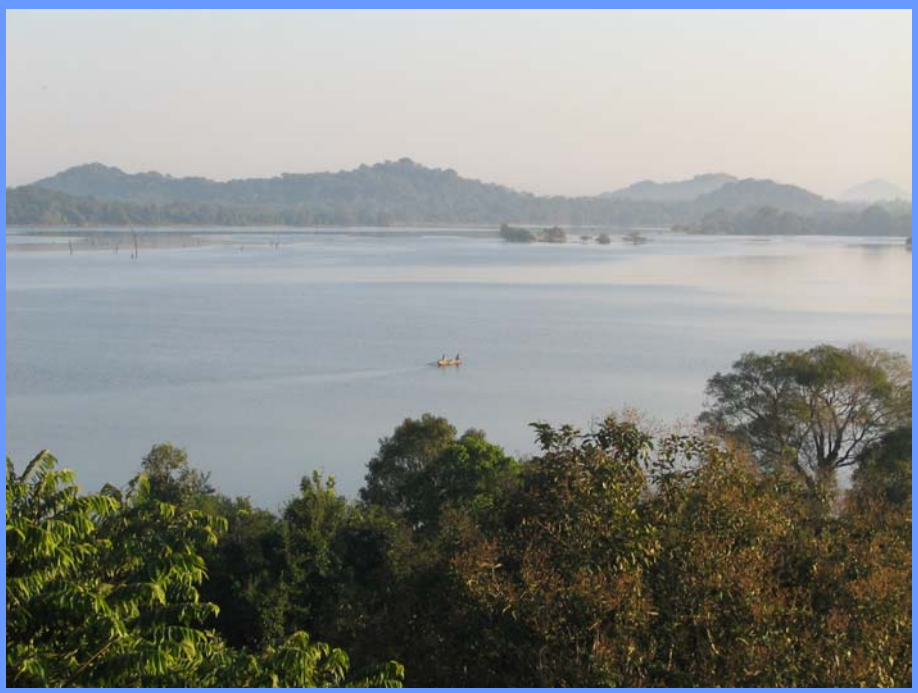
Financial Incentives for Ecosystem Conservation:

A Review of the Development of Markets for Environmental Services in Sri Lanka

Mikkel F. Kallesoe and Diana De Alwis

IUCN Water, Nature and Economics Technical Paper No. 4



Water and Nature Initiative

IUCN
The World Conservation Union

This document was produced under the project "Integrating Wetland Economic Values into River Basin Management", carried out with financial support from DFID, the UK Department for International Development, as part of the Water and Nature Initiative of IUCN – The` World Conservation Union. The designation of geographical entities in this publication, and the presentation of materials therein, do not imply the expression of any opinion whatsoever on the part of IUCN or DFID concerning the legal status of any country, territory or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. The views expressed in this publication also do not necessarily reflect those of IUCN, or DFID.

Published by: IUCN — The World Conservation Union

Citation: M. Kallesoe and D. De Alwis, 2005, Financial Incentives for Ecosystem Conservation: A Review of the Development of Markets for Environmental Services in Sri Lanka. IUCN Water, Nature and Economics Technical Paper No. 4, IUCN — The World Conservation Union, Ecosystems and Livelihoods Group Asia.

ISBN: 955-8177-46-6

Cover illustration: Tank in the Kala Oya Basin, Sri Lanka (Mikkel Kallesoe)

Edited by: Lucy Emerton

Produced by: IUCN — The World Conservation Union, Ecosystems and Livelihoods Group Asia, Colombo.

Available from: IUCN Ecosystems and Livelihoods Group Asia, 53 Horton Place, Colombo, SRI LANKA. Email: iucn@iucnsl.org

IUCN Water & Nature Initiative, Rue Mauverney 28, 1196 Gland, SWITZERLAND. Email: waterandnature@iucn.org

EXECUTIVE SUMMARY

Sri Lanka holds great potential for developing payment for environmental services (PES) and environmental service markets. It is however a relative new concept and improving awareness and building institutional capacity remains a top priority and challenge. Therefore, site specific assessments in support of PES should be developed with the purpose of: identifying, assessing and prioritizing ecosystem services; and supporting the development of equitable institutional arrangements that ensure access to benefits by potential buyers.

Environmental issues and considerations have to a high extent become an integrated part of most laws and regulations in Sri Lanka, and a growing number of decision makers and planners are promoting sustainable management approaches and conservation efforts. Enforcement and state management is however still weak and experiences with implementing sustainable financing mechanisms in an effort to improve local livelihoods and secure environmental integrity are limited. The decentralization of resource management authority in Sri Lanka does however have a beneficial impact on the potentials of establishing PES and environmental services markets. Decentralization can namely potentially reduce transaction costs and improve transparency – elements important to the sustainability of developing service rewards. Also a number of development and conservation projects and initiatives offer some lessons learnt, even though they are not specifically dealing with markets for ecosystem services.

Community participation in resource management and conservation activities is an approach adopted by quite a number of projects where property rights are seen as an important element facilitating sustainable management and the provision of environmental goods and services. In some cases tenure and land use rights are given to local communities thereby providing incentives to engage in watershed conservation efforts.

In Sri Lanka, a large number of community based organizations have added further value to creating the institutional setup needed for implementing PES, and pooling service providers together in one organization makes the monitoring of service provision easier, as well as facilitating the redistribution of rewards. However, often it is difficult to clearly identify which services ecosystems provide, what the value is and who the beneficiaries are.

When considering the sustainability of PES and other financing mechanisms for ecosystem conservation, the distributional aspects of costs and benefits are also very important elements. Payments for environmental services are often based on voluntary transfers between buyers and sellers and hence creating a win-win situation is a prerequisite for success. The buyer must feel confident that the service is actually being provided and that its continued provision is facilitated by the payment. Equally, the seller must have some kind of guaranty that rewards will be provided thereby offsetting the opportunity costs of providing the environmental service.

Areas that are perceived as holding the greatest potential for developing PES are eco-tourism and hydropower. Green agriculture including eco-labelling is also as a very likely sector to engage in PES schemes. Especially, the extensive land use system of home gardens provides an opportunity to engage poor households in the production of organic crops while safeguarding the environment

.

ACKNOWLEDGEMENTS

This study was carried out with financial support from the RUPES (Rewarding the Upland Poor for the Environmental Services they Provide) programme, implemented by ICRAF and funded by IFAD. A version of this document is also published as a RUPES technical paper and can be found at http://www.worldagroforestry.org/sea/networks/rupes/. Particular thanks are due to Jim Peters, then chair of the RUPES Steering Committee, Fiona Chandler, Meine van Nordwijk and Beria Leimona.

RUPES is a programme for developing mechanisms for rewarding the upland poor in Asia for the environmental services they provide. Its goal is to enhance the livelihoods and reduce poverty of the upland poor while supporting environmental conservation on biodiversity protection, watershed management, carbon sequestration and landscape beauty at local and global levels.

TABLE OF CONTENTS

LIST OF ACRONYMS

CBD	Convention on Biological Diversity
CBO	Community Based Organisation
CCEAP	Climate Change Enabling Activity Project
CDM	Clean Development Mechanism
CEA	Central Environmental Authority
CEB	Ceylon Electricity Board
CPC	Cleaner Production Center
DWLC	Department of Wildlife Conservation
ECS	Electricity Consumer Societies
EIA	Environmental Impact Assessment
EPL	Environmental Protection Licenses
ES	Environmental Service
ESDP	Energy Services Delivery Project
ESID	Environmentally Sustainable Industrial Development
FECS	Federation of Electricity Consumer Societies
FWL	Farm Wood Lots
ICRAF	World Agroforestry Centre
IIED	International Institute for Environment and Development
IPM	Integrated Pest Management
IUCN	The World Conservation Union
KHG	Kandyan Home Gardens
KRMBR	Knuckles Range Man and Biosphere Reserve
LOAM	Lanka Organic Agriculture Movement
LRC	Land Reforms Commission
MENR	Ministry of Environment and Natural Resources
MPCA	Medicinal Plant Conservation Area
OECD	Organisation for Economic Co-operation and Development
OPPDC	Organic Product Promotion and Development Center
PES	Payment for Environmental Services
PRSP	Poverty Reduction Strategy Paper
PWL	Protective Wood Lots
REREDP	Renewable Energy for Rural Development Project
RSL	Regaining Sri Lanka
RUPES	Rewarding the Upland Poor for the Environmental Services they provide
SLSI	Sri Lanka Standards Institute
SOFA	Small Organic Farms Association
UNFCCC	United Nations Framework Convention on Climate Change
UWMP	Upper Watershed Management Project

BACKGROUND

The project "Integrating Wetland Economic Values into River Basin Management" has the overall goal of more equitable, efficient and sustainable wetland and river basin management resulting from the practical application of environmental economics techniques and measures. To help to achieve this goal, its immediate objectives are:

- To increase awareness and capacity among planners, policy-makers and managers to identify and use economic measures for wetland conservation.
- To generate and disseminate practical and policy-relevant tools and examples of the use of economic measures for wetland conservation.
- To assess environmental economic aspects of wetland and river basin management at key sites, including the identification of wetland values, economic causes of wetland loss, incentives and financing mechanisms for wetland conservation.
- To work with local communities, government and non-government agencies and the private sector to integrate wetland economic values into development and conservation decision-making and to pilot concrete economic measures for wetland management.

