon in the United States. Because of their more specific nature, as well as their focus on well-known or high-profile species, these funds are often financed through voluntary contributions.

[73] See PROFONANPE website www.profonanpe.org.pe

Box 24: Kiwi Recovery Programme

The Kiwi Recovery Programme is part of the Threatened Species Trust Programme of New Zealand. This Trust was created in 1990 to "attract financial sponsorship to support recovery programmes, habitat management and research directed towards New Zealand's threatened native plants and animals".[74] The Programme was launched in 1990. Its sponsor is the Bank of New Zealand (BNZ). The main programme activities are:

- research
- managing key populations to ensure genetic diversity.
- nation wide surveys and monitoring
- educational programmes

The sponsorship of the BNZ began in 1991. The BNZ and its customers have donated about US$4 million since the programme began, and the government has matched the BNZ's investment.

One of the activities promoted by the Bank is the Pictorial Cheque Books. This is an initiative that aims to finance the Kiwi programme by charging a small fee to bank customers each time they use a kiwi check. These cheques are illustrated with watercolours of six varieties of Kiwi. The illustrations were made in 1992 by an artist. Once the cheque book is ordered, US$2.6 are donated automatically to the Kiwi Recovery Programme. A second alternative for bank costumers to help is by investing in Kiwi Nest Egg Term Investment. This investment has a competitive interest rate, with a minimum investment of US$6,500 and a maximum of US$162,500

Source: http://kiwirecovery.org.nz/_

Box 25: The Peregrine Fund

Founded in 1970, The Peregrine Fund works in the USA and internationally, to conserve birds of prey in nature. The Peregrine Fund developed from the shared concern of students and associates that the Peregrine Falcon was close to extinction in the wild. Its work consists basically in conserving nature by restoring species in jeopardy (the peregrine falcon and others), conserving habitat, educating students, training conservationists, providing factual information to the public, and by accomplishing good science. In 1984, the Fund moved to Boise, Idaho- where the World Center for Birds of Prey was created.

The Peregrine Fund accomplished several of its goals, propagating and releasing Peregrine Falcons, releasing Bald Eagles, and saving the Mauritius Kestrel from extinction. In 2001, The Peregrine Fund had incomes of US$ 5.305.649, distributing 44 per cent of this on conservation programs, 39,13 per cent on species restoration, 7,5 per cent on education activities and 9 per cent on administration and fund raising activities.[75] The Peregrine Falcon is a CITES Appendix 1 listed species.

Source: http://peregrinefund.org/intro.html

Financial market funds

Funds may also source their capital from financial markets. Biodiversity venture capital funds and Mutual Green Funds rely on markets created for biodiversity protection, such as organic farming products or sustainably managed, certified forests. Biodiversity venture capital funds are still relatively scarce. In recent years, however, there have been some

[74] From the Department of Conservation website: http://www.doc.govt.nz/Conservation/001~Plants-and-Animals/Threatened-Species-Trust-Programme.asp (as on September 2003).

[75] The Peregrine Fund Annual Report 2001 p. 34. http://www.peregrinefund.org/Ann_rep_newsletter.html

interesting examples that have succeeded in raising substantial financial resources for biodiversity conservation. The following box describes the case of an early example of such a capital fund, created in Brazil.

Box 26: Terra Capital venture capital fund, Latin America

One of the very first biodiversity venture capital funds is Terra Capital. The business of Terra Capital is to invest for profit in Latin American enterprises that help preserve the Ecosystems and Biological Resources in particular. The Fund addresses the following sectors:

- Low impact and organic agriculture
- Sustainable aquaculture and fish management
- Native species reforestation and certified sustainable harvesting of old growth forests
- Managed harvesting of non-timber-forest-products (NTFPs)
- Nature tourism
- Other low impact activities, which promote the use and adoption of sustainable practices that contribute to mitigate the environmental footprint and/or increase biodiversity.

Launched in October 1998 with an initial capital of US$15 Million, Terra Capital is managed by a group of environmental and financial specialists, which include A2R, EEAF, SDI and IFC. The Fund also benefits from a US$5 million grant from the Global Environmental Facility (GEF) to help reduce the incremental operating costs related to the biodiversity screening and monitoring mechanisms adopted by the Fund.

A Biodiversity Advisory Board, composed of recognized world experts in each field of biodiversity addressed by the Fund, reviews each investment proposal prior to approval. Investments must contribute in a measurable way to improving biodiversity in their area of impact. Most of the Fund's invested companies are certified by internationally accredited organizations. [76]

Source: Terra Capital www.a2r.com.br

Mutual Green Funds, on the other hand, are more general instruments for establishing incentives for environmental protection. They allow investors to ensure their funds are invested in companies that generate above-average environmental, social and economic performance. Their performance of companies is generally measured against certain sustainability criteria to ensure they meet appropriate standards of conduct.

Areas for further consideration

While some solid work has been carried out in the area of financing biodiversity conservation, more needs to be done to finance efforts to restrain the rapid decline in biodiversity. The following issues could be considered:

- Instruments that can be used for financing biodiversity include taxes and charges, market creation, and different types of environmental funds. This section focused principally on environmental funds. National environmental funds have, in some cases, proved to be effective tools in promoting biodiversity protection. However these funds have in general been dependent upon payments from the GEF or other one-off payments. Other sources of funding should be investigated, as well as the mechanisms to encourage greater private funding of biodiversity conservation efforts.

[76] Terra Capital has failed to fully invest its capital but is currently under revision.

- In a few cases, funds have been set up in combination with other economic instruments such as taxes or charges, to assure a sustainable financial flow over time. While environmental funds are often set up with laudable long-term goals, the long-term financial sustainability of these funds is often not assured. A role for MEAs would be to foster an open exchange of experiences about environmental funds, including those that have not endured, in order to extract lessons for future activities.

- The work of the Conservation Finance Alliance (including the Guide on Financing Biodiversity Protection) is important and could be supported and complemented by the MEAs through integration into capacity building initiatives, active participation and dissemination on the respective websites.[77]

- Experience with financial market funds could be integrated into the work of the Conservation Finance Alliance. While it is too early to evaluate the financial market funds, MEAs may for now monitor their performance and disseminate information about those funds that received positive evaluations.

- There are many examples of innovative funds created for the protection of species, some of which are species listed in CITES. For CITES this might be an interesting topic for further analysis. Another interesting aspect of funds such as the Peregrine Fund or the Kiwi Recovery Fund is the fact that there is potential for public-private cooperation.

- The Ramsar Small Grants Fund could also be further analysed for its relevance and replicability in the context of other MEAs, or even in terms of considerations for a specific fund at the level of the particular conventions, dedicated to the introduction of economic instruments at the national level.

4.1.5 Addressing perverse economic incentives

The elimination of perverse economic incentives, while not an "active positive" economic instrument, is a necessary action for conserving biodiversity and achieving the goals of the CBD, CITES and Ramsar. It is often also a precondition for the effective implementation of economic instruments described in this paper.[78] Literature on perverse economic incentives is substantial, the purpose of this section is to give a flavour of the main issues in the context of a broader discussion of economic instruments.

Each of the MEAs has stressed the importance of removing or mitigating perverse incentives. The CBD has placed a clear priority on removing and mitigating perverse incentives, and has an extensive work programme to address the issue. Decision VI/15, paragraph 7, instructs the Secretariat to elaborate proposals for the application of ways and means to remove perverse incentives. These proposals have already been developed through the organization of an

---

[77] Alain Lambert, in charge of economics and environment at Ramsar, is also the Chair of the Conservation Finance Alliance.

[78] Perverse subsidies are a specific form of perverse incentives, which, in Document UNEP/CBD/SBSTTA/7/11, have been described as policy interventions that induce unsustainable behaviour that reduces biodiversity - including government subsidies or other measures, which fail to take into account the existence of environmental externalities, as well as laws or customary practice governing resource use. The document states that "the abandonment of perverse incentives can have a positive impact on the conservation and sustainable use of biodiversity."

international workshop consisting of government-nominated experts and representatives of a number of relevant international organizations.[79] CITES' background document 18 to COP-12 emphasizes that Parties should be encouraged to eliminate or reduce perverse incentives. And one of Ramsar´s main challenges is the elimination of subsidies or perverse incentives that promote the conversion of wetlands into agricultural land. Discussions in each of the conventions have focused on perverse subsidies as a principle source of perverse incentives, complementing the focus on subsidies in international discussions, as well as in the academic literature.

Potential for synergies between the MEAs on this topic are thus significant, a fact recognized by leading authors such as Bagri et al. (1999) who have emphasized that "by addressing all the biodiversity-related conventions in a programme of work on biodiversity-perverse subsidies, opportunities for synergies in policy reform are likely to arise".

According to a UNEP/IISD handbook on trade and environment, perverse subsidies amount to between US$500 billion and US$1.5 trillion per year.[80] The main consequence to biodiversity is the promotion of non-sustainable use and increasing the negative impacts of human activities on the environment.

Sectors with a strong occurrence of perverse incentives include agriculture, fisheries and forestry.[81] Perverse subsidies in these sectors include direct payments, immunity from taxes, free use of infrastructure, and preferential interest rates. Perverse subsidies in agriculture and fisheries have been discussed at the WTO, and more recently at the WSSD.[82] In its recently agreed 2003-2008 Strategic Plan, Ramsar refers to the WSSD commitments concerning fisheries.

The following examples illustrate the extent of perverse subsidies in the fisheries sector and the controversies surrounding them.

---

[79] These proposals will be considered by SBSTTA-9 in November 2003, see document UNEP/CBD/SBSTTA/9/9/Add.3 on CBD website.

[80] UNEP/ IISD (2000) p. 49.

[81] The background documentation for the CBD workshop on incentives includes a document summarizing the discussions on perverse incentives in these sectors, see document UNEP/CBD/WS-incentives/2/INF/1 on CBD website.

[82] Paragraph 31 f) of the WSSD Action Plan.

Box 27: Subsidies in the fishing industry

Fish is the primary source of protein for some 950 million people worldwide and represents an important part of the diet of many more. Fisheries are also a source of employment for about 200 million people directly depending on ocean fishing for their livelihoods. About 40 per cent of the world fishery production enters international trade, with nearly half of fishery exports from developing countries, and in some of the latter represent up to 80 per cent of the total exports (Dommen and Deere, 1999).

In recent years, after four decades of steadily expanding catches, there have been significant declines in fish stocks, especially of preferred species for human consumption such as cod, haddock and plaice. While for the two decades following 1950, fisheries production increased by about 6 per cent per year, trebling from 18 to 56 million tonnes, the average rate of increase declined to 2 per cent between 1970 and 1980, and has fallen to almost to zero in the 1990s (WT/CTE/W/167).

It is now believed that all 27 major marine fisheries are considered to be over-exploited, and at least 20 of them are in serious decline or commercially extinct. In proportionate terms, 70 per cent of fish stocks are "almost depleted" or "outright depleted", while the present catch is estimated to be 20 per cent above what would be sustainable.

Annual catch in the 1990s was worth approximately US$56 billion in the marketplace. Yet the fishing effort to land the catch – boats with their crews, equipment, etc. – cost US$110 billion. The difference between that figure and the marketplace price of the catch, viz. US$54 billion, was almost entirely made up of government subsidies including price controls, fuel-tax exemptions, low interest loans, and outright grants for gear and other infrastructure. These subsidies arise from the efforts of governments to preserve their fishermen's jobs.

Despite this scenario, many governments have been inclined to engage in ever-heavier subsidies. State support helps to pay for more and larger boats, longer nets and more sophisticated equipment, even extending to radar and remote-sensing devices. This has rapidly depleted the amount of fish available, causing a plunge in profitability, and reducing the value of ships on the market. Unable to sell their chief assets without major financial loss, owners of the vessels are forced to keep on fishing to repay loans.

The impact has also resulted in major economic and social damage. In particular, declining catches have cost more than 100,000 jobs in the last few years among the world's 15 to 21 million fishers, and the cost of fish in some local marketplaces has risen dramatically, placing fish out of reach for many low-income consumers.

Source: extracted from UNEP (2002b), Myers and Kent (1998).
http://www.biodiversityeconomics.org/pdf/960401-18.pdf

Subsidies, as mechanisms of state intervention, may have positive or negative effects. Depending on the circumstances, they may correct existing market failures and protect the environment, or they may constitute policy failures that damage the environment and distort markets. Subsidies can help a specific sector improve its market conditions and ensure its livelihood. But problems arise when genuine political priorities are forgotten and subsidies persist as a form of rent-seeking behaviour. Additionally, the ongoing payment of subsidies can lead to recipients becoming inappropriately dependent on financial support. In most cases, subsidies are not calculated in light of the environmental impacts they create. The intricate interrelations and the trade-offs involved in the use of subsidies vary, and depend on the specific context of each case. The following box provides one such example.

Box 28: Tax incentives in Colombia

Tax incentives for the African palm tree in Colombia

Thanks to the development of the cultivation of the African palm tree, Colombia is the fifth largest oil producer in the world, and first in Latin America. The palm tree has adapted very well to the climatic and agricultural conditions in the country, and due to its success, the palm tree is considered a priority crop in initiatives directed at poverty alleviation, as well as illegal production of coca. While companies involved in production have taken into account general environmental concerns in the production process, they have not shown a similar concern for biodiversity protection, replacing tropical forests with monoculture of palm tree production.

Amongst the incentives provided to the cultivation of the African palm trees are fiscal incentives, technical assistance, and access to preferential credit, the latter of which has been considered key amongst these. The elasticity of cultivation of the African palm tree to the price of the credit was calculated at 3, showing the importance of this instrument in the expansion of plantation. The long term impacts on biodiversity remain to be seen.

Source: Grupo Técnico sobre Medidas de Incentivos Económicos para la Conservación de la Diversidad Biológica, Resolución Presidencial No. 040-2001-CD/CONAM, Peru.

Authors such as Bagri, Blockhus and Vorhies (1999) and Lambert (2000a) have provided overviews of biodiversity perverse subsides and their effects. Industrialized countries figure most prominently in these overviews. The following box describes how the United States has eliminated perverse tax incentives to wetland conservation.

Box 29: The elimination of tax incentives to wetland conversion in the United States

For many years, the United States Wetland Policy promoted the conversion of wetland to agricultural use. Today, this policy aims to promote wetland conservation. Previous public incentives for wetland conversion have included direct and indirect subsidies. Other forms of assistance that have indirectly encouraged wetland conversion have been market price support for crops, and tax incentives provided to wetland conversion investments. Whereas some of these incentives, such as the grants to reclaim wetlands provided to the different States, date back as far as the mid 1900s, others such as the financial assistance for wetland drainage or the tax incentives existed until the late 1970s or mid-1980s. A third group, such as the market price support to agricultural goods, are measures that are still current practice.

Source: extracted form OECD (1999).

Perverse economic incentives can originate not only at the national level, but can be of third country origin. The introduction or substantial increases in soya bean production in various Latin American countries during the 1980s and 1990s is one such example. Borregaard (1992) has documented how the Common Agricultural Policy of the EU has contributed to the expansion of soya bean production in Argentina and Brazil through subsidized animal production and price support provided to traditional animal food such as wheat. This makes soya meal a highly demanded and cheaper alternative for animal food in EU countries, resulting in various negative effects on biodiversity in Latin America. In other cases, a combination of both international incentives and national subsidies is present, as demonstrated in the following example of over-use of grazing lands in Botswana. In this case the Common Agricultural Policy led to an increase in livestock prices, a situation that was reinforced by a combination of bonuses paid for livestock during periods of drought, as well as by fiscal incentives on capital expenditures.

Box 30: Over-use of grazing lands in Botswana

A combination of incentives has made the overstocking of grazing land in Botswana a response that is privately rational, and socially expensive. Livestock prices are most strongly influenced by the artificially elevated prices offered by the EC, the major external market for beef. Increasing in real income terms over the past decade, they provide a strong incentive to expand livestock holdings (particularly as they rest on political agreements - the Lomé Convention and the Common Agricultural Policy of the EC - rather than international market conditions). When drought hit the country in the 1980s, the Botswana Meat Commission (BMC), which fixes prices for beef, paid high prices to provide short-term gains for livestock sellers, but instead of stimulating sales and reducing stocking rates this "bonus" perversely provided a direct incentive to increase stocking rates. BMC has also set the lowest prices at the onset of the dry season, thereby providing a disincentive to farmers to sell off excess stock during periods when the range is under highest ecological stress.

In addition, deductibility of capital expenditures stimulates investment in the livestock sector; livestock owners are provided with essential services that are provided at low cost, including veterinary services, veterinary cordon fences, development of bore holes to provide water to cattle, and improvements to trek routes; and land rents are very low on tribal lands, making them attractive to cattle grazing. These factors have stimulated the increase in the national cattle herd to levels that exceed the carrying capacity of the range. As a result:

- rangeland degradation is severe in a number of areas due to the combined effects of soil erosion, depletion of soil nutrients, and increasing soil aridity;
- the biomass and diversity of fauna and flora have been reduced in many parts of the country;
- in the wetter eastern areas useable rangeland is steadily declining, while the drier areas suffer from widespread de-vegetation, leading to reduction in organic and moisture content and to increased erosion, and ultimately to desertification;
- the availability and quality of water has been affected through increased run-off and sedimentation, leading to lower rates of recharge of groundwater, water losses in irrigation, reduction in surface water for wildlife, silting of dams, output losses in dam and river fisheries, and polluted drinking water .

Arntzen (1998) has examined this case a decade after the first study on these perverse incentives had been carried out and found that even at the end of the 1990s tax concessions still reduce production costs, favouring the livestock sector at the expense of a more sustainable utilisation of arid lands.

Source: McNeely, J.A. (1988) and Arntzen (1998).

Areas for further consideration

The range of perverse incentives can be extensive. The emphasis here, reflecting the focus of the conventions, has been principally on perverse subsidies. Each of the three conventions has addressed perverse subsidies in their decisions. Ramsar and CBD are well advanced on this topic, and CITES is beginning to discuss it in more detail. These discussions (and associated work programmes) are welcome, given the persistence of perverse incentives, and their potentially significant economic, social and environmental effects. As Parties in the MEAs explore this topic further through cooperation initiatives, the following issues may be of relevance:

- The conventions could jointly encourage further sharing of national experience with perverse subsidies, with a view to undertaking a more systematic analysis, including the collection of additional case studies from developing countries, as well as cases that analyse the indirect effects of subsidy programmes in industrialized countries or developing countries.
- The CBD and Ramsar have taken, to some extent, an ecosystem perspective on economic incentives. The question thus arises whether it would make sense to undertake additional case studies assessing the effects of perverse economic incentives (and other

related measures) within a specific eco-region.

- A more systematic approach involving two or more of the MEAs could also complement the work of other international organizations, such as the WTO's and the OECD's sectorally focused approaches, and could shed new light upon the way perverse incentives affect biodiversity.[83]
- The effects of reform of industrialized country subsidies away from conventional price support in the agriculture, fisheries and forestry sectors and towards the promotion of more environmentally and socially sound production, needs to be further examined, focusing both on the effects in industrialized countries and on developing countries. In particular, the effect of subsidy reform on developing countries is often difficult to evaluate, and discussion within the biodiversity-related MEAs could provide useful insights.
- Perverse subsidies have proven persistent. It is clear that the elimination of perverse subsidies will require long-term cooperative efforts between MEAs, other institutions such as the WTO, and third party actors. NGOs such as WWF and Greenpeace have significant experience, and would be valuable partners.[84]
- At the national level, attempts to change may be more fruitful if directed at reform rather than elimination. The dissemination of case studies that demonstrate effective reform processes could support such national efforts.[85] Inter-sectoral and interdisciplinary work is also required, involving experts in poverty reduction, political economy, economic instruments, and environment, as well as in the different productive sectors.[86]
- The ongoing development of concrete working programmes on perverse subsidies could be complemented with a more general overview of the existing perverse incentives, their relevance to areas of overlapping competence between the MEAs, as well as a review of the priority that perverse subsidies should be given within the range of economic and other incentives.

---

[83] In 2002, the OECD launched a new initiative that addresses environmentally harmful subsidies across different sectors. So far, the MEA Secretariats have not been involved in this initiative.

[84] See for example the recent publication by WWF (2002) on fisheries subsidies.

[85] Document UNEP/CBD/SBSTTA/7/11 has provided a first list of possible reforms, including the reduction and restructuring of agricultural support harmful to biodiversity, the reform of public forestry concession pricing, the reform of tax structures, road pricing, the costing of biodiversity loss in energy investment appraisals, amongst others. Ongoing work under the CBD on perverse incentives also address ways and means to mitigate the perverse effects of specific policy measures as an additional option to their removal. See document UNEP/CBD/SBSTTA/9/9/Add.3.

[86] The OECD, together with several donor agencies and IGOs (including UNEP), launched such a cross-sectoral interdisciplinary activity in 2003, focused on environmental fiscal reform.

4.2 Supporting the effective use of economic instruments for biodiversity protection

The foregoing section has explored a range of thematic areas where economic instruments may be used to implement biodiversity-related MEAs. The examples have illustrated national experiences with the use of these instruments. The following section identifies key conditions that contribute to the effectiveness of these instruments, and asks how they can be designed and implemented in a way that addresses the specific challenges in a particular context. The effective implementation of economic instruments requires guidance with regard to these key variables.

UNEP (forhtcoming) has analysed the challenges and opportunities for the introduction of economic instruments, referring to issues that arise during the selection of the most appropriate instrument, policy design and policy implementation. The discussion here is designed to complement the analysis of UNEP and others, and to identify the variables that are particularly relevant to the successful introduction of economic instruments in the context of biodiversity conservation. This discussion should also be read in light of the work already undertaken in the conventions, including the CBD's work reflected in Decision VI/15 on the design and implementation of incentive measures.

The three MEAs have, to different extents, offered guidance on key aspects for the introduction and implementation of economic instruments, i.e. valuation, involvement of local stakeholders, the need for more comprehensive approaches, and the limitations and conditions imposed by institutional and administrative capacities. Below are some additional comments and observations on these areas and on the potential synergies between the MEAs to support the introduction of economic instruments for biodiversity protection.