National, regional and global case studies, policy briefs and technical working papers are being carried out as part of this project. These deal with the practical application of environmental economics techniques and measures to ecosystem and river basin management in different regions of the world, including Africa, Asia and Latin America.

This study was carried out by IUCN with financial support from the RUPES (Rewarding the Upland Poor for the Environmental Services They Provide) programme. The main objectives of this study were to provide a situation analysis of previous and ongoing projects and initiatives related to PES and environmental service markets, and to identify challenges, constraints and opportunities for future PES projects in Sri Lanka – hereunder, to identify possible gaps in knowledge and institutional capacity for recognizing potential markets for environmental services and to recommend ways forward. Furthermore, the review was envisaged to facilitate the process of raising awareness and establishing collaboration between stakeholders.

The study focused primarily on markets associated with the provision of the following environmental services: watershed protection and erosion control; biodiversity conservation (including those associated with eco-tourism and medicinal plants); carbon sequestration; and green agriculture and production.

INTRODUCTION:
Rewarding for environmental services

Markets for environmental services: lessons learned

In most parts of the world, environmental services such as watershed protection, carbon sequestration and biodiversity conservation cannot be bought and sold and markets fail to ensure adequate supply. There are several reasons that markets fail to emerge. One of the most important is that many environmental services provided fall into the category of *positive externalities* or *public goods* (Cornes and Sandler, 1996). Markets typically fail to compensate those who produce positive externalities due to the absence of property rights and other legal means or perhaps because the service provision is not recognized by the beneficiaries or maybe even by the providers themselves. Public goods are a special case of externalities distinguished by their non-excludability (consumers cannot be prevented from enjoying the good or service in question) and non-rivalry (consumption of a good or service by one individual does not reduce the amount available to others).

The case that many environmental services are perceived as public goods combined with the underlying characteristics of positive externalities is often used as a central justification for government intervention. Setting rules and regulations regarding the provision of environmental services has, and still is, the overarching approach adopted throughout the world as a way of securing and conserving these services. However, success in developing and imposing rules and regulations on e.g. certain land uses is often associated with its own set of failings. Imperfect knowledge; misalign incentives; inefficient bureaucracies; and rent seeking behavior are some of the possible shortcomings. Also because pressure mounts on governments to curtail spending and cut budget deficits, their ability to invest adequately in the provision of public goods and services can be called into question. Where public authorities have been unable to tackle the public goods problem, they have searched for ways to involve non-governmental actors (Pagiola et al, 2002).

Payment for environmental services (PES) is a relatively new concept in environmental policy that several organizations and institutions have found themselves grappling with. Several definitions of PES can be found in the literature including in the “Handbook of Market Creation for Biodiversity – Issues in Implementation”, (OECD 2004); “Assessing the Economic Value of Ecosystem Conservation”, (World Bank, 2004); and “Silver Bullet or Fool’s Gold” (IIED, 2002). In this publication PES is defined as “a compliance based transaction, often financial, where the improved or secured provision of environmental services associated with sustainable resource management is rewarded by off site beneficiaries”.

Common for all these publications is the notion that unless adequate incentives are provided, the conservation and wise management of environment resources, e.g. forests and watersheds, could be jeopardized. The central idea is to “close the loop” between the service providers and the beneficiaries through rewards, thereby providing a win-win situation and internalizing externalities into the decision making process. Furthermore, it is highlighted that establishing ES markets must be coupled with a conducive policy framework including supporting laws, an enabling institutional setup and ways of managing the regulatory environment.

A desirable market structure for PES, which overall is characterized by transparency and easy access to information, should also provide value and volume information about the services provided and the potential buyers. Effective institutional arrangements to control access, e.g. by allocating property rights, is a prerequisite for developing reward transfers as the economic value can otherwise not be captured. Efficient monitoring mechanisms are also prerequisites to implement PES. One of the most important legal requirements is namely to ensure that property rights over land and environmental benefits are clearly defined (Pagiola et al, 2002, Landell-Mills, N and Porras, I. T., 2002). In addition, a network of supporting regulatory and institutional arrangements may be necessary for markets to function effectively.

The evolution and restructuring of old institutions is generally a slow and iterative process, which evolves in response to changing incentives embodied in the policy and institutional framework. Since a country's policies and laws provide the basis upon which to build, it is essential to understand the environment in which we operate. The following section will therefore examine and outline the current status of the policy, legal and institutional framework in Sri Lanka in regards to developing markets for environment services.

The rationale for PES in Sri Lanka

Sri Lanka, being a country very rich in natural resources, with over 20% forest cover remaining, more than 100 rivers forming an extensive and diverse network and still harboring some of Asia's unique biodiversity, holds great potential for developing markets for environmental services – especially related to carbon sequestration, watershed functions and biodiversity conservation.

Also, given the dominance of agriculture as one of the major sources of income and sectors of employment in the country, acknowledging and rewarding positive environmental externalities provided by green agriculture, such as organic tea or agro forestry in homesteads and spice gardens, offer an opportunity to combine poverty reduction goals with environmental conservation.

Reducing poverty through environmental conservation has become one of IUCN's strongholds and a driving force behind most of its projects. This is also true in Sri Lanka where a strong resource base combined with a high incidence of poverty among natural resource users, provides ample opportunity to tie together the objectives of poverty reduction and conservation.

However, since the natural resources are, as in most developing countries, increasingly becoming under threat by overexploitation, population growth and land conversion, there is a need to develop and apply sustainable financing mechanisms to natural resource management.

PES can, if designed properly, achieve conservation while reducing poverty, and is as a consequence receiving global attention by the development and environmental community.

PES is a relatively new concept in Sri Lanka and has just recently begun to gain ground with the adoption of more holistic approaches to natural resource management. Specific projects or initiatives focusing on developing markets for environmental services are still virtually non-existing and raising awareness about the concept remains a major challenge.

Content of this report

This report provides a situation analysis of previous and ongoing projects and initiatives related to PES and environmental service markets, and to identify challenges, constraints and opportunities for future PES projects in Sri Lanka. It includes sections on:

- A **policy review** providing insight on the legal, political and institutional aspects and arrangements relevant for developing environmental services markets in Sri Lanka. The challenges, constraints and opportunities will be examined;
- A **general review of selected development and conservation projects and initiatives relevant for environmental services** markets and ecosystem payments, including analysis of lessons learnt and future PES potentials;
- A more **in depth analysis of potential PES sites** based on site visits and discussions held with local stakeholders including potential service providers and beneficiaries;
- **Conclusions** on opportunities and ways forward for PES in Sri Lanka taking into account: current government priorities, existing national initiatives and addressing potential constraints.

CONTEXT:
Sectoral policies and ecosystem services

Since 1977 when Sri Lanka decided to adopt and promote a markets-based economy approach, thereby liberalizing trade and opening up for private and corporate investments, fiscal and tax reforms have followed – the main objective being to remove structural constraints in the economy while often protecting national interests. Market based instruments were used to regulate and control environmental utilization and pollution and have since spurred numerous environmental laws, decrees and acts. So far a direct emphasis on rewarding positive environmental externalities, such as ES, is however not to be found in Sri Lanka's legal framework.

Environmental policies and legislation

In Sri Lanka the supply of environmental services is largely in the hands of the State, which is evident when examining the policy and regulatory framework. Sri Lanka has developed a strong legal framework, which backs the country's national sustainable development strategies. More than 90 separate environment-related statutes have been enacted over the last 100 years directly or indirectly for environmental protection and natural resource management. The pledge given in the 1978 Constitution to safeguard the environment was formally institutionalized with the enactment of the National Environmental Act No.47 of 1980. This Act established the Central Environmental Authority (CEA) in 1981 as the primary state agency responsible for the "formulation and implementation of policies and strategies for the protection and management of the environment in Sri Lanka".

As mentioned environmental policy in Sri Lanka has traditionally focused on government regulations aimed at controlling environmentally harmful activities. This is reflected in the National Environmental Act (1980 and 1998) the Forest Ordinance (Amended 1998), the Soil Conservation Act of 1951 and amendment in 1996, the Coast Conservation Act (1988) and the Mine and Minerals Act (1992). New regulations were introduced and new institutions established under the Mines and Minerals Act to control the mining of gems, sand, clay and other minerals, and to make mandatory the rehabilitation of mined lands. Legal instruments such as environmental impact assessments (EIA) and environmental protection licenses (EPL) have been introduced to ensure that development programs do not adversely impinge on the environment.

The opportunities for other partners (e.g. local communities) to participate in the provision of environment services is recognized as fundamental to developing markets (Pagiola et al, 2002, Landell-Mills, N and Porras, I. T., 2002). In the mid nineties, emphasis was given to participatory environmental management. For example, the Forest Ordinance revision of 1998 contained provision for participatory forestry and as a consequence participatory forestry projects were implemented. Revisions in 1996 to the Fisheries and Aquatic Resource Act promoted setting up local fishery management committees. In 1988 revisions to the Irrigation Ordinance gave mandate to the establishment and participation of farmer organizations. The national Environmental Amendment Act of 1998 also introduced public participation to the Environmental Impact Assessment process. In summary Sri Lanka has a substantial track record allowing for public and local participation in environmental management, which is a very important feature when wanting to develop markets for ES.