4.2.1 Valuation and economic instruments

Establishing markets requires some idea of the value of goods and services. Assessing the value of these resources, in turn, involves at least three distinct dimensions: raising awareness about the existence and importance of the resource; gathering information on the nature and extent of the resource, its possible uses and users; and undertaking an economic valuation, including both the private and social costs and benefits of biodiversity protection.[87]

The CBD, CITES and Ramsar have highlighted the importance of awareness raising and information generation in their working documents and COP Decisions. They have also referred to the special importance of economic valuation for biodiversity protection in general, as well as for the adequate implementation of economic instruments in particular. The CBD pointed out in Annex II to its Decision VI/15 on incentive measures that:

> "The Conference of the Parties has recognized the importance of valuation as a tool for designing appropriate incentives … The methodologies for undertaking valuations should be developed further, as they play a strategic role in the development of incentives for biodiversity conservation and sustainable use. Further cooperative work might include:
>
> - continued exploration of methodologies for valuation of biodiversity and biodiversity resources

[87] For a description of the different techniques for economic valuation see for example OECD (2002b).

- developing and refining non-market methods of valuation
- disseminating information on existing techniques for valuation."

More specifically, Recommendation III/1 to COP-4 of the CBD called for the development of methods and techniques for the valuation of goods and services of inland water ecosystems.

CITES has referred to economic valuation in Decision 12.22 on economic incentives, in which it decides to undertake a workshop, carry out a voluntary review of national policy, and produce a report analysing the economic impacts of wildlife trade policies in terms of socio-economic and conservation benefits and costs, economic value, levels of legal and illegal trade, improvement of the livelihood of local communities, and the role of the private sector involved in wildlife trade.

Ramsar, in Resolution VII.15 on incentive measures (complementing CBD Decision IV/10), recognizes that economic valuation is an important tool for well-targeted and calibrated economic incentive measures. In Resolution VIII.23 on incentive measures as tools for achieving the wise use of wetlands, it points out that financing mechanisms, trade, impact assessments and economic valuation are intricately linked with the use and success of incentive measures in achieving the conservation and wise use of wetlands. And in its Strategic Plan 2003-2008 it includes the promotion of the continuing development, the wide dissemination and the application of methodologies to undertake valuations of the economic, social and environmental benefits and functions of wetlands.

Each of the conventions has thus emphasized the importance of biodiversity resource valuation. This reflects the fact that public awareness of the value of biodiversity provides the basis of policy making, and thus the elaboration of adequate policy instruments.

Analysis of the usefulness of economically valuing environmental assets abounds, and has made a significant contribution to environmental management.[88] Some authors have also addressed the specific context of wetland valuation, and the applicability of different valuation techniques for economic valuation of wetlands.[89] The complete process of valuation is complex, involving interdependence between the three aspects of awareness raising, information generation, and financial and/or economic valuation. "The fact that biodiversity issues often receive low priority in policy decisions is at least in part due to problems involved in assessing its contribution to society – these values defy easy description and quantification" (OECD 2002).

While generation of basic information is essential for economic valuation, there are considerable difficulties in achieving this. Knowledge of which species will be useful in the future use is lacking, so it is difficult to value biodiversity in terms of its gene-pool function. And lack of knowledge is not only limited regarding biological facts; the economic and social situation of local communities is often unknown or information about it is extremely limited. Information is essential also to help mobilize public opinion, and provide the basis for an informed discussion with stakeholders when trying to introduce different policy tools.

Valuation exercises can also provide important information on stakeholders, i.e. on who gains or loses from a certain pattern of land use, from changes in that use, and on their potential responses to different policy instruments. By gaining insights on the beneficiaries of biodiversity services, and on how they benefit, much can be learned about how to improve stakeholder involvement. It can, for example, help to identify ways to avoid cross-subsidization,

---

[88] For a more detailed description and analysis of economic valuation and its methods and applications see for example Emerton (1999), OECD (2002b), Mekong Protected Areas Review (2002), or IUCN (1998).

[89] See for example Lambert (2003).

or share the burden of financing biodiversity protection. In general, stakeholders' interests and motivations regarding the ecosystem should be identified to help in the selection and design of economic instruments. Knowing who bears the costs and benefits of a proposed policy change, and their respective motivations, permits the design of the most appropriate instrument.

While economic valuation of biodiversity is important, it should not necessarily be regarded as an essential prerequisite for the introduction of all economic instruments. Indeed, a full valuation may not be possible, or may in some cases stifle the timely development of appropriate policy interventions. In some cases, full valuation could set unnecessarily high hurdles to the implementation of economic instruments. In the case of conservation easements, for example, financial valuation of private costs and benefits provides a sufficient condition for the implementation of the instrument. Financial valuations of private costs and benefits can also play a role in helping to guide the management and evaluation of economic instruments through time, by, for example, answering questions such as whether user/entrance fees to protected areas are sufficient to cover the full cost of providing particular biodiversity services.

Valuation in the context of biodiversity prospecting illustrates some of the challenges involved in the question of economic valuation and the different methods of valuation.

Box 31: Valuation in the context of biodiversity prospecting

The promotion by the state of markets for biodiversity services (e.g. the provision of basic materials for pharmaceutical, botanical, cosmetic, or biotechnology use) requires an estimation of the respective market size, the economic value of its transactions, and knowledge of market participants. Such economic valuation is an essential part of adequate benefit-sharing schemes for genetic resources. Comprehensive literature on this topic remains scarce, with most existing studies based on anecdotal information.[90] Of the comprehensive studies that do exist, some authors (e.g. Newman and Laird, 1999) indicate that the value of pharmaceutical products derived from biodiversity can be substantial, while others, (e.g. Aylward, 1993), indicate that the value lost in terms of species and habitats far exceeds any economic gain. In his words, attributing a financial value to such resources "cannot be expected to generate a market solution to the biodiversity crisis". With such conflicting information, it is difficult for policy makers to take decisions. More work is therefore required to ensure accurate (and apolitical) valuation of biodiversity services, as the basis of sound national policy-making.

Source: Author's elaboration.

How economic valuation helps in the design and development of economic instruments can be demonstrated by looking at specific cases. One such case is the example of cattle ranching and deforestation in the Brazilian Pantanal. In this case, the valuation of the Pantanal is based on alternatives for generating markets, most of them complementary.

[90] One of the most comprehensive studies is by Pagiola et al. (2002).

Box 32: Cattle ranching and deforestation in the Brazilian Pantanal

In a study on cattle ranching and deforestation in the Brazilian Pantanal, Seidl et al. (2001) applied economic valuation to generate the basis of information for orienting potential policy interventions.

The authors calculated the mean profits (direct use value) of Pantanal land in cattle pasture as US$205/ ha. If the potential direct benefits accruing to individual ranchers from alternative practices on forested lands exceed US$205, it could thus be expected that educational, production, and/or marketing outreach programming should provide sufficient impetus for guiding behaviour towards more environmentally benign practices. Should these private direct benefits be less than US$205, but the indirect benefits to the local community exceed US$205, then an incentive-based policy mix could be crafted between the locality and the landowner for the difference between net community and private benefits. Analogous policy frameworks could be envisaged for the relationships among different direct, indirect, and diffuse stakeholder groups.

On this basis, the authors examine different alternatives, including the market for medicinal and aromatic herbs, palm fruit products, handcraft products, local meat and meat products of wildlife species, and non-extractive uses of natural lands such as ecotourism, and carbon sequestration. The authors conclude that programmes to disincentivate deforestation in the Brazilian Pantanal region first have to rely on revealing and developing individual economic incentives, and should be bottom-up and locally driven in approach and voluntary in nature.

Source: Seidl et al. (2001).

Areas for further consideration

The potential for enhancing synergies between the conventions in the area of valuation is significant. Given the key function of valuation in biodiversity protection, cooperative work on analysis of methods for valuation of biodiversity should continue. Some thoughts for further discussion:

- Despite strong interest in the use of economic instruments, awareness of the value and functions of biodiversity is still low in many countries, especially developing countries. Exchange of experiences with economic and financial valuation is important to increase awareness, and may provide the basis for enhanced cooperation among the MEAs.
- Areas for synergy amongst the conventions are cooperation on the dissemination of information on techniques for valuation, as well as cooperation on the collection of case studies on valuation to raise awareness and establish a base for market creation.
- In the context of CITES, a more systematic approach to the economic valuation of species could help raise awareness and shed more light upon the question of wildlife as an international public good. In this sense it could contribute to finding solutions towards a more fair distribution of the costs of maintaining this good.

4.2.2 Including local communities

The MEAs each emphasize the links between local communities and ecosystems, and the importance of including these communities in conservation efforts. Local community involvement is a partnership from which all actors benefit, by building trust, exchanging knowledge and building capacity jointly.[91]

[91] See for example Operational Objective 6 in Ramsar´s Strategic Plan 2003-2008.

People and communities are mentioned in all three conventions. In its proposals for the design and implementation of incentive measures, the CBD stresses the role and the importance of involving stakeholders, including indigenous and local communities.[92] CITES states that trade promoted by the convention should take local community development into consideration.[93] Ramsar's Resolution VII.8 embodies guidelines for establishing and strengthening local participation in the management of wetlands, and Resolution VII.15 on incentive measures to encourage the application of the wise use principle recognizes the importance of local communities in its implementation.

Local community development and biodiversity protection are closely related. While links between the two are not automatically positive, involving the local community has proven an effective tool for making biodiversity protection more sustainable. Improved sustainability, in turn, can generate enhanced well-being in local communities. Recent studies indicate the significant dependence of poor people on wildlife for livelihood and food security, particularly for bush-meat and tourism revenues.[94]

Several of the economic instruments mentioned in Section 2 can facilitate community involvement, while community involvement helps their implementation. In fact, lack of community involvement can stifle their implementation. Meaningful participatory processes, by contrast, can increase buy-in and commitment and promote a sense of collective accountability and trust.

In many cases, economic instruments have been accompanied by both a notable improvement in local standards of living, and behavioural changes towards biodiversity. The creation of markets for biodiversity services or products, for example, can provide financial returns to local communities. The definition of property titles, especially in biodiversity-rich remote areas, can improve asset ownership and investment, and establish local communities as partners in biodiversity management.[95] In the context of bioprospecting, local knowledge is a valuable asset that should be rewarded, contributing to local community development and biodiversity protection.

Local community involvement serves additionally to prevent conflict and create support for establishing protection measures. Hubacek and Bauer (1999) observe in relation to a system of compensatory payments for a South Africa park that "an advantage that this form of nature conservation (nature conservation by contract) offers is that solutions are sought by mutual agreement with the farmers. Problems are resolved jointly and not from 'above'."

Communal property rights may be highly efficient in rewarding the conservation of practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity. This is well demonstrated in the example of the CAMPFIRE programme, in which the local community itself decides on how to use the wildlife or habitat resources for which it is granted user rights.

---

92 See Decision VI/15, Annex II.
93 See for example Decision 12.22, 12.30 or Strategic Vision, Goals 1 and 4.
94 See for example DFID (2003).
95 See for example Pagiola (2002) for the Costa Rican case.

Box 33: Communal property rights: CAMPFIRE, Zimbabwe

An example of a communal property management project is the Zimbabwean Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) started in 1989. This programme promotes rural community involvement by granting them user rights on wildlife resources. To participate in the programme, the community has to ask the Zimbabwe Wildlife Department to grant them the legal authority to manage its wildlife resources.

CAMPFIRE makes wildlife valuable to local communities. Each community decides the way in which they want to use the resources obtained. Most communities sell photographic or hunting concessions to tour operators – according to rules and hunting quotas established in consultation with the wildlife department. Others choose to hunt or crop animal populations themselves, and many are looking at other resources, such as forest products. The revenues from these efforts generally accrue directly to households, which decide how to use the money, often opting for communal efforts such as schools, electricity, clean water, road building or grinding mills or other development projects. CAMPFIRE is operated on communal lands, home to 42 per cent of Zimbabwe's poorest citizens. It has been estimated by the World Wildlife Fund that households participating in CAMPFIRE - more than 250,000 people have been involved - increased their incomes by 15-25 per cent. The geographical are in which the programme is concentrated occupies the less agriculturally productive regions, in fact more than 90 per cent of the communal lands are located within this perimeter.

CAMPFIRE management is run by an inter-sectoral group, including both non-governmental and public sector agencies.

Source: Trade and Environment Database (TED) http://www.american.edu/TED/campfire.htm (as of September 2003).

Participation is crucial when identifying ways to share the benefits of genetic resources. Effective benefit sharing depends on the early identification of stakeholders and beneficiaries. Participation in scientific research and development, use of the findings of scientific research, and the transfer of technologies are all areas in which participation is desirable. The processes and legal structures required to protect and empower these groups should be carefully considered when promoting the use of certain economic instruments, such as the creation of markets for genetic resources, ecotourism, or different types of concessions. Before imposing economic instruments, it is important to establish a clear set of rules in order to clarify how these communities may be a part of the processes associated with the instrument.

Box 34: Benefit sharing: Costa Rica and the Merck Company

One of the best known cases of benefit sharing is the agreement reached between Costa Rica and the Merck and Company. Through this agreement, Merck agreed to pay 90 per cent of the 1.1 million dollars which was spent on the process of extraction of native plants in Costa Rica, carried out by InBio (a private Costa Rican non-profit organization). They also agreed to contribute technical assistance and training in order to establish pharmaceutical research programmes in Costa Rica. Furthermore, 50 per cent of the patents and royalties obtained for drugs created from these plants, would from then on be put into the National Fund for Costa Rican Parks.

Source: Conservation Finance Alliance (2003).

In a recent South African case, the importance of developing clear legislation regarding bioprospecting and benefit sharing became more evident, see Box 35 below.

Box 35: Bioprospecting and benefit sharing between the South African CSIR and the San community

South African Council for Scientific and Industrial Research (CSIR) and the San community

A deal was reached in early 2003 between the San community, a group of Southern African hunter-gatherers, and South Africa's leading research organization. The two agreed to share any financial benefits arising from a chemical produced by a local cactus that is likely to yield a profitable anti-obesity drug. With the deal it is expected that any monies flowing to the San community will be shared equally amongst all the San communities living in Southern Africa, and that the San in each country will establish an audited trust. Some of the funds are also likely to be used to provide scholarships for the San to study abroad. And the government is hoping that the agreement will be widely seen as a 'model' for other countries facing similar issues to emulate.

The South African Council for Scientific and Industrial Research (CSIR) had isolated and patented the active ingredient in the hoodia plant, which the San people have used for centuries to stave off hunger and thirst during hunting expeditions. The CSIR sold the development rights to the active ingredient 'P57' to a UK-based company, Phytopharm, which in turn sold the rights to the world's biggest pharmaceutical company, Pfizer. At the time, the CSIR's dealings with the international pharmaceutical industry raised concern about how, if at all, the San community would benefit.

San and the CSIR signed a 'memorandum of understanding', and afterwards an agreement was reached according to which consists in the payment of about US$ 10 million, an eight percent of the amount of the sale of the patent, over a period of four years. South Africa is now developing legislation to guide scientists, businesses, and indigenous communities in these matters. Two bills are expected to go before parliament later this year, one on indigenous knowledge and another on biodiversity.

Source: Science and Development Net News, *Tamar Kahn,* 10 January 2003; www.scidev.org.

The importance of the integration of local communities can also be illustrated in a recent CITES related initiative in Pakistan.

Box 36: Maintaining biodiversity in Pakistan with rural community development

This project was initiated in 1995 by IUCN Pakistan and the Ministry of Environment, Local Government and Rural Development, and was designed to comply with several of Pakistan´s obligations under the Convention on Biological Diversity, principally under Article 8. The project is implemented in the Northern Areas of Pakistan and the North West Frontier Province. The project relies on incentives for its effective implementation both through activities but, more importantly, in helping the communities structure their own village management plans as self-motivating. The hypothesis of the Biodiversity Conservation project is that conservation is possible through community development, provided they have an economic incentive.
In the case of this project, insight was that the biggest economic incentive can come from organized trophy hunting of large mammals such as ibex and markhor. A quota of five ibex trophies has been approved by the Prime Minister for the areas where biodiversity conservation initiatives have been taken by the community. A fee of US$ 3,000 for foreigners and Rs. 20,000 for Pakistani hunters has been fixed from which 75 per cent will go to the communities and 25 per cent to the government. A quota of six markhor trophies has also been approved by the CITES meeting for Pakistan. The permission for trophy hunting will be given to those communities who manage their biodiversity under a management plan and where authentic census of wild animals determines the availability for trophy hunting. The income from trophy hunting will be deposited in the common village conservation fund which will be used for further conservation activities through consensus.

Source: CBD Focal Point in Pakistan, Ministry of Environment, Local Government and Rural Development (2002).

Areas for further consideration

Local community involvement is an important factor in supporting the introduction of economic instruments. By including local communities in the design and implementation of economic instruments, policy makers can learn about local needs and perspectives, and tailor instruments to better address underlying conditions. Looking forward, the following points should be considered:

- The value of community involvement and stakeholders at the local level is embodied in all three MEAs. Experiences with economic instruments in the context of biodiversity protection (both successful and unsuccessful) can be integrated into capacity building activities and should emphasize early stakeholder and local community integration, and present the different available tools and current practices.

- Additional research to obtain a better understanding of the mutual supportiveness of local community involvement and economic instruments is necessary. The case studies outlined above are examples that have not been analysed in depth. To learn lessons and orient future work in the context of specific economic instruments, more analysis is needed, both on the cases cited above and other cases.

- Given the commitment of each of the MEAs to local community involvement, the use of economic instruments in this area merits further joint efforts on analysis and research, exchange of experiences and the development of guidelines for good practice. In this respect the MEAs could also benefit from closely cooperating with development agencies that address conservation-livelihood links.[96]

[96] See for example the above-cited work by DFID and the OECD Initiative on Environmental Fiscal Reform.

- To support these efforts, national-level networks of experts on economic instruments in biodiversity could be created, integrating representatives from government, civil society and the private sector to specifically address issues relating to local community involvement.

4.2.3 Capacity building for economic instruments

Capacity building is recognized as a central element in the implementation of biodiversity-related conventions. Capacity building programmes are generally designed in specific thematic areas and are directed at specific groups of countries, primarily developing countries or countries in transition.

In the context of the CBD, Decision V/24 (paragraph 5d) aims at promoting cooperation with developing countries to increase their capacity to achieve sustainable use by technology transfer. CITES Decisions 12.90 to 12.93 set up a capacity-building programme for science-based establishment and implementation of voluntary national export quotas for Appendix-II species. Decisions 12.94 and 12.95 call for capacity building efforts in the Oceania region and for Small Island Developing States, respectively. Ramsar's Strategic Plan, in Operational Objective 4e, aims at "providing effective mechanisms for training and capacity-building to equip Contracting Parties to implement the Convention".

The lack of experience with economic instruments has been identified as one of the major obstacles to their enhanced use. This is especially so in the area of natural resource management and biodiversity protection, where further systematic literature, manuals, and capacity building efforts would be useful.[97]

Capacity building is needed at different levels, including scientific and technical information gathering, analysing and disseminating information, and properly designing economic instruments. It is also required in relation to administrative, educational and communications capacity, which is needed for the design and implementation phase of economic instruments. Finally, there may also be a need for building capacity to assist with the installation of necessary monitoring or other equipment.

Specific initiatives on capacity building in the context of economic instruments have figured in the conventions' decisions and programmes. The CBD, in Decision III /18, aims to promote capacity building to implement incentive measures, and Decision VI/15 Annex 2 identifies capacity building as a key element to the effective implementation of incentive measures.

Along these lines, the CBD has established a working group on incentive measures. The CBD has also integrated capacity building on incentive measures into its Clearing House Mechanism. The mechanism has been created to ensure that all governments have access to the information and technologies they need for their work on biodiversity. Its creation is based on the philosophy that broad participation and easy access must be a top priority.

---

[97] These could build on useful sources, such as the Handbook on Economic Incentives for Biodiversity Protection by the OECD (1999), IUCN s Biodiversity Economics Library (www.biodiversityeconomics.org), the Guide on Financing Biodiversity Conservation by the Conservation Finance Alliance (2002) (www.financeconservation.org), and the OECD/EEA database on economic instruments used in natural resource management, which includes more general capacity building and reference type information on the use of economic instruments in the context of natural resource management (www1.oecd.org/scripts/env/ecoInst/Main.htm). The Conservation Finance Alliance is currently working on a Global Capacity Training Programme on conservation finance mechanisms, including economic valuation, trade and other mechanisms. This provides an opportunity to approach capacity building in a more comprehensive way, if all relevant institutions can be involved.

The Clearing House Mechanism also seeks to increase public awareness of convention programmes and issues. It has established an internet-based system to facilitate greater collaboration among countries through education and training projects, research cooperation, funding opportunities, access to and transfer of technology, and repatriation of information. Among the programme areas for support in 1999-2004, are scientific and research cooperation in in-situ and ex-situ conservation, the sustainable use of components of biodiversity, the use of incentive measures, training and capacity building and funding. Priorities for pilot projects in 1999-2004 are those related to valuation of biodiversity and incentives for its sustainable use.[98]

CITES, as agreed by the COP in 2002, hosted a technical workshop on wildlife trade policies and economic incentives applicable to CITES-listed species in December 2003 and plans to provide support for the conduct of a review of national wildlife trade policies in selected countries.

The Ramsar Bureau has created a small informal working group on incentives (economic, cultural, social, financial, environmental and religious) that developed a useful background document for COP 8, held in November 2002. The Ramsar Strategic Plan 2003-2008 determined as an important objective to promote incentive measures that encourage the application of the wise use principle, and the removal of perverse incentives. Towards this end, it aims to:

a) Make use of and continue to develop and improve upon the Internet-based resource kit on positive incentives prepared and maintained by IUCN (the World Conservation Union), through the provision of appropriate materials, case studies indicating lessons learned, guidelines, and sources of advice on incentive measures relevant to wetlands.

b) In collaboration with IUCN, IAIA, other relevant bodies and experts, the Bureau will investigate linkages between incentives and related topics including financial mechanisms, trade, impact assessment and valuation.