The National Environment Policy and other sector policies such as the Energy Policy, the Rural Renewable Energy Policy, the National draft CDM Policy, the National Forestry Policy, the National Policy on Wild Life Conservation, the National draft Watershed Policy, the National

Water Policy, and the National Policy on Urban Air Quality Management all recognize the need for private sector and community participation in the provision of environmental services. Associated with these policies are a number of strategies and guidelines that equally recognize the participation of private sector and local communities. These include the Biodiversity Action Plan (1999), the Coastal Action Plan (2000), the Clean Air Action Plan (2000), the Forestry Sector Master Plan (1995), the Five Year Development Plan of the Department of Wild Life, the National Strategy for Solid Waste Management, the Guidelines on Safety Measures to be Adopted in Handling Hazardous Waste, the Guidelines for the Establishment of Hazardous Waste Disposal Sites, the Code of Ethics for Biodiversity research, the National Bio-safety Guidelines, the Biodiversity Legislation (draft stage), the Invasive Plants Action Plan (draft stage), the National Agriculture, Food and Nutrition Strategy, the National Conservation Strategy and the National Strategy for Clean Development Mechanism.

Supported by a wide range of comprehensive frameworks, strategies and guidelines for environmental management and sustainable development, a new environmental bill is being drafted that presents a framework for national environmental policy, involving both the public and private sector. Section two of this draft bill states that "every person shall make every practicable effort to follow the path to sustainable development". Certain fiscal policy instruments such as taxes, charges and liability rules formulated on the basis of the “polluter pays principle”, subsidies to encourage environmentally less stressful activities and resource use taxes have been identified as appropriate tools in the recent environmental action plan: Caring for Environment 2003-2007 (MENR, 2003). Specific instruments that are suggested used to regulate environmental resource use and damage include taxes on electricity, fuel and water.

Poverty reduction

In Sri Lanka’s poverty reduction strategy paper (PRSP) “The Future- Regaining Sri Lanka 2002” the government recognizes productivity improvements as never ending and the core strategy of regaining as accelerating economic growth by removing the barriers to productivity. It also recognized that,

> *"Environmental degradation is an increasingly serious concern. In the rural areas the key problems include deforestation and soil erosion . . . Insecure land use and tenure rights and uncontrolled access to natural resources are two of the major causes of resource degradation. Socially disadvantaged groups tend to move to areas where they can access land or marine resources, adding pressure to a fragile resource base."*

In order to achieve the objectives of the RSL, sustainable managing the environment plays a key role. Long term forest use leases have been recognized as opposed to short term permits, leases to low income communities are made possible through a participatory process, private sector investments in eco-tourism are encouraged, and the development and empowerment of buffer communities is promoted, all of which can be important when establishing markets for environmental services. Overall the RSL further emphasizes the need for community driven development and participation in the management of Sri Lanka's fragile natural resource base. Community participation has become one of the top priorities in recent development policies supported by the present government (elected in April, 2004).

Decentralisation

Another aspect important, in regards to PES and ES markets, and often providing an obstacle for market development are transaction costs. High transaction costs are often found when the decision making process is highly centralized.

Fortunately in Sri Lanka, under the Thirteenth Amendment to the constitution, Provincial Councils have the authority to enact and implement any statute related to their responsibilities. A decentralized administration, which creates more opportunities for the active participation of stakeholders at grass root level, is more conducive to the pursuit of sustainable development as well as the creation of ES markets since these are site specific. However, few Provincial Councils (Ex. North Western Province, North Central Province) have adopted their own environmental regulations to monitor development activities in their respective provinces.

In addition to developing policy, legislation and a regulatory framework, the State will in certain instances also play a central role in the negotiation process involved when establishing PES – either directly as a beneficiary/buyer, a provider/sellers or as an intermediary/broker of environmental service markets.

Operations within a number of sectors either directly provide environmental services or impact these. In the following section, the opportunities and potentials associated with the sectors of energy, industry, water, agriculture, forestry and wildlife will be examined. Furthermore, introducing and applying cleaner and energy efficient production, organic agriculture as well as the increased participation of communities and the private sector all indicate a strive towards undertaking mitigation measures or applying environmental friendly technology. The examined sectors all hold some potential for developing markets for environmental services.

Energy sector

Since 1977 The Ministry of Power and Energy have followed the path of using least cost energy options to meet Sri Lanka's future power requirement. This includes reducing dependence on imported fuel, diversifying the energy sources by promoting renewable energy and improving management efficiency. In certain cases the Government has facilitated private sector participation in the development of grid-connected mini-hydro schemes by guarantying a minimum price for produced energy. Community based off-grid power generation is also encouraged.

The productivity of many power-generating schemes based on renewable sources such as wind, water and thermo highly depend on environmental conditions including the state and provision of environmental services. In recognition of this the Government has so far undertaken two projects one titled *The Energy Services Delivery Project* and the other looking at the *Potentials of Renewable Energy for Rural Economic Development*. Activities have included a national survey on the availability of commercial biomass in Sri Lanka, an assessment of the potential for mini and micro-hydro power schemes, windmills and solar PV systems, capacity building exercises to strengthen relevant institutions and finally establishing an energy conservation fund. Furthermore, the Ceylon Electricity Board (CEB) and several NGOs have established more general energy auditing procedures along with labeling programmes and awareness programmes on environmentally friendly and energy efficient technologies have been developed (MENR, 2002).

Till date there are no cases, in Sri Lanka, where power production is linked with providing rewards to service providers. However, the existing energy conservation fund could act as an intermediary facilitating some sort of transfer between environmental service providers and beneficiaries. Having an established intermediary might also reduce transaction costs.

Industry sector

Among industries, introducing the concept of clean technology has been on the agenda for the last decade. A National Industrial Pollution Management Policy was adopted in 1996, which recognizes the need to move away from purely resource-based industries towards knowledge and technology based industries, and provides guidelines to doing so. Recently, and probable largely consumer driver, many industries have recognized the economic benefits from

developing and implementing technologies that are environmentally friendly and less polluting. Environmentally sustainable industrial development (ESID) is a new approach in this direction and a Cleaner Production Center (CPC) has been established (MENR, 2002). Regulations on hazardous waste management were gazetted in 1996 and a National Solid Waste Management Strategy was launched in 2000. One programme addressing pollution and being jointly implemented with local authorities is the *Pavithra Ganga Clean Rivers Programme*.

Water sector

Water is becoming an increasingly scarce resource in Sri Lanka, mainly due to reduced precipitation, growing water demand, inefficient water use and environmental degradation (especially watersheds). There is, however, a general acceptance and understanding that watersheds and forests provide environmental services vital to overall water supply. Intuitively it would therefore seem evident that this sector stands to benefit significantly from watershed conservation and that a positive willingness to pay for ES should be present.

At present about 85% of all fresh water is utilized for irrigation purposes. Other major water users include hydro power plants (Ceylon Electricity Board) and potable water supply authorities (National Water Supply and Drainage Board). As mentioned, total water demand is rapidly growing stressing the need to improve the efficiency of water use and to plan water allocation carefully. To deal with these issues, the Water Resource Council and the Water Resource Secretariat were established in July 1995 and January 1996 respectively. As a result, the Water Resources Policy was formulated and approved by the Cabinet of Ministers in 2000. In the formulation of this new water policy large emphasis was placed on the financial sustainability of all existing and future infrastructure projects and investments. Competition for water between sectors and for different uses is also recognized in the policy, and an integrated management approach is recommended along with the idea of sharing management costs. Regarding water allocation aspects, introducing water rights through permits and transferable water entitlements are suggested as means of obtaining more effective and efficient use. The management and control of these permits should commence on a decentralized river basin level and undertaken by authorities such as the National Water Resources Authority, the Regional Water Resources Management Agencies, the River Basin Organizations and the Water Mediation Board. A well-developed information system, containing water related data at a basin level including information about water quality and quantity, water regulations and the implemented management approach, is also identified as important in the policy. Finally, crop diversification towards crops with low water demand is promoted. However, as often is the case, the public has heavily criticized the idea of introducing water charges and hence the actual implementation of the water policy has been deferred. Concurrently, a new Water Resources Act is, however, under preparation.

To date most experiences in applying a holistic approach to water and river basin management stem from *The Upper Watershed Management Project* (UWMP) launched in 1998 as well as a national initiative focusing on the institutional arrangements needed for integrated river basin management. The latter identifying the Kala Oya Basin as a pilot site. Under the UWMP there are examples where local organizations have been established with a mandate of managing adjacent watersheds thereby empowering rural communities.

As mentioned the water sector is probable one of the sectors most likely to develop and support PES, given the very close and identifiable links between the provision of environmental services and the positive impacts on water supply – incentives seem evident.

Agricultural sector

Agricultural activities form a vital part of many people's livelihoods in Sri Lanka, especially the poorer groups, and production has expanded rapidly. In 10 the country has gone from being a

rice importer to becoming self-sufficient. The observed rapid increase in production has however fostered environmental problems in the form of soil erosion and pollution mainly due to land conversion and the heavy application of agrochemicals. Recognizing the health and environmental problems associated with an extensive use of pesticides and chemicals has fostered an official policy on Integrated Pest Management (IPM).