Areas for further consideration

Effective capacity building is necessary to support the successful design and implementation of economic instruments. Between the three MEAs (and other organizations) there are significant opportunities for building synergies. Additionally:

- Capacity building for the design, implementation and monitoring of the use of economic instruments and incentives is an important area for further cooperation among the MEAs. A local, national and international capacity building needs assessment that could be carried out jointly between the MEAs. Part of this assessment could be the identification of gaps in policy research and analysis on the topic of economic instruments for biodiversity protection as well as identification of poicy makers' needs in terms of information and training materials on the use of economic instruments.
- MEAs could also further explore areas of commonality that are of interest to their respective Parties, and develop some basic materials on these areas, including, for example the types of economic instruments available and examples of best practice.
- Regionally oriented capacity building initiatives that exploit similar socio-cultural, geographic, and economic conditions might prove useful, and take advantage of ongoing regional capacity building efforts.

---

[98] Scientific and technical cooperation and the clearing house mechanism (article 18), Strategic plan of the clearing-house mechanism, COP V, Nairobi, 15-26 May 2000. Item 18.2 of the provisional agenda, p. 18.

- Cooperation in capacity building can help to avoid overloading the often precarious national institutional arrangements that exist to deal with the economic instruments and biodiversity protection. Often, capacity building efforts fail to recognize the limitations of the human resources they are designed to enhance. To be effective, capacity building would have to go hand-in-hand with efforts to sensitize and adjust the existing institutional structures in order to generate a wider base of potential candidates for the capacity building efforts.
- CITES and Ramsar could complement their evolving work programmes on economic instruments with an element of capacity building, to help with the dissemination of and access to information on economic instruments. Additional web-based information on the use of economic instruments in their respective areas of competence could help to build momentum behind work in this area.
- The creation of a network of experts on economic instruments to support biodiversity-related conventions could be a vehicle for building on areas of commonality. Such a network could be used to support capacity building programmes, provide expertise and input to specific requests from governments, civil society and/or the private sector.
- Cooperation with other initiatives, including those arising from the private, corporate[99] and non-governmental sectors[100] are invaluable. A review of existing efforts would help to promote cooperation and synergies between other active institutions and the MEAs.
- Finally, capacity building goes beyond the dissemination of existing reports, and the implementation of seminars or workshops. It could and should involve comprehensive initiatives, including learning-by-doing experiences that are self-sustaining. Capacity building programmes such as the UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF) have integrated learning-by-doing projects, long term institutional relations with stakeholders in developing countries, and the creation of Working Groups that go beyond the implementation of workshops and seminars.[101]

4.3 The role of the State in implementing economic instruments

The State plays an important role in designing and implementing economic instruments. The role of the State, however, can and should vary when implementing different policy instruments, and when implementing similar policy instruments in differing cultural, political or institutional settings (see UNEP, 2004). The State's role in biodiversity protection, and its use of economic instruments to help achieve this goal, cannot be examined solely from an *a priori* or theoretical perspective, but should be subject to political, socio-cultural and other conditions. These conditions must be carefully examined when designing economic instruments, and when making recommendations on the role of the State in that process. What works in one context may not necessarily work in another, and general policy prescriptions must be made with care.

There are different views about the role and responsibility of the State in conserving biodiversity. In some cases, the State is seen as the main body responsible for biodiversity conservation, indicating a significant role for governments in creating national systems of pro-

---

[99] See for example IUCN/World Business Council for Sustainable Development/Earthwatch Institute (2002).
[100] See those cited above.
[101] http://www.unep-unctad.org/cbtf/.

tected areas, establishing national funds for preservation, applying environmental taxes, and strengthening the public institutions that are responsible for the conservation of biological diversity. A second view suggests a greater role for private actors and market mechanisms. This approach suggests that the State should focus on securing property rights, generating clear legal frameworks, and allowing the market to help coordinate diverse actors and objectives.

The two views presented above are, of course, simplifications of a diverse and complex reality where there is no strict line to be drawn, and different roles may be appropriate according to the context. The right mix of actors will often depend on a range of factors, and extreme views about the roles of government, the market and other means of taking responsibility are not helpful. As some experts in biodiversity conservation in Chile have pointed out:

> "Conservation, when left to the free market, tends to occur in limited areas of scenic beauty, under inappropriate management standards, without any legal assurance of long term continuity, with minimal contributions to local sustainable business, and at great distance from urban cores and the peoples who would most benefit from access to natural recreational opportunities".[102]

At the same time, there are also significant publications that have shown the thrust and importance of private institutions in biodiversity protection.[103]

Institutional and political limitations are important factors to be considered in deciding on the role of the State.[104] In most developing countries, biodiversity conservation is a new area of law and policy. The lack of an effective legal framework in many cases limits the degree to which economic instruments can be effectively introduced. Earmarking of tax receipts may constitute a challenge.[105] And economic instruments (especially in systems of tradable permits) can be an added administrative burden, straining both scarce human resources, and the financial viability of existing institutions. As UNEP (2004) states:

> "Policy plans have to be matched to institutional capabilities. Overstating the capabilities will simply mean that the new instruments are likely to fail, leaving the underlying environmental problem unsolved".

There is a role for the MEAs in helping to address these problems. They can raise the political profile of biodiversity loss and focus on solutions (including economic instruments), help build and strengthen institutional capabilities, and identify appropriate instruments for particular contexts. Discussions on using economic instruments must ultimately go beyond simply sharing experiences towards assisting the introduction of economic instruments, and ensuring they are successful in addressing their goals. The following table summarizes some of the paper's main suggestions of areas for further consideration.

---

[102] Corcuera et al. (2002).
[103] See for example Landell-Mills and Porras (2002), Pagiola et al. (2002), or USAID (2002).
[104] For a further discussion on the importance of a proper institutional framework and clearly defined property rights in introducing economic instruments, see UNEP (2004).
[105] See for example Borregaard and Sepúlveda (1998) for the Chilean case in which the Constitution prohibits earmarking if not indicated by presidential decree.

Table 1: Summary of selected areas for further consideration

Thematic areas	General considerations	Information and research	Activities in individual MEAs	Cooperation among other MEAs on interlinkages	Cooperation with other institutions
In-situ conservation	Strengthen case studies of economic instrument use in developing countries for in-situ conservation. Develop additional comprehensive country-wide examinations of economic instrument use.	Revise existing case studies to evaluate medium-term impacts. Search for case studies of disincentives, not exclusively incentives. Gain better understanding of instruments such as tradable development rights and conservation easements.	Carry out case studies for species that are under discussion under CITES (e.g. in context of Decision 12.22). Further analysis of economic instruments for in-situ conservation and species protection would be valuable in regards to CITIES. Augment the CBD's collection of case studies with additional studies Consider revising selected CBD case studies for mediu-term impacts.	Further clarify interlinkages relating to in-situ conservation (e.g. between CBD Article 11, Ramsar Strategic Plan Operational Objectives 3.1 and 3.4, and relevant CITES discussions (including regarding captive breeding). Share experiences on the use of economic instruments to promote in-situ conservation, including conservation in protected areas.	Work on criteria for selection of instruments, and preconditions for implementation (joint work with OECD and UNEP´s Expert Working Group).
Sustainable trade	Gain an understanding of the contribution of sustainable trade to biodiversity protection.	Encourage sharing national experience with perverse subsidies, with a view to undertaking a more systematic analysis. Create or promote sustainable trade initiatives (promotion of Biotrade, Bolsa Amazonia, and others). Disseminate case studies that demonstrate effective reform processes could support such national efforts.	Assume a significant role in the promotion of certification and eco-labelling. Consider creation of MEA-led certification schemes (especifically CITES).	Exploit cooperation in the area of eco-labelling and certification, including regarding the definition of criteria and/or indicators for different certification schemes.	Build long-term cooperative efforts between MEAs, other institutions such as the WTO, and third party actors.

Table 1: Summary of selected areas for further consideration

Payments for ecosystem services	Clarify the interrelation between ecosystem services and environmental service in specific instances. Enhance the understanding of the interdependence between different services on the ground – at the national level or in other geographically delineated areas.	Additional research and discussion about the absolute and relative importance of promoting markets for ecosystem services and the design of appropriate institutional frameworks.	Promote research by MEAs on markets for environmental services, in order to obtain a better understanding about the biodiversity effects. Explore the biodiversity-related implications of eco-tourism (in all three, Ramsar, CBD, and CITES).	Analyse the implications of individual environmental services in relation to the MEAs' shared objectives. Analyse more comprehensive approaches involving the bundling of environmental goods and services.	Support work of other international organizations on issues of environmental goods and services.
Raising financial resources	Consider developing specific funds at the level of the particular conventions dedicated to the introduction of economic instruments at the national level.	Foster the use of economic instruments such as charges or taxes in order to make financing of these funds sustainable in the long run.	Evaluate the performance of the Ramsar small grants fund.	Observe performance of various funding vehicles, and consider the dissemination of information about those funds that they evaluate positively. Foster an open exchange of experiences within MEAs about environmental funds in order to extract lessons for future activities.	

Addressing perverse economic incentives		Encourage Parties to submit case studies that show successful subsidy reforms. Analyse biodiversity effects of existing reform proposals in the agricultural and fisheries sector.			Cooperate and exchange information with other, often private, actors that have carried out analyses and put forward proposals for subsidy reform. Analyse the effect of perverse economic incentives from an ecosystem perspective (complementary to the OECD and the WTO´s sectorial perspectives). Participate in WTO and OECD discussions on subsidies.
Valuation and economic instruments	Enhance synergies between the conventions in the area of valuation and establishing a base for market creation.	Continue analysis of methodologies and methods for valuation of biodiversity is an evolving element of cooperative work.	Consider collecting valuation case studies to complement existing CBD case studies. Systematize the economic valuation of species would raise awareness without requiring. substantial resources in the context of CITIES.	Increase awareness of the value and functions of biodiversity by an ongoing exchange of experiences on economic as well as financial valuation, amongst the MEAs. Foster a pragmatic approach to valuation, integrating it into strategies for sensitization of the community of the value of biodiversity.	

Inclusion of local communities	Emphasize stakeholder and local community inclusion in capacity building efforts regarding economic instruments. Obtain a better understanding regarding the mutual supportiveness of local community involvement and economic instruments.	Provide orientations for future work in the context of specific economic instruments more analysis will be necessary.		Exchange experiences regarding best practice for inclusion of local communities in the design and implementation of economic instruments.	Improve synergies with poverty reduction strategies of other multilateral agreements or multilateral financial institutions. Explore the use of economic instruments through further exchange of experiences between MEAs and development agencies. Create national-level networks of experts on economic instruments in biodiversity.
Capacity building	Promote regional oriented initiatives to take advantage of similar socio-cultural, geographic, and economic conditions, and ongoing capacity building efforts in specific regions. Create networks of experts on economic instruments to support biodiversity-related conventions.	Focus capacity building on specific thematic areas such as for example sustainable trade, based on instruments such as labelling, certification[106] and social responsibility schemes.[107] Involve more comprehensive initiatives, including learning-by-doing experiences that are self-sustaining and build capacity for the long-term.	Enhance clarity on the needs at the country level in capacity building needs assessment that could be carried out in a joint effort between all MEAs. Carry out complementary work by CITES and Ramsar on economic instruments with an element of capacity building, to help with the dissemination and access to information on economic instruments.	Collaborate with regard to capacity building for the use of economic instruments. Cooperate explore areas of commonality among the MEAs that are of interest to MEA Parties or developing some basic materials on these areas.	Encourage learning-by-doing exercises and/or more long term, comprehensive initiatives such as the UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development. Review existing efforts to promote cooperation and synergies between other active institutions and the MEAs.

[106] For example the recognition of certain labeling or certain schemes for CITES´ non detriment findings.

[107] See for example the Business & Biodiversity Initiative by IUCN, with major publications such as “Business & Biodiversity: A Handbook for Corporate Action,(2002) together with WBCSD and the Earthwatch Institute

5. Conclusions

This study has provided an overview of the diverse range of economic instruments and incentives that are available to help achieve the objectives of biodiversity-related MEAs. These include property rights, market creation and enhancement, charges, fiscal instruments, financial assistance, liability schemes and environmental funds. The principal instruments that have so far been applied in practice include property rights, market creation and different types of environmental funds. A wide range of innovative instruments and applications of these has also been identified in this report.

The study has also identified a range of cross-cutting thematic areas under the overarching theme of conservation and sustainable use of biologically diverse resources. It has explored how economic instruments can be applied to help implement the MEAs and at the same time how they can contribute to enhancing synergies between the MEAs. All three MEAs discussed in this paper make significant reference to economic instruments or incentive measures in their texts, discussions or decisions and there is already considerable awareness of the important role economic instruments can play in support of protecting biodiversity. The CBD has worked on economic instruments for a number of years and has several ongoing activities regarding the use of economic instruments. CITES and Ramsar also have important initiatives and perspectives to contribute to a wider effort to explore synergies for the use of economic instruments.

The areas of commonality identified among the MEAs, the emphasis given by each to cooperation, and the importance of the role of economic instruments and incentives to achieve their goals, all suggest significant prospects for cooperation on using economic instruments to prevent the further loss of biodiversity. To date, however, several of the Parties have had relatively little experience in the use of economic instruments in achieving the objectives of the MEAs. In other cases, interlinkages among the MEAs have not been fully identified, or are not yet the subject of cooperative efforts by relevant COPs or their subsidiary bodies.

While each convention defines its own specific objectives and commitments they share the overarching objective of conserving biodiversity and promoting its sustainable or wise use; they embody overlapping rules on issues such as in-situ conservation or sustainable use; and they involve complimentary areas of practical work, such as the River Basins Initiative between CBD and Ramsar. There remain, however, significant opportunities to strengthen the role of economic instruments in the context of these MEAs.

Strengthen cooperation

In order to enhance the role of economic instruments in the context of biodiversity-related MEAs, strengthened cooperation at all levels is needed to learn the lessons of past practice, improve current approaches, and test their use on an ongoing basis. A number of MEA decisions and resolutions (including notably CBD Decision VI/15) offer valuable guidance on ways to deepen cooperation on such incentive measures. As noted throughout the paper (summarized in Table 2), there are additional opportunities for cooperation on a number of levels:

- **Cooperation at the level of the MEAs** is significant, but could be expanded among MEA formal bodies, secretariats and parties in a variety of areas. This is particularly so in relation to CITES' evolving work on economic incentives under Decision 12.22, but there are also opportunities to expand cooperation in other areas. Expanded joint work would be assisted by the identification of some thematic areas for cooperation (such as those suggested in this paper, or others as appropriate).
- **Cooperation at the national level** is an essential prerequisite for designing and implementing effective economic instruments. Further work to build usable knowledge about implementing economic instruments, particularly in developing countries is required. Cooperation among actors at the national level could support a re-evaluation of existing case studies, development of new ones, and help to learn why some efforts have been more successful than others.
- **Cooperation with other institutions**, such as UNEP, OECD, WTO and other MEAs, could also support efforts on incentive measures. As well as general cooperation in the context of existing MEA work programmes, there are opportunities for collaboration with institutions on specific initiatives, such as developing criteria for the labelling of sustainable products, disseminating guidelines for biodiversity-friendly eco-tourism projects, or elaborating best practices for the use of economic instruments to promote in-situ conservation.

Cooperation could begin with the development of more systematic information sharing on the activities and national experiences that relate to economic instruments of different conventions and countries, collaboration in seminars and workshops, exchange of expertise between secretariats and convention bodies, and building capacity in key areas to support actors in developing countries.

Improve understanding of economic instruments in specific contexts

A lack of experience with economic instruments has been identified as one of the major obstacles to their enhanced use. This is especially so in the area of natural resource management and biodiversity protection, where capacity building efforts, systematic literature and manuals need to be further pursued and developed. In addition, there is a general lack of understanding of the role of economic instruments to implement biodiversity-related MEAs.

Enhancing the use of economic instruments requires a more systematic effort to understand the role and limits of various economic instruments in specific settings. To be most effective, such an effort could be organized in a manner that reflects and supports synergies among the principal MEAs, and that empowers national policy makers by focusing on thematic areas that reflect overlapping competences in the MEAs and defined areas of national policy-making.

This paper has identified a number of thematic areas where economic instruments could be used in a manner that helps to realize complementarities among the CBD, CITES and Ramsar. These areas – or other appropriate areas identified within the context of the MEAs – could provide the basis for strengthened efforts to design, implement and test economic instruments.

- **In-situ conservation.** Economic instruments can provide a powerful tool for promoting in-situ conservation. Additional efforts in this area could include, among other things, analysing individual case studies on the use of economic instruments in developing countries, exploring linkages among different instruments through countrywide

studies, improving our understanding of the role and effectiveness of specific kinds of economic instruments such as tradable development rights and conservation easements, and further clarifying the linkages between the conventions on issues of in-situ conservation as the basis for future collaborative work.

- **Sustainable or wise use.** Sustainable or wise use may be promoted through a variety of economic instruments, including market creation and enhancement, eco-region oriented initiatives and other efforts to promote trade in sustainably produced goods, such as eco-labelling and certification. As each of the conventions have acknowledged the value of economic incentives in promoting sustainable or wise use of biodiversity, there would opportunities to deepen cooperation in this area, particularly in relation to the future development of labelling and certification initiatives, and other efforts to promote sustainable trade.

- **Ecosystem services.** Enhancing biodiversity conservation at the national level could be promoted through enhanced cooperation to clarify the relationship between ecosystem and environmental services, the biodiversity-related implications of certain services sectors relating to the three MEAs such as eco-tourism, and the design of appropriate institutional arrangements to promote the creation of effectively functioning markets for ecosystem services.

- **Financing conservation.** Economic instruments also provide a source of financial resources to support conservation efforts. Lack of financing is perennial problem, and MEA parties may wish to consider how economic instruments could be used to finance activities in overlapping areas of competence, such as the in-situ conservation of biodiversity, or sustainable trade initiatives.

- **Addressing perverse incentives.** Perverse incentives remain pervasive in a number of sectors, including fisheries, forestry and energy. Each of the three conventions has addressed perverse subsidies in their decisions. As noted in the paper, there is a range of areas that may benefit from additional cooperation, including sharing of national experiences, identification of overlapping concerns, and a more systematic evaluation of the effect of foreign subsidies on conservation of biodiversity in developing countries.

Cooperation in these areas may contribute to the more widespread use of economic instruments to conserve biodiversity and implement biodiversity-related MEAs more efficiently and effectively. Real benefits to governments are to be realized from deepening cooperation among biodiversity-related MEAs and building upon national capacity and experience in the design and implementation of efficient and effective economic instruments to protect natural wealth, promote other national development priorities, and implement international obligations in a supportive way.

Support the introduction of economic instruments for biodiversity protection

As well as enhanced understanding, the successful use of economic instruments also requires renewed efforts to support and guide their introduction at the national level. Some of the key underlying conditions necessary for effective use have been identified as follows:

- **Valuation of environmental resources and services** is an important element in efforts to implement economic instruments. To the extent that each of the three MEAs can achieve their objectives through market-based approaches, shared work on valuation could prove productive. More systematic approaches to valuation at the national level, coupled with dissemination of information about the value of biodiversity to a wider audience, would support the introduction of economic instruments.

- **Inclusion of local communities** is a prerequisite for the successful design and implementation of economic instruments. Cooperation among the MEAs, and further development of individual case studies could help to gain a better understanding about the mutual supportiveness of local community involvement and successful use of economic instruments. In particular, exchanging experiences regarding best practice for inclusion of local communities in the design and implementation of economic instruments would yield useful results.

- **Capacity building** on economic instruments represents a major opportunity. Cooperation among MEA secretariats, and with other bodies such as the UNEP Working Group on Economic Instruments for Environmental Policy-making could help to identify national needs and priorities, gaps and overlaps in existing capacity building efforts, and opportunities to strengthen cooperation in order to support developing countries make appropriate use of economic instruments and other incentive measures.

Looking forward

This study has raised a number of issues for consideration in a variety of different contexts. Building on the exploration undertaken in this paper, and in other important documents and discussions, work could now focus on more targeted initiatives among biodiversity-related MEAs to achieve the shared objectives and commitments to preserve biodiversity through the use of economic instruments. Such collaboration and sharing of experience have been exemplified in the recently held workshops by the CBD (Workshop on Incentive Measures, June 2003) and CITES (Workshop on Economic Incentives and Trade Policy, November 2003).

The study has also presented some key themes for the introduction of economic instruments, and has identified a range of potentially applicable economic instruments. Further review of national experiences, greater exchange of information, and identification of specific areas for application of economic instruments across the MEAs is essential. UNEP looks forward to hearing from countries about areas in which they require assistance, and in what form (i.e. “learning-by-doing”, cooperation with other countries from the region, exchange of experiences, training of individual professionals, or in-depth studies). UNEP hopes for further cooperation with governments, international and regional MEAs and other agencies to promote coordinated action on economic instruments, to enhance the capacity of policy makers to design and use them, and to realize synergies in following the path towards achieving the shared objectives of biodiversity-related MEAs.

6. Bibliography

Arntzen, J. *(1998) Economic Valuation of Communal Rangelands in Botswana: A Case Study, Series CREED Reports WP 17, cited in:* www.biodiversityeconomics.org/incentives/topics-303-06.htm**.**

Aylward, B. *(1993) The economic value of pharmaceutical prospecting and its role in biodiversity conservation. LEEC Discussion paper No.93-05, IIED, London.*

Babitsky, S. *(2002) Ecotourism in Berezinsky Biosphere Reserve Belarus. Paper presented at the International Workshop for CEE Countries on "Tourism in Mountain Areas and the Convention on Biological Diversity", 1-5th October, 2002, Sucha Beskidzka, Babia Gora National Park, organized by: Ecological Tourism in Europe, Bonn.*

Bagri, A., Vorhies, F. (1999) *Incentive measures to encourage the application of the RAMSAR convention's wise use principle*. RAMSAR COP7 Documento. 18.3.