In the new agricultural policy of 2003 the Government urges the implementation of sustainable agricultural practices and financially supports organic farming initiatives. A national expert committee on organic agriculture has been formed and a national center on organic production and promotion is underway. Eco-labeling is still a relative new concept in Sri Lanka, but several commercial industries (e.g. tea producers) have recorded that environmentally friendly produced products can generate increased earnings by supporting a higher price. As will be seem in the following chapter, when the case of organic grown tea is examined further, promoting eco-labeled products holds a potential to support the conservation of environmental goods and services.

Forestry sector

In 1995 a new National Forest Policy was formulated and received government approval. The policy emphasizes the importance of conserving existing natural forests while increasing the overall tree cover. A large part of Sri Lanka's natural forests have been designated as protection forests based on their biodiversity and watershed values. At the same time many forests outside the protected areas system have been identified as multiple use forests to be promoted under the assumption of sustainable management.

The Forestry Sector Master Plan, which was developed to outline the implementation of the National Forest Policy places great emphasis on community involvement in forest management and supports giving land tenure rights over degraded forestlands to local communities. Several case studies will be presented in the following illustrating the benefits of securing property rights towards environmental rehabilitation and conservation.

Wildlife sector

In Sri Lanka there currently exists 3 strict nature reserves, 2 nature reserves, 14 national parks and 54 sanctuaries all of which fall under the purview of the Department of Wildlife Conservation (DWLC). The first national policy on wildlife conservation was formed in 1990 and in 1994 Sri Lanka ratified the Convention on Biological Diversity (CBD). Ratifying the CDB provided a new dimension for managing wildlife according to the three themes of conservation, sustainable use and benefit sharing. As a consequence a new National Wildlife Policy was formulated in 2000 to underline the Government's commitment to conserve Sri Lanka's wildlife for the benefit of present and future generations, while assuring the sustainable use of the resources for education, recreation and research purposes in a transparent and equitable manner.

The need for effective Protected Area Management with the participation and involvement of local communities is also recognized in the policy, and is driven by the fact that communities living in and around protected areas often pose severe risks to wildlife by encroaching the boundaries for livestock grazing, fuel wood collection and even timber harvesting. Fortunately an increasing number of examples exist where young people from adjacent communities have been employed as tourist guides or park rangers thereby linking their livelihood to conservation rather than environmental degradation.

Environmental goods and services provided by national parks and other protected areas are not only important for buffer communities, but form the basis of operation for a large number of tourism operators. Foreign and local tourists enjoying Sri Lanka's national parks are charged several fees including an entrance fee and a vehicle fee. In terms of PES, protected areas

coupled with tourism, is believed to hold a tremendous potential for rewarding buffer zone communities for the provision of recreational services, especially if part of the fees paid by tourists could be retained for this purpose.

In summary

Environmental issues and considerations have to a high extent become an integrated part of most laws and regulations in Sri Lanka. Many decision makers and planners are increasingly recognizing implementing sustainable management approaches and promoting conservation efforts as the appropriate path. A number of general observations, relevant for developing environmental service markets, can be drawn from the above policy review and include:

- Many policies recognize community and private sector participation in natural resource management indicating the potential for local communities to become environmental service providers;
- There is an increasing awareness and appreciation of the values and benefits provided by environmental services;
- Sri Lanka's decentralization process and delegation of authority to provincial and local level authorities, as well as increasingly providing local communities with tenure rights and land ownership, are expected to have a positive impact on transaction costs associated with PES and markets for environmental services;
- Imposing stricter pollution and emission standards and control is believed to facilitate the recognition and conservation of ecosystems based on their ability to assimilate waste and regulate environmental quality;
- In Sri Lanka there is an extensive legal framework, but enforcement is often weak mostly due to insufficient funds;
- Institutional capacity and coordination also remains rather weak and can be seen as a constraint towards developing PES and markets for environmental services;
- Environmental externalities, positive or negative, are generally not directly recognized and there is no legal or policy support for demanding e.g. the compensation of pollution victims or having to reward ES providers.

EXISTING INITIATIVES: Projects involving environmental rewards

Examining PES projects and initiatives would ideally assist in providing information and lessons learnt regarding circumstances and conditions related to what form environmental service markets take, why and how they evolve, how the markets relate to the poor and finally what the key constraints for their development are. Unfortunately, answering many of these questions directly is not possible in the case of Sri Lanka, simple because no PES projects and initiatives have been undertaken and therefore experience is very limited.

However, in an effort to identify the potentials for establishing environmental service markets in Sri Lanka, a number of projects and initiatives, hereafter called case studies, have been selected for further review. The case studies have been selected among development and conservation projects that contain elements directly linked to PES or which are dealing with aspects relevant for developing service payment mechanisms e.g. creating incentives or intervening to change land uses in favor of conservation and sustainable use, ownership and land tenure rights, the participation of rural communities in environmental service provision, creating awareness about environmental services and organizing communities into management entities.

Lessons learnt and information relevant to this review will be highlighted. Furthermore, besides reviewing specific projects and initiatives, certain areas and management systems will be included in the following as case studies. Common for all case studies is however that they are relevant for, one or several, of the environmental services: *watershed protection and erosion control; biodiversity conservation (including eco tourism and medicinal plants); carbon sequestration; and green agriculture and production.*

Keeping in mind the need for a more integrated understanding of government regulations and policies as well as market mechanisms, this section seeks to explore how markets for the above environmental services are emerging or hold a potential to emerge and how they fit into a broader development context. Also constraints and key challenges will be identified. The ultimate objective of this section is to improve our understanding of how markets for environmental services could evolve, how markets might differ, what the benefits and pitfalls of potential markets would be, and to identify interventions needed to facilitate PES in Sri Lanka. Particular attention is given to impacts towards poorer households and initial thoughts are put forward on how policy makers might promote markets for environmental services and link PES to environment and natural resources management.

The review was undertaken based on information collected from published and unpublished documents, interviews with relevant stakeholders and internet search.

Case 1: Participatory forestry on degraded forest lands

Project description

Between 1993-2000 the government of Sri Lanka implemented the Participatory Forestry Project, with the intent of reducing deforestation and improving household livelihoods by promoting co-management and agro-forestry. The project targeted all state owned degraded forestlands except in the north and eastern provinces. The project's main objectives were to facilitate reforestation, by issuing lease agreements to farmers and by adopting a participatory

approach to forest management. It was envisaged that this would create employment opportunities, raise income, reduce poverty and rehabilitate degraded areas. Furthermore, the institutional capacity of the forestry department was to be strengthened thereby enabling the expansion of its programmes for non forest tree planting, adoptive research and privately operated village plant nurseries. Over the 7-year project period the target was a total of 14,750 hectares of reforested land, 9,000 hectares of homestead gardens, 4,000 hectares of farm wood lots (FWL), 1,500 hectares of protective wood lots (PWL) and 250 hectares of miscellaneous plantings.

The objective of the Homestead Garden subcomponent was to improve poor families' livelihoods and health status by providing alternative livelihoods in the form of growing and selling timber and fruit. Between 20 and 40 seedlings of timber and fruit tree species were distributed to each household involved in the project.

The main objectives of establishing Farm Wood Lots (FWL) was to bring the illegal encroachment and logging of state forests to a halt while developing poor rural areas. Local communities and farmers were provided with lease agreements in return for undertaking sustainable forest management. Within a block of 20 to 30 hectares of degraded forestland, 0.4-hectare plots were given to poor and marginalized farmers for a period of 25 years - this included ownership over the trees grown in the wood lots. Lease agreements where subject to yearly renewal the first five years based on the farmers compliance towards maintaining the allocated land under forest cover. After the 15th year commercial thinning would be allowed with the approval of the Forest Department. During the initial phases of the project participating households where also provided with food coupons in return for labor.

Relevance towards PES and environmental service markets

Although the Participatory Forestry Project has been implemented with a main focus on reducing poverty and rehabilitating degraded forestlands, certain elements related to the suggested management structure and tenure rights bear relevance for PES and environmental service markets.

Providing farmers with property rights, even for a limited period of time, has proven as an important first step in creating incentives for reforestation and sustainable land management. Secured land tenure rights are often seen as a prerequisite for the continuous provision of environmental services, and as an initial guaranty that providers are able to influence and secure service provisions through their actions. Also developing a co-management structure seems to strengthen local participation and involvement.

FWL and homestead gardens are excellent examples of how forests, if managed properly, can provide food, timber and income, while maintaining the provision of environmental services. By promoting joint management and **stewardship the** project has been able to improve local livelihoods and generate positive externalities. Unfortunately the beneficiaries of these externalities have not been clearly identified by the project and the value of the environmental services provided by the FWLs and homestead gardens has not been assessed or targeted for reward payments.