Barzel, Y., (1997) *Economic Analysis of Property Rights*, Cambridge University Press, Cambridge.

Bayon, R., Lovink, J. S., Veening, W. J. (2000) *Financiamiento de la Conservación de la Biodiversidad, BID,* Washington DC, series de informes técnicos del departamento de desarrollo sostenible.

Bellegem, T. Van, Beijerman, A., Eijs, A. (2002) *Green investment funds: Organic farming, Netherlands Case Study on Biodiversity Incentive Measures,* OECD, Paris.

Borregaard, N. and Sepúlveda, C. (1998) Introducing Economic Instruments at an early stage of environmental policy making. North-South Center Miami, CIPMA, Santiago.

Borregaard, N., Dufey, A., Gauer, K., Ladron de Guevara, J. (2002) Green Markets: Too often a lost opportunity for developing countries? IISD, TKN, RIDES, CIPMA, Santiago.

Borrini-Feyerabend, G., Farvar,T., Solis, V., Govan, **H**. (2001) *Manejo Conjunto de los Recursos Naturales.* IUCN, GTZ, Kasparek Verlag, Germany.

Breckenridge, Lee P. (1992), *Protection of Biological and Cultural Diversity: Emerging Recognition of Local Community Rights in Ecosystems under International Environmental Law*, 59, Tenn. L. Rev. 735, page 4.

Carol, M. R. (1997) Property Rights and Responsibilities, in *Thinking Ecologically, The Next Generation of Environmental Policy*, Chertow, M.R. and Esty, D.C. (eds), Yale University Press.

Chacón, C. and Meza, A. (2002) Servidumbres ecológicas para la protección ambiental en tierras privadas costarricenses. www.una.ac.cr/ambi/Ambien-Tico/90/cchacon.htm.

Clayton, A., Spinardi, G., Williams, R. (1999) *Policies for Cleaner Technology: A New Agenda for Government and Industry*, Earthscan Publications.

Conservation Finance Alliance (2002) *Mobilizing funding for biodiversity conservation: A user friendly guide*. http://www.conservationfinance.org/Training_guide.htm.

Convention on Biological Diversity (2002) Biological Diversity and Tourism: Development of Guidelines for Sustainable Tourism in Vulnerable Ecosystems. CBD, UNEP, Geneva.

Corcuera, E., Sepúlveda, C., Geisse, G. (2002) *Conserving privately: spontaneous markets for land conservation in Chile*, in *Selling forest environmental services: Market-based mechanisms for conservation and development*. Pagiola, Bishop and Landell-Mills (eds). Earthscan Publications, UK, pp 127-149.

Damania, R., Bulte, E. (2001). *The economics of Captive breeding and endangered species conservation.* Discussion paper nº 0139, CIES, Centre for International Economic Studies, Adelaide University.

Demsetz, H. (1967) Towards a Theory of Property Rights, *American Economic Review* 57, Nº2.

DFID (2002) *Wildlife and Poverty Study*. Rural Livelihoods Department, Livestock and Wildlife Advisory Group.

Dommen, C. and Deere, C. (1999) Fish for thought: Fisheries, International Trade and Sustainable Development. *Natural Resources, International Trade and Sustainable Development Series No. 1.* ICTSD and IUCN, Geneva.

Echavarría, M. and Lochman, L. (1998) Policy Mechanisms for Watershed Conservation: Case Studies. The Nature Conservancy, Washington DC.

Emerton, L. (1999) *Economic Tools for the Management of Marine Protected Areas in Eastern Africa*. IUCN, Regional Office, Nairobi, Kenya.

Environmental Defense (2000) *Progress on the back forty: analysis of three incentive-based approaches to endangered species conservation on private land.* http://www.environmentaldefense.org/documents/150_BackForty.pdf

European Commission *(2001) Organic Farming Regulation, Brussels.*

Farmer & Teubner (1994) Ecological Self-Organization, in *Environmental law and Ecological Responsibility.* John Willey and Sons.

Food and Agriculture Organization of the United Nations (FAO) (2001) *Global Forest Resources Assessment 2000--main Report.* FAO Forestry Paper No. 140. Rome: FAO. Data can also be obtained electronically at: http://www.fao.org/forestry/fo/fra/index.jsp

Furubotn, E. G., Richter, R. (1998) *Institutions and Economic Theory, The Contribution of the New Institutional Economics*, The University of Michigan Press, Michigan.

Hubacek, K. and Bauer, W. (1999) *Economic Incentive Measures in the Creation of the National Park* Neusiedler See – Seewinkel. OECD Working Paper. ENV/EPOC/GEEI/BIO(99)4/FINAL. Paris.

Huber, R., Ruitenbeeck, J., Seroa da Motta, R. (1997) Market based instruments for environmental policy making, in *Latin America and the Caribbean - Lessons from eleven countries*. World Bank Report (forthcoming), Washington DC.

Hutton, J., Ross, P., Web, G., (2001). *Using the market to create incentives for the conservation of crocodilians*: a review. In http://biodiversityeconomics.org/pdf/topics-344-01.PDF.

Instituto Alexander von Humboldt, (1999). *Intellectual property in the world trade organization and its relationship with the convention on biological diversity*. Santafe de Bogota. www.humboldt.org.co

International Ecotourism Society (2000) Ecotourism Statistical Factsheet.

IUCN (1998) *Economic Values of Protected Areas - Guidelines for Protected Area managers*. IUCN. Gland, Switzerland.

IUCN, (2000) *Financing Protected Areas, Guidelines for Protected Area Managers,* Series Nº5.

IUCN, World Business Council for Sustainable Development, Earthwatch Institute (2002) Business & Biodiversity – The Handbook for Corporate Action.

IUCN (2003) The Biodiversity Economics Library – www.biodiversityeconomics.org

Johnson, N. (2000) Market Strategies to Build Sustainable Links between Forests, Water and People. Discussion Draft presented at Forest Trends Environmental Markets and Forests Workshop, Sydney, Australia, April 10-12, 2000, World Resources Institute, Washington DC.

Kaiser, J., Lambert, A., (1996) *Debt Swaps for Sustainable Development: A Practical Guide for NGOs*; 72pp, IUCN-SDCO-EURODAD, Switzerland, 1996, ISBN. 2-8317-0362-X .

Ladeur, K. H., (1994) *Coping with uncertainty: Ecological Risks and the Proceduralization of Environmental Law. In "Environmental law and Ecological Responsibility*". John Willey and Sons.

Laird, S. (ed.) (2002) *Biodiversity and Traditional Knowledge - Equitable Partnerships in Practice*; Earthscan Publications, UK.

Lambert, A. (1998), *The Use of Non-Timber Forest Products, perspectives for Amazonia. Element of a Strategy for a Sustainable Economic Development*. 24-30pp, in Poema Tropic N°2 June/December 1998. In Portuguese and French.

Lambert, A., (2000a), - Environmental Management in the Amazon: Why not Try Market Based Instruments, published in: PoemaTropic N°6, July/Feb 2000.

Lambert, A. (2000b). *Environmental Funds: Much More Than Financial Mechanisms*.63-75pp, proceeding of a DFID seminar on Economic Instruments for Environmental Management, Cuiaba, Brazil 22-23 March 2000.

Lambert, A. (2000c). *Identifying, Preparing and Drafting Project Proposals. Guidelines for Ramsar Contracting Parties and Partners*. Official Publication of the Ramsar Bureau.

Lambert, A. (2000d) *Environmental Funds: Much more than financial mechanisms*. Prepared for DfiD workshop on "Economic and Financial Management Tools", Cuiabá (Brazil) 22-23 March 2000

Lambert, A., (2002a) *The Convention on Wetlands (Ramsar,1971) : An Active Player in the Fight Against Poverty*. www.ramsar.org.

Lambert, A. (2002b) *Financing Global Sustainability: A Proposal for Multilateral Environment Agreements*. In: *Ensuring sustainable livelihoods : Challenges for governments, corporations, and* civil society at Rio +10, Pachauri, R. K. (ed.), published by the Indian Teri

Research Institute; see also PoemaTropic, n°9, 2002, pp32-49.

Lambert, A. (2003) Economic Valuation of Wetlands: an important component of wetland management strategies at the river basin scale, Ramsar Convention.

Landell-Mills, N. and Porras, I. (2002) *Silver bullet or fools´ gold? Instruments for sustainable private sector forestry.* IIED, London.

Lindberg, K., Furze, B., Staff, M., Black, R. (1997) *Ecotourism in the Asia-Pacific Region: Issues and Outlook.* Burlington, VT. The International Ecotourism Society.

Luhmann Niklas, (1989) *Ecological Communication*. Ch 7. University of Chicago Press.

Makiling Centre for Mountain Ecosystems (2002) Selection, Design, and Implementation of Economic Instruments for the Management of the Philippines' Forestry Resources: The Makiling Experience. University of the Philippines Los Baños (unpublished country report submitted to UNEP in March 2002).

Markandya,A. (1997) Economic instruments: accelerating the move from concepts to practical application. Pp.221-253. In Finance for Sustainable Development - The Road Ahead. Proceedings of the Fourth Group Meeting on Financial Issues of Agenda 21. Santiago.

McNeely, J. A. (1988) Economic incentives resulting in over-use of grazing lands in Botswana. In Perrings, C. et al. (1988). *Economics and the Environment: A Contribution to the National Conservation Strategy for Botswana.* IUCN, Gland.

Mejías, R., (2000) *Incentivos para la Conservación de Tierras Privadas en América Central*. Documento de trabajo, Programa de Economía Ambiental Centro Científico Tropical (CCT).

Mekong Protected Areas Review (2002) *The use of economic instruments for protected area management in the Lower Mekong: A review of lessons and experience*. Un Proyecto Administrado por cuatro gobiernos asiáticos. Contacto en Cambodia: Department of Nature Conservation and Protection, Ministry of Environment, Director: Mr. Chay Samith, #48 Preah Sihanouk Blvd., Tonle Basae, Phnom Penh.

Mekong Protected Areas Review (2002) *The use of economic valuation for protected area management in the Lower Mekong: A review of lessons and experience*. Un Proyecto Administrado por cuatro gobiernos asiáticos. Contacto en Cambodia: Department of Nature Conservation and Protection, Ministry of Environment, Director: Mr. Chay Samith, #48 Preah Sihanouk Blvd., Tonle Basae, Phnom Penh.

Myers, N. and Kent, J. (1998) *Perverse Subsidies*. Winnipeg: IISD Http:/economics.iucn.org

Newman, D. J. and Laird, S. A. (1999) *The influence of natural products on 1997 pharmaceutical sales figures. In: ten Kate, K. and Laird, S. A. (eds.) The Commercial Use of Biodiversity: Access to Genetic Resources and Benefit-Sharing. Commission of the European Communities and Earthscan Publications, London.*

OECD (1994) *Managing the environment – the role of economic instruments*. Paris.

OECD (1997) *Saving Biological Diversity: Economic Ince*ntives. Paris.

OECD (1999a). *Trade measures in Multilateral environmental agreements*. Paris.