It would seem that securing property rights is not enough in itself to secure the continuous flow of services unless the direct values generated by the FWLs and homestead gardens, in the form of timber and fruit, are large enough to off-set the opportunity costs of continuing illegal encroachment and logging. Most likely, during the project's lifetime support in the form of food coupons and extension services has, to some extent, facilitated achieving sustainable outcomes. However presently, continuous efforts towards proper forest management seem to be threatened, and securing a sustainable situation where illegal activities are kept at bay calls for appropriate incentives. Compensation for the provision of environmental services could be one option that would imply beneficiaries rewarding environmental service providers.

Identifying and understanding the drivers of environmental service supply and demand is an initial step when developing markets for environmental services. Supply side drivers often depend on effective management and the ability to offer credible commitments towards the future supply of environmental services, which as mentioned internally, depends on providers holding property rights. Access to state forests through property rights, in the form of lease agreements, can in the participatory forestry project be utilized as the initial driver to kick-start the development of PES.

Developing markets would, in this case, be premised on the fact that the forests actually do provide services that are in demand and have a value. Understanding forest's added value and link to watershed conservation and benefits in the form of e.g. reducing floods, regulating seasonal flow, improving water quality, reducing downstream sedimentation, maintaining aquatic habitats, storing carbon and providing recreational values, is therefore vital. This is, however, not an easy question to answer and highly depends on soil composition, the hydrological conditions and the microclimate in general. Markets may even with limited data concerning these linkages, never the less, evolve as long as the forests are perceived as providing services, and that the beneficiaries hold a positive willingness to pay.

Furthermore, assessing the benefits of the services being provided and determining which activities influence their provision as well as identifying the beneficiaries is something that also needs to be explored prior to establishing PES as a sustainable financing mechanism for environmental conservation.

Case 2: Upper Watershed Management Project

Project description

The UWMP was initiated in 1998 and is set to run until the year 2005. The overall goal of the project is to address management issues in four major watersheds in Sri Lanka: Uma, Kirindi, Walawe and Kalu, and to suggest sustainable management approaches.

Main project objectives and components include: providing lessons learnt facilitating the development of a national watershed policy, engaging local communities in forest management and applying a pro-poor approach to rehabilitation and conservation activities, specifically focusing on the upland poor. Activities related to watershed conservation and rehabilitation includes maintaining and increasing forest cover, applying soil conservation measures, addressing elephant-human conflicts and integrating homestead garden developments into the broader basin management.

Land owned by the Land Reforms Commission (LRC) was sourced to farmers based on a 25-year lease agreement, and the farmers were given rights to harvest timber upon completion of the lease. Technical assistance, seeds and plants were provided to the farmers through the project, and bee keeping and livestock raising where introduced as alternative livelihoods. Furthermore, the project initiated a micro credit scheme for the establishment of small timber farms, which acted as a financing mechanism to cover initial costs. By integrating homestead gardens into basin management the aim was to promote sustainable land use and institutionalize social and livelihood considerations into the decision making process.

On a larger scale the project initiated establishing buffer zones, creating fire belts and rehabilitating reservation areas adjacent to water storage tanks. New community based organizations (CBOs) were established and were along with existing CBOs provided with funds and technical support to assist in the implementation of these initiatives. The CBOs were, however expected to provide a 20% financial contribution.

Relevance towards PES and environmental service markets

As was mentioned in case study one, controlling access to resources e.g. by being provided with tenure rights is an important element if PES schemes are to be developed. The difference between case study one and the present is, however, that case study one displays individual farmers as service providers whereas this second case study has a strong focus on CBOs. One might argue that a clear definition of providers, which is needed to target environmental service rewards, could be jeopardized if a group or an entire community receives the payment. Free riding might become a problem, but eventually the definition of who is providing the environmental services and who should be compensated is not for outsiders to decide, but a decision the involved stakeholders should reach in unity. There are, namely, examples where individual providers attribute rewards to the community at large under the assumption that maintaining the environment and securing the provision of environmental services requires collective action.

Another important difference between the two case studies reviewed so far is related to the target audiences for capacity building and awareness raising. In case study one the intension was mainly to build capacity of the forest department. In case study two, however, raising local awareness about the benefits associated with sustainable forest management and watershed conservation has received strong attention – the reforestation and soil conservation efforts were even undertaken through local CBOs. Furthermore, the CBOs have been informed and trained on the off-site watershed services they provide through participatory forestry, and an opportunity for co-operation among service providers has been created through the CBO structure. The UWMP has shown substantial progress in relation to community commitment and interaction. Environmental awareness has improved dramatically and the relationships between resource utilization and environmental impacts are relatively well understood.

Within the Walawe watershed there are examples of small-scale catchments rehabilitation and conservation efforts being driven by local CBOs under the assumption that they themselves will benefit from their actions – mainly through the retention and provision of drinking water.

Case 3: Energy Services Delivery Project & Renewable Energy for Rural Economic Development Project

Project description

The Energy Services Delivery Project (ESDP) was initiated in 1997, with the aim of providing poor rural areas with electricity by introducing village-operated micro-hydropower schemes. The project facilitated the development of these schemes by providing financial and technical support based on proposals submitted by village CBOs. Areas located in sub-catchments, with ecosystem services intact and containing small streams, were given priority. The financial support was provided through private banks to the village CBOs.

When the ESDP ended in 2002, a second phase was initiated under the title: The Renewable Energy for Rural Economic Development Project (REREDP). The REREDP's target is to supply 100,000 households with electricity being generated by off-grid village micro-hydropower plants. Currently, the REREDP pays USD 400 per kilowatt capacity as an installment grant and also covers project development costs up to USD 6,000. At present, there are 1,042 village micro-hydropower plants with an installed capacity of 41,491 Kilowatts in the destricts of: Ratnapura, Badulla, Nuwara Eliya, Kandy, Galle, Matara, Kegalle, Moneragala, Kalutara, and Matale. The development in number of village operated micro-hydropower plants from 1992 to 2000 can be seen below.

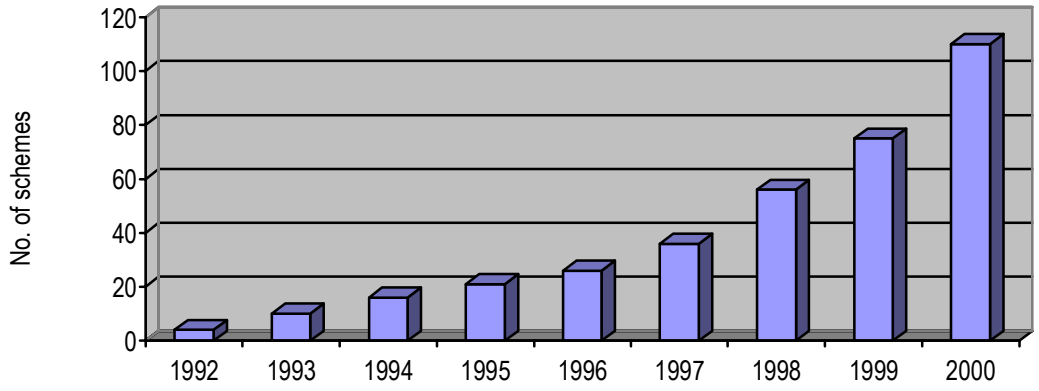


Figure 1: Cumulative growth in village hydro schemes - Source: ITDG

Relevance towards PES and environmental service markets

In the selection process of eligible projects, the state of an area's ecosystem is a determining factor as to whether or nor a proposed projects receive funding. Proposed hydropower plants located in well-managed catchments have a higher likelihood of approval, and hence adjacent communities stand a better chance of benefiting directly from the provision of electricity. Local appreciation towards environmental conservation and ecosystem services has been enhanced through the ESDP and the REREDP.

In some instances local NGOs, CBOs and other community groups have played a crucial role in working with smallholders and securing the provision of environmental services. People's understanding and awareness about the value of ecosystem conservation and sustainable management has greatly improved as a consequence of the two projects, and there now seems to be a common interest in maintaining catchments important for power production.

Another important outcome of the projects, and very useful when considering establishing markets for environmental services, is the level of coordination and joint implementation that has taken place as well as the overall organizational structures that have emerged.

Members of CBOs overseeing the daily operations of the micro-hydropower plants are referred to as Electricity Consumer Societies (ECS). An organization called the Federation of Electricity Consumer Societies (FECS) has been formed and includes all the ECSs. Furthermore, project developers have been brought together under an organization called "VIHIDA", and the suppliers of hydropower technology will shortly also be united under a common structure.

This level of organization provides a great opportunity to target a wide range of stakeholders with a minimal effort. In section 4 an Electricity Consumer Society in Kolonna will be subject to more detailed analysis based on a field visit and conducted interviews.

Case 4: Conservation and Sustainable Use of Medicinal Plants Project

Project description

In Sri Lanka, *Ayurveda*, a healthcare system based on natural resources has traditionally been used for over two thousand years to treat illnesses and deceases. It is estimated that about 30-35% of Sri Lanka's population, mostly rural poor, use and collect medicinal plants (IUCN, 2004).

Most medicinal plants are collected from the wild, but are also increasingly being cultivated in homestead gardens. In order to conserve these valuable plants the government of Sri Lanka implemented the Conservation and Sustainable Use of Medicinal Plants Project in 1998.

The project seeks to secure conservation of globally and nationally significant medicinal plant species and their habitats through (a) in-situ conservation by establishing five medicinal plant conservation areas, (b) ex-situ cultivation by promoting nurseries, homestead gardens, plantation cultivation and supporting propagation and agronomic research and (c) by providing information and institutional support as well as promoting an appropriate legal and policy environment.

In recognition of the fact that many medicinal plants are under treat from over-harvesting and land conversion, the project focused on promoting sustainable harvesting and conservation among communities living adjacent to forests and other medicinal plant habitats. Regulations directly restricting use were also imposed on the five established medicinal plant conservation areas (MPCAs) located in Bibile, Rajawaka, Naula, Kanneliya and Ritigala. In all MPCAs, including buffer zones, the project undertook a socio economic survey, a resource inventory and an ethno botanical survey to provide baseline information on resource dependence, resource status and correlations between culture, livelihood and resource harvesting.

Activities undertaken as part of the ex-situ conservation efforts included supporting the cultivation of medicinal plants in homestead gardens, establishing nurseries and training community members in their maintenance as well as investigating opportunities for selling medicinal plants commercially.

Finally, the issue of intellectual property rights has prompted a legal framework to safeguard traditional knowledge associated with the use of medicinal plants.

Relevance towards PES and environmental service markets

The national and local value of conserving medicinal species in Sri Lanka is apparent when considering the large number of people relying on these plants for healthcare purposes. Medicinal plants and biodiversity in general also represent a significant value on a global scale, which e.g. can be observed through the willingness to invest in bio-prospecting by pharmaceutical companies.

The idea of benefit sharing is relatively new, but has gained ground and is now supported by the Convention on Biological Diversity (CBD). In the past local populations rarely benefited from the discovery of new species or valuable genetic material. The strong emphasis now being placed on retaining and sharing benefits with local communities in connection with natural resource utilization, however, clearly supports the development of PES and biodiversity markets.

Under the Conservation and Sustainable Use of Medicinal Plants Project, growing medicinal plants for commercial purposes has, as mentioned, been promoted and created alternative livelihood opportunities. Market access has been facilitated through the institutional setup established by the project, and capacity building and training have played a central role throughout its implementation. It is quite clear that when biodiversity conservation is able to produce tangible benefits such as tradable products, here in the form of medicinal plants, that incentives will exist to reward the people securing and positively impacting their provision.

In Sri Lanka formalizing PES in connection with biodiversity conservation is believed to hold great potential, especially when coupled with medicinal plants or other high valued products.

Case 5: Innovations and Application of Participatory Economic Planning for Conservation of Biodiversity and Water Resources in the Knuckles Range of Forests

Project description

In 1960, the Forest Department had issued permits to farmers allowing them to cultivate cardamom on forested state land, within the Knuckles Range, and in 1970 large areas of forest were leased out to big commercial cardamom cultivators. As a consequence, forest degradation and practises of slash and burn emerged. However, in 1988 the Knuckles Range was declared a Man and Biosphere Reserve. Cardamom cultivation was prohibited and a large number of farmers lost their livelihood.

In response to the severe impact on local livelihoods caused by designation of the Knuckles Range Man and Biosphere Reserve (KRMBR), IUCN in collaboration with the Forest Department initiated the "Innovations and Application of Participatory Economic Planning for Conservation of Biodiversity and Water Resources in the Knuckles Range of Forests Project" in January 2002. The main objective was to promote community participation in forest conservation by developing alternative sources of income, which relied on conservation efforts. The buffer zone communities in the KRMBR were the main targets.

Under the project sustainable agricultural practices were introduced and income generating conservation supporting initiatives (e.g. eco-tourism) were undertaken based on a principle of benefit sharing and local participation.

Sustainable agricultural practices in homestead gardening were promoted mainly focusing on the cultivation of high-value crops such as pepper and fruits. Extension services in the form of technical advice and provision of seedlings were also included as project activities. Over the course of the project (2-years) seven minor irrigation structures were built in accordance with local priorities, and vocational training programmes, for young villagers, focusing on tourism related activities such as tour guiding have been conducted.

Through the project, slash and burn practices have to a large extent been abandoned in favor of long-term standing crops such as pepper and fruits, and the construction of minor irrigation tanks have enabled farmers to intensify their paddy cultivation as well as farm a variety of vegetables.

Relevance towards PES and environmental service markets

Within the KRMBR a number of environmental services are being provided in the form of biodiversity conservation, carbon sequestration, watershed protection and landscape beauty. The KRMBR, which covers an area of approximately 17,000 hectares is located in the central highlands of Sri Lanka and includes several climatic zones and landscape types thereby supporting a wide range of vegetation, from lowland semi-evergreen forests to mountain forests, as well as unique biodiversity including many endemic and threatened species (IUCN, 1994).

When considering developing PES and environmental service markets, the KRMBR holds a great potential, especially in relation to eco-tourism. Local awareness about the recreational value of biodiversity has greatly improved with the project, and communities have experienced the income generating opportunities associated with tourism. The youth has been trained as tour guides and infrastructure development has provided easy access to the area. Finally,

similar to case 3 above, the project has promoted the idea of buffer zone communities acting as environmental guardians.

Targeting tourists visiting the area for financial contributions to sustain the provision of recreational services, would probable be one of the first steps in developing a PES scheme for the KRMBR. However, there is a presumption that most services provided by a forest are complementary and that increased investment in one service will have positive spin-offs for others. The idea of bundling services from the KRMBR might therefore be an option making it possible also to reward providers of services not directly enjoyed by tourists, but never the less important for the overall recreational experience.

Case 6: Climate Change Enabling Activity Project

Project description

The institutional capacity in Sri Lanka to develop CDM and other climate change projects is rather weak and experiences are therefore limited. As a consequence the second phase of the Climate Change Enabling Activity Project (CCEAP) was initiated in April 2001, under the Ministry of Environment and Natural Resources, to facilitate the process of CDM project development, enhance institutional capacity and assist in the preparation of the Second National Communications Strategy on Climate Change.

Under the CCEAP a Senior Research Programme and a Junior Research Programme were undertaken. The objectives were: to access the impacts of climate change on the different sectors of the national economy i.e. by conducting vulnerability studies; to develop an adaptation strategy; and to recommend mitigation measures needed to offset and limit potential impacts of climate change.

Capacity building activities focused on strengthening the expertise of the Ministry of Environment and Natural Resources, which is the national designated authority for CDM, and by establishing a Climate Change Secretariat, a National CDM Expert Committee, as well as preparing a CDM policy.

During the course of the project, 58 research studies were completed and are to be complied in the publication *Climate Change in Sri Lanka – Vulnerability, Mitigation and Adaptation*. Furthermore, a database in now available on a number of topics pertaining to climate change in Sri Lanka, including: future climate scenarios; regional climatic variability; emissions from forestry and rice cultivation; solid waste and automobiles; vulnerability of land and water; selected food and plantation crops; coral reefs; health and pests; mitigation through rubber cultivation, vegetation in urban areas; and micro hydro power generation and global warming.

Relevance towards PES and environmental service markets

According to the United Nations framework convention on climate change (UNFCCC), only afforestation and reforestation projects are eligible for CDM. More specifically: the establishment of woodlots on communal lands; the reforestation of marginal areas with native species; the establishment of new industrial plantations hereunder the establishment of biomass plantations for energy production; the introduction of trees into existing agriculture systems (agro-forestry); and the rehabilitation of degraded areas through tree planting or natural regeneration are all classified as eligible CDM projects under the Bonn Agreement.

In Sri Lanka, the sectors identified by the draft CDM policy as most eligible for carbon sequestration projects are: agriculture; forestry; and energy. Projects related to agro-forestry, reforestation, afforestation and plantations for industrial and biomass production purposes, are

promoted as providing poor households with an opportunity to participate in forest management while potentially gaining financial rewards through carbon trade.

However, there is, as mentioned, still a lack of capacity in the area of CDM and carbon trade in Sri Lanka and establishing a formal market for carbon credits is still in its very initial stage.

Private sector initiatives

Developing markets for environment services typically involves a wide range of stakeholders including state agencies and institutions, non-governmental organizations as well as local communities. In Sri Lanka several private sector initiatives in the field of natural resource management have emerged and are presented below.

Private plantation initiative

Created in 1988, Help Green (Pvt.) Ltd., has developed an environmentally friendly concept of commercial forestry, where private investments are attracted by offering substantial economic returns from timber sales as well as contributing towards environmental health. Investors can according to Help Green make money while safeguarding the environment – a combination attractive to many people.

To date 1,200 acres of teak are being successfully grown in their plantations, located in the dry zone of Anuradhapura, Dambulla and Anamaduwa, an area expected to increase to 10,000 acres within the next 10 years.

Help Green's overall role is to provide management services during the 20-year investment period and to secure high quality timber and good yields. As compensation for their services Help Green charges an annual management fee as well as approximately USD 10,000 per hectare teak plantation. The payment covers plantation costs, insurance against crop failure and a 20-year land lease. Each plot of land sold is initially planted with 140 teak seedlings and after 20 years it is estimated that 100 fully-grown teak trees remain, which are eligible for sale, providing some 2,000 cubic feet of wood.