OECD (1999b) *US experiences with incentive measures to promote the conservation of*

wetlands. Working Group on economic and environmental policy integration, working group on economic aspects of biodiversity. ENV/EPOC/GEEI/BIO(97)9/FINAL.

OECD (1999c) *Economic instruments for pollution control and natural resources management in OECD countries: A survey*. ENV/EPOC/GEEI(98)35/REV1/FINAL. Paris.

OECD (1999d) *Handbook of Incentive Measures for Biodiversity: Design and Implementation* (http://www.oecd.org/env).

OECD (2002) *Handbook of Biodiversity Valuation: A Guide for Policy Makers. Paris.*

OECD (2003) *Harnessing of Markets for Biodiversity: Towards Conservation and Sustainable Use.* Paris.

Pagiola, S., Bishop, J., Landell-Mills, N. (2002) *Selling forest environmental services.* IIED, World Bank, WWF, Earthscan Publications, London.

Ramsar (2002a) *Incentive measures as tools for achieving the wise use of wetlands*. COP8 Dr 23.

Ramsar (2002b) *The RAMSAR convention on wetlands joint Cork plan 2002-2006 between RAMSAR and the CBD.*

Ramsar (2002c) *Draft Resolution, Partnerships and synergies with multilateral environmental agreements and other institutions*. COP8 DR 5.

Robins, N. and Roberts, S. (eds.) (2000) The Reality of Sustainable Trade, IIED, London.

Sacramento Fish & Wildlife Office, (2002). *Vernal Pool preservation credits*. In http://sacramento.fws.gov/es/textfiles/vp_bank_cr_txt.htm.

Sand, P. H. (1997) *Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment*. 8 EUROPEAN JOURNAL OF INTERNATIONAL LAW 29.

Schaerer, B., (1996) *Incentives for Species*. The Thoreau Institute. In http://www.ti.org/Brettshort.html

Science and Development Net News, Tamar Kahn, 10th of January 2003; www.scidev.org.

Seidl, A. F., da Silva, J., Moraes, A. S. (2001) *Cattle ranching and deforestation in the Brazilian Pantanal*. Ecological Economics. 36(3): 413-425.

Seroa da Motta,R. (2000) Latin America region case studies in: Rietbergen-McCracken and Abaza,H. (eds) *Economic Instruments for Environmental Management: A Worldwide Compendium of Case studies*, Earthscan / UNEP, London.

Sierra Club (2000) Sustainable Forests, sustainable communities, pamphlet No. 4, Victoria, www.sierraclub.ca/ba.

Stroup, R., (1995). *Endangered species act: making innocent species the enemy*. PERC policy series, issue number PS·3, April.

TRAFFIC International (2002) *Assessing the certification of sustainable managed forests and their compatibility with the provision of Article IV, paragraph 2(a).* XIIth Meeting of the Plants Comité, Leiden 13th-17th May 2002, Evaluation of certification schemes. Project Proposal. Prepared for Submission to the CITES Secretariat in conjunction with the CITES Plants Committee.

Troya, R. and Curtis, R. (1998) Water: Together we can care for it! Case study of a watershed Conservation Fund for Quito, Ecuador. The Nature Conservancy, Arlington, VA, www.mtnforum.org/resources/library/tcnla98a.htm.

Ubilla Fuenzalida, J. (2002) L*a Conservación Privada de la Biodiversidad y el Derecho Real de Conservación: Consideraciones desde la Teoría Social de Sistemas y el Análisis Económico del Derecho.* Revista de Derecho Ambiental of University of Chile, Nº1.

UNCTAD (2003) Personal communication with Rik Kutsch Lojenga.

UNDP (1998) Debt for Environment Swaps for Desertification Funds. An introductory guide. Office of Desertification and Drought. http://www.undp.org/seed/unso/pub-htm/swap-eng.pdf.

UNEP/IISD (2000) *Environment and trade: A Handbook*. Canada.

UNEP/UNDP/GEF/BPSP (2001) Integrating Biodiversity into the Tourism Sector: Best Practice Guidelines; Report elaborated by Cevallos-Lascurian,H.,Geneva.

UNEP (2002a) Global Environment Outlook 3, Earthscan Publications Ltd., London.

UNEP (2002b) *Fisheries Subsidies and Overfishing: Towards a Structured Discussion*. United Nations Publication, Geneva.

UNEP (2003) Energy Subsidies: Lessons Learned in Assessing their Impact and Designing Policy Reforms. United Nations Publication, Geneva.

UNEP (2004) The Use of Economic Instruments in Environmental Policy: Opportunities and Challenges. United Nations Publication, Geneva.

Wachtel, H. (2000) Tobin and other Global Taxes. In *Review of international political economy*, vol. 7, no. 2.

Willer, H. and Yussefi, M. (2001) Ökologische Agrarkultur Weltweit – Statistiken und Perspektiven (Organic Agriculture Worldwide – Statistics and Future Prospects), SÖEL (Stiftung Oekologie & Landbau) http://www.soel.de/inhalte/publikationen/s_74_03.pdf.

World Tourism Organization (1998) Ecotourism, Now One-Fifth of Market. Newsletter Janury/February. http://www.worldtourism.org/omt/newslett/janfeb98/ecotour.htm.

World Tourism Organization (1998) *Guide for Local Authorities on Developing Sustainable Tourism.*

WTO (1997) *The CBD and the agreement on trade-related aspects of intellectual property rights.* Note by the Secretariat. WT/CTE/W/50.

WTO (2000) *The relationship between CITES and the WTO. Communication from the CITES Secretariat*. WT/CTE/W/165.

WTO (2002*) Enhancing synergies and mutual supportiveness of MEAs and the WTO*. Contribution by UNEP. WT/CTE/W/213.

WWF (2002) Cambio de corriente en los subsidios pesqueros. Washington DC.

Yeater, M. and Vasquez, J. (2001). *Demystifying the Relationship Between CITES and the WTO.* 10 Review of European Community and International Environmental Law 271.

Young, T. (2001) Examples of various kinds of incentives and disincentives, communication sent by IUCN to CBD in context of call for case studies.

Useful websites

1. **Water Quality Program, North Carolina State University:**

   http://h2osparc.wq.ncsu.edu/info/wetlands/index.html

2. **U.S. Fish & Wildlife Service:**

   Mountain-Prairie Region, Partners for Fish & Wildlife:

   http://mountain-prairie.fws.gov/PFW/r6pfw8b1.htm

   Sacramento Fish and Wildlife Office, guide to conservation banks:

   http://sacramento.fws.gov/es/cons_bank.htm

   Study Cases:

   http://www.fws.gov/cep/cwgcase.html

   Partners in Conservation:

   http://endangered.fws.gov/partners.html

3. **Ecology Fund:**

   http://seattle.ecologyfund.com/ecology/_donate_species.html

4. **Trade Environment Database (TED) case studies:**

   http://www.american.edu/TED/campfire.htm

5. **Convention on Biological Diversity website on partnerships:**

   http://www.biodiv.org/convention/partners-websites.asp

   CBD revised web pages on Trade, Economics and Incentives:

   http://www.biodiv.org/programmes/socio-eco/incentives/

6. **Biodiversity Economics Library, Ramsar Resource Kit on Assessment:**

   http://www.biodiversityeconomics.org/assessment/ramsar-503-01.htm

7. **Biodiversity Economics:**

   http://www.biodiversityeconomics.org/pdf/960401-18.pdf

8. **California Environment Protection Agency, endangered species project:**

   http://www.cdpr.ca.gov/docs/es/index.htm

9. State Board of the Great Outdoors Colorado Trust Fund:

http://www.ciruli.com/goco/xxvii.html

10. Conservation Finance:

http://www.conservationfinance.org/

http://www.conservationfinance.org/Training_guide.htm

11. Defenders of Wildlife:

http://www.defenders.org/pubs/nsi17.html

http://www.defenders.org/pubs/sfor04.html

12. Department of Environmental Quality, Michigan State:

http://www.deq.state.mi.us/documents/deq-water-wetlands-conservationeasements.pdf (now at: http://www.michigan.gov/deq)

13. Virginia Department of Games and Inland Fisheries:

http://www.dgif.state.va.us/wildlife/habitat_partners/corp_prog.html

14. Wisconsin Department on Natural Resources:

http://www.dnr.state.wi.us/org/land/er/how_you_can_help.htm

15. Department of Conservation, New Zealand Government:

http://www.doc.govt.nz/Conservation/001~Plants-and-Animals/Threatened-Species-Trust-Programme.asp

http://www.doc.govt.nz/Conservation/002~Animal-Pests/001~Control-Methods/Bounties.asp

16. Australian Government Department of the Environment and Heritage, Biodiversity threatened species:

http://www.ea.gov.au/biodiversity/threatened/index.html

17. Environmental Defense:

http://www.environmentaldefense.org/article.cfm?ContentID=811

http://www.environmentaldefense.org/documents/1807_HINeneReintrofulltext.pdf

http://www.environmentaldefense.org/documents/929_handbook.htm

18. **Forest Stewardship Council:**

http://www.fscoax.org/index.html

19. **The Hanson Environment Fund:**

http://www.hansonenvfund.org/welcome.php

20. **International Fund for Animal Welfare:**

http://www.ifaw.org/page.asp?id=1058

21. **International Union for Conservation of Nature and Natural Resources:**

http://www.iucn.org/

http://www.iucn.org/themes/fcp/activities/subsidies3.html

22. **Bank of New Zealand Kiwi Recovery Programme:**

http://www.kiwirecovery.org.nz/

23. **Marquette County Community Information System:**

http://www.mqtinfo.org/planningeduc0014.asp

24. **Property and Environment Research Centre, The Centre for Market Environmentalism:**

http://www.perc.org/publications/policyseries/endangered_full.php?s=2

25. **Peregrine Fund:**

http://www.peregrinefund.org/Ann_rep_newsletter.html

http://www.peregrinefund.org/intro.html

http://www.peregrinefund.org/notes_condor.html

26. **Rainforest Alliance:**

http://www.rainforest-alliance.org/

http://www.rainforestfoundationuk.org/rainhome.html

27. **Ramsar Convention:**

http://www.ramsar.org

28. **Real Estate Solutions, Inc.:**

http://www.r-e-solutions.org/wetlands.htm

29. **Centre for Biological Diversity:**

http://www.sw-center.org/swcbd/

30. **Teaming with wildlife:**

http://www.teaming.com/site/wildlife_state.cfm

31. **Bolsa Amazonia Project:**

www.bolsaamazonia.com

32. **Climate Care Organization:**

www.climatecare.org

33. **Fundo Brasileiro para a Biodiversidade:**

www.funbio.org.br

34. **Science and Development Network:**

www.scidev.org

35. **Super Intendencia de Zona Franca de Manaus, Ministerio Desarrollo, Industria y Comercio Exterior de Brasil:**

www.suframa.gov.br

36. **Universidad Nacional de Costa Rica, Revista Ambientito:**

www.una.ac.cr/ambi/Ambien-Tico/90/cchacon.htm

37. **Fondo Nacional para Áreas Protegidas por el Estado, Perú:**

www.profonanpe.org.pe