In their marketing Help Green emphasizes the environmental benefits associated with their operations, mainly afforestation of degraded areas and facilitating the provision of environmental services. By promoting an eco-friendly approach, Help Green appeals to a broader audience, and has proven successful in bundling a commercial product (timber) with environmental considerations.

As a new initiative Help Green has expanded their business model to include agro-forestry and eco-tourism services. There are examples where investors have introduced cash crops like soy bean, chili, sweet potato, ginger and sunflower as intercropping with teak trees thereby both increasing revenue as well as stimulating tree growth. Also in a plantation in Anamaduwa there are plans to develop recreational facilities around a small lake.

Traditional land use

Sri Lanka has a very strong tradition of combining agriculture and forestry. As a consequence examples of agro-forestry practices are numerous, widespread and found in all climatic zones of the country. A wide range of species, both trees and crops, are cultivated in these traditional land uses systems.

The Kandyan Home Gardens (KHGs), found around Kandy in the central highland of Sri Lanka, are traditional systems of agro-forestry, which over time have evolved into unique ecosystems providing numerous goods and services. KHGs cover as much as 40% of the Kandy District and primarily contain perennial and semi-perennial trees, shrubs and as many as 30 different crops.

An economic assessment conducted by Kotagama H.B. et al revels that the KHGs form an important part of local livelihoods and yield both cash crops and products for subsistence use. Furthermore, through the sustainable management of these areas a wide range of biodiversity is conserved, and harvest pressure on natural forests is reduced. Services in the form of soil conservation, carbon sequestration and recreation are also provided by these man-made ecosystems. The KHGs are often found on steep slopes, where heavy rainfall could easily lead to severe erosion and flush floods were it not for the ground cover provided by the KHGs.

The central highland of Sri Lanka, including Kandy District, is the largest and most important watershed of the country and the starting point of the Mahaveli River. The Mahaveli is the longest river in Sri Lanka and provides water for a number of other major waterways, most of the countries irrigation and 5 large hydropower plants.

Despite their importance and measurable benefits, towards local livelihoods and the environment, the KHGs are under threat from commercial monoculture plantations, population pressure and land fragmentation. So far no studies have been undertaken to fully assess the environmental benefits provided by this traditional farming system, and little knowledge exists of the cultural value. For the purpose of this report the KHGs were visited and a more elaborate picture of situation will be given in the next section.

Organic agriculture

Over the last few decades, the organic production of especially fruit, tea and spices has expanded rabidly in Sri Lanka. Producers have responded positively to a growing consumer demand, both locally and internationally, for environmentally friendly produced products, and have realized that limiting the use of chemicals and artificial fertilizer can be a profitable business. A large number of consumers ascribe organic products with health benefits and environmental values, and hence organic products can fetch a price premium compared to conventionally produced products.

In the year 2000, 28,500 acres of land were cultivated with organic products and another 9,100 acres were under conversion, involving over 3,300 farmers and employing some 4,250 workers (Ranaweera, S., 2000). In financial terms organic products now generate more than 31 million USD a year – see table below.

Table 1: Turnover of organic products in USD

Product	Year				Total US$	%
	1988	1999	2000	2001		
Fruit	500,000	1,300,000	2,700,000	4,000,000	8,500,000	26.8%
Tea	2,273,500	2,429,500	3,164,500	3,565,500	11,433,000	36.0%
Spices	696,500	1,193,500	1,253,000	4,091,500	7,234,500	22.8%
Other	239,000	674,000	1,487,000	2,164,000	4,564,000	14.4%
Total	**3,709,000**	**5,597,000**	**8,604,050**	**13,821,000**	**31,731,500**	**100%**

(Source: Ranaweera, S., 2000)

Needless to say there is a positive correlation between implementing organic farming practices and environmental benefits – especially by limiting pollution from effluent discharges and agrochemical runoffs. Also the provision of environmental services, such as soil conservation and water supply, may be supported by this type of sustainable management and cultivation system. However, these benefits are often not recognized and hardly ever compensated.

In Sri Lanka, organic tea plantations are found in hilly areas, which are prone to soil erosion, and which form an integral part of many watersheds (Mohotti, K., 2004). Besides securing

watershed services, the tea estates have also proven to hold high recreational values, and many of Sri Lankas top hotels are situated adjacent to the plantations.

Income generated from other organic cultivated products such as spices, desiccated coconut, dried fruits and vegetables, herbs and cashew nut support a large number of small scale farmers that are organized in established cooperatives. The price premium associated with eco-labeling these products is crucial to the large number of poor rural households engaged in this trade, especially because they only have access to very small plots of land and therefore a limited output. However, high transaction costs and large certification expenses pose severe constraints towards small producers wishing to enter this market on their own. Organizing producers into e.g. farmer groups becomes important in order to benefit from economies of scale. An example of how individual farmers can benefit from engaging in the production of organic tea and spices will be illustrated is the next section when the strategic approach adopted of Bio Foods (Pvt.) Ltd is presented.

The recent launching of the Lanka Organic Agricultural Movement (LOAM) as well as government initiatives to promote organic agriculture provide opportunities to expand and develop new initiatives to *"green"* agriculture in Sri Lanka. A National Expert Committee on organic agriculture as already been established by the Ministry of Environment and Natural Resources and setting up an Organic Product Promotion and Development Center (OPPDC) has been proposed.

A number of international certification systems[1] are used in Sri Lanka and several fair trade schemes, such as Max Havelaar, are being promoted. Also the adaptation of ISO standards under the Sri Lanka Standards Institute (SLSI) form part of the basis upon which companies seek guidance on implementing quality and environmental management approaches. The SLSI has initiated the ISO 9000 quality management systems and the ISO 14000 environmental management system standards with the industrial sector. Since the launch of ISO 14000, over 300,000 companies worldwide have been certified against this standard, and in Sri Lanka 14 industries, mostly private, have already obtained an ISO 14000 certification. As a consequence of certification a number of benefits have been reported by the 14 companies e.g. increased market opportunities, cost savings, compliance with environmental regulations, improved customer and stakeholder satisfaction, better cooperate citizenship and reduced environment impacts.

In Summary

Although none of the case studies reviewed above were specific PES projects, a number of broad lessons can still be learnt, and policy trends important towards developing markets for environmental services can be identified.

Securing effective management e.g. through defining and allocating property rights is a basic requirement to ensure credible commitments and accountability of communities in providing environmental services. Furthermore, collective action is often a prerequisite for justifying rewards for watershed services (Pagiola et al, 2002 & Landell-Mills, N and Porras, I. T., 2002). In case 1, 2 and 3, tenure and land use rights were given to local communities thereby providing incentives to engage in watershed conservation efforts. Organizing communities in CBOs has added further value to creating the institutional setup needed for implementing PES, and unifying service providers in one organization makes the monitoring of service provision easier, as well as facilitating the redistribution of rewards. In case 3, the actual value of watershed protection came in the form of power generation, which clearly facilitated the recognition, by local communities, of benefits associated with watershed conservation. However, often it is

[1] SKAL (The Netherlands); NASSA (Australia); Nature Land (Switzerland); Eco Cert (Switzerland); Organic Farmers and Growers Ltd (United Kingdom); Demeter (Switzerland); and BioSuisse (Switzerland)

difficult to clearly identify which services ecosystems provide, what the value is and who the beneficiaries are.

The trend, in Sri Lanka, to decentralize resource management authority also has a beneficial impact on the potentials of establishing PES and environmental services markets. Decentralization can, as mentioned, reduce transaction costs, which is very important considering that many PES projects fail due to overwhelming transaction costs.

Establishing river basin organizations, such as the Mahaweli Authority, is one example of the decentralization process, and which has provided an opportunity to promote the concept of PES on a broader scale. An opportunity seized by IUCN under the project *Integrating Wetland Economic Values into River Basin Management.* The project, which was carried out in the Kala Oya Basin, suggested financing wetland rehabilitation through in-kind contributions from adjacent communities benefiting from wetland goods and services.

Finally, it is quite clear from the above six cases that community participation in resource management and conservation activities is nothing new in Sri Lanka and something that will benefit future initiatives to develop PES and environmental service markets in the country.

OPPORTUNITIES: Potential sites for the development of environmental service markets

In this section selected initiatives and sites are further examined for their potential to develop PES – primarily based on observations and information gathered during field visits. Through interviews with key stakeholders a broader understanding of the environmental and livelihood issues was provided and specific questions answered, including::

- What service is being provided?
- Who is providing the service? – needs to be a clear link between land-use practices and service provision
- Who is benefiting from the service?
- What are the local priorities that could translate into rewards?

When considering the sustainability of PES and other financing mechanisms for ecosystem conservation, the distributional aspects of costs and benefits are very important elements. Payments for environmental services are often based on voluntary transfers between buyers and sellers and hence creating a win-win situation is a prerequisite for success. Also the buyer must feel confident that the service is actually being provided and that its continued provision is facilitated by the payment, which in effect means controlled by the seller – here transparency is key. Equally, the seller must have some kind of guaranty that rewards will be provided thereby offsetting the opportunity costs of providing the environmental service.

Village hydro power plants in Kolonna

As mentioned in case 3 above, Electricity Consumer Societies (ECS) have been formed throughout Sri Lanka in response to the growing number of micro-hydropower plants operating at a village level. One such society in Kolonna was visited and several key members and other stakeholders[2] were interviewed for this report.

During the field visit it became apparent that the area of Kolonna is very poor and without basic infrastructure facilities such as roads and public transport. Also the area is not connected to the national grid and health facilities are lacking. The majority of the people living in the area depend on agriculture for their livelihood with paddy being the main source of income. In addition, shifting cultivation is still being practiced and large areas are under threat from deforestation and forest fires. There are no clear property rights and state management is very poor.

Within the Kolonna area there are four small village operated hydro power plants along the Seethala Dola Stream, which is part of the larger watershed for the Walawe River. Out of 1,130 families, 315 are supplied with electricity from the hydro plants and this only during 8 months of

[2] The chairman, secretary and treasurer of the Kolonna ECS , members of the consumer society, villagers not receiving electricity from the hydro plant, The Intermediate Technology Development Group (ITDG) – NGO initiating village hydro programmes in Sri Lanka, The Energy Forum – NGO working on renewable energy, The Chairman and coordinator of the Federation of the FECS.

the year when water flow is adequate. The Kolonna ECS is very successful in implementing its constitution, which lays out rules and regulations for the daily operations of the power plants.

There seemed to be a general understanding among the villagers that increasing deforestation and forest fires in the area most likely facilitated the experienced reduction in water flow. The villages had tried to establish fire belts, but lack of funds had put a constraint on any further developments. Also government activities, under the forestry project and implemented by the Forest Department, had been initiated in the area focusing mainly on establishing CBOs and building capacity in community forestry.

However, despite acknowledging the positive impacts on water flow, and hence power production, from conserving the forest, agriculture and shifting cultivation are still seen as the only viable sources of income generation. A situation, which according to the EFCS is not unit, but common among many rural communities living in upper watersheds.

So even though the potential to develop a PES scheme, involving payments between farmers abandoning shifting cultivation and villagers demanding electricity, seems to exist, the high level of poverty prevalent in Kolonna calls for the need to create alternative livelihoods. It is imperative that potential rewards would provide sufficient incentive for farmers to alter their present land use system towards a more sustainable management approach including the conservation of environmental services.

Eco-tourism around the Knuckles Man and Biosphere Reserve

As described in the previous section, the establishment of the Knuckles Man and Biosphere Reserve has imposed certain regulations on cardamom cultivation and other harmful anthropogenic activities undertaken by buffer communities. Instead efforts have been made to improve local awareness of the value of conservation, and to involve adjacent villages in forest management and eco-tourism activities.

However, villages located in the Knuckles periphery are still heavily dependent on forest resources for their survival, and many are engaged in paddy cultivation and practice slash and burn.

In an attempt to identify mechanisms and opportunities whereby communities adopting sustainable land use practices could be compensated for their efforts, a series of interviews were conducted with officers working for the District Forest Department. Also local villagers (laymen, farmers and women) from four villages inside the buffer zone were interviewed to gain knowledge about their socio-economic conditions and experiences with forest management. The four villages are home to about 400 families (2,200 people).

Overall paddy cultivation was reviled as the primary source of income with pepper occupying second place. Every household has a home garden in which pepper, ginger, vegetables, and fruits are grown. Some villagers are employed as tourist-guides and others produce handicrafts for tourists to buy.

Given the poor developed infrastructure and lacking public transport, market access is cumbersome and farmers have to rely on outside retail buyers offing very low prices for their products. The construction of an 8 km road linking Mimurei to the economic center of Dambulla was therefore a top priority for many farmers.

According to the District Forest Department there is a good opportunity for local villagers to benefit from the expanding tourism in the area. Not many foreign tourists visit the Mimurei

village, but quite a large number of domestic tourists come by. According to local villagers sometimes more than 10 buses during a weekend. Non timber forest products and handicrafts are sold to the tourists contributing substantially the village income. Specific eco-tourism activities are yet to be fully developed, but initial scoping has identified three regions where nature trails and bird watching have been recommended. Accommodation facilities are also still lacking (Amarasinghe, 2003).

At present the Forest Department charges a fee from all tourists, but so far there are no mechanisms to transfer part of these payments to the surrounding communities. If sustainable forest management is to prevail, buffer zone communities need to be provided with adequate incentives. Insecure land rights and the continued high dependence on forest resources are some of the challenges that would have to be addressed if markets for environmental services, especially recreation, are to succeed.

Organic production of tea and spices in the central region

Successfully producing organically grown crops like tea and spices is, in Sri Lanka, where producers are small highly dependent upon the ability to reduce transaction costs and obtain certification. As mentioned, Bio Foods (Pvt.) Ltd. has been successful in this regard, by uniting their suppliers in groups (benefiting from economies of scale) and through a strategy of differentiating and diversifying their products away from competitors. Bio Foods (Pvt.) Ltd is now perceived as the largest exporter of high quality organic tea and spices. So far several certification schemes are utilized, including: fare trade, safe quality food standards and eco-labeling. According to Bio Foods' chairman and two executives, all interviewed for this report, 90% of the price of their tea can be ascribed efforts to combine environmental friendly production and fair trade labeling. By marketing their organic tea under a fair trade framework, where small scale tea producers receive an above market price payment for their products, Bio Foods is able to attract a significant price premium.

27 farmer groups, including 1,186 individual farmers, have been established by Bio Foods and form The Small Organic Farmers Association (SOFA). Members of the SOFA cultivate more than 3,100 acres of spice gardens and over 1,000 acres of organic tea. Within each farmer group certain rules and regulations are enforced, and a president, a secretary and a treasurer are elected as office bearers. Office bearers from all farmer groups sit on the Executive Board of the SOFA, which acts as the negotiating body with Bio Foods.

The SOFA is besides negotiating prices with Bio Foods also responsible for the internal implementation, among its members, of quality and production standards set by Bio Foods. The external inspection and monitoring is undertaken by Bio Foods itself through a record keeping system at the farm level as well as random field inspections.

In an attempt to assess the sustainability of the *Bio Foods model* the coordinator of the SOFA and two farmers were interviewed. The farmers reveled that they had experienced increases in profit partly due to being offered higher prices for their products, but also because of savings from reduced usage of fertilizer and other agro-chemicals. The SOFA coordinator was also very positive towards the relationship with Bio Foods, and stressed that it had brought about a lot of positive changes both in relation to improving local livelihoods as well as the environment. Also by retaining small funds within the SOFA it had been possible to initiate a few small development projects such as improving health and education facilities.

Even though Bio Foods has been successful in capturing and marketing environmental benefits in their operations by selling organic products, examples of green agriculture are still limited in Sri Lanka. It is however, as mentioned, an emerging business that has great potential, and where both local livelihoods and the environment can benefit. Especially, the extensive land use

system of home gardens provides an opportunity to engage poor households in the production of organic crops while safeguarding the environment. In the case of the Kandyan Home Gardens their location in upland areas would specifically contribute to the provision of watershed services.

The expansion of organic products is however often constrained by high transaction costs and obtaining certification can be a troublesome affair. Actual knowledge about the implications and requirements of wanting to produce organically is also rather limited among farmers, and raising awareness therefore becomes a major priority. As learnt from the Bio Foods example, organizing farmers in associations can reduce transaction costs and provide leverage in price negotiations as well as unify marketing approaches.

CONCLUSIONS: Towards markets for environmental services

In the sections above, the status of PES and environmental service markets in Sri Lanka has been examined. The opportunities and constraints found within the legal and institutional framework have been described along with specific projects and initiatives offering lessons learnt. A number of selected case studies have been subject to further analysis based on targeted interviews and actual site visits.

Overall the experiences with implementing sustainable financing mechanisms in an effort to improve local livelihoods and secure environmental integrity are limited in Sri Lanka. However, the scope for developing PES and environmental service markets is definitely existing, and factors influencing this process will in the following be summarized by drawing on conclusions from above sections as well as views and opinions expressed by key government officials during a PES workshop in November 2004 (see annex 1).

To date most projects and initiatives promoting sustainable resource management and conservations efforts have largely focused on securing the supply of environmental goods and services. However, resent developments, especially in the legal and institutional setup, related to environmental issues, have stressed the importance of increasing awareness and capacity in regards to demand for environmental services and the need to provide incentives facilitating their provision. To this end, major government actions and initiatives have so far included promoting a participatory approach to resource management, allocating tenure and property rights to local communities and continuing to increase environmental awareness and building institutional capacity. Institutional capacity also refers to relationships established among buyers, sellers, and intermediary originations so as to reduce transaction costs.

In Sri Lanka the importance of maintaining and conserving the environment has long been appreciated, and the use of economic instruments such as user fees, pollution taxes and imposed quality standards have been implemented. It is however not until recently that sustainable financing mechanisms, such as PES, have been acknowledged and promoted as mean of securing valuable ecosystem goods and services. There is an increased understanding that certain individuals and groups benefit from the provision of these goods and services, and that the value placed on them by potential buyers largely depends on confidence in the effectiveness of proposed management actions needed to ensure that the service and goods are actually delivered and that the buyers will have access to the stream of benefits. This in turn depends on: the integrity of ecosystem functions or processes that support service provision; effectiveness of institutional arrangements needed to insure their provision and on; whether impacts or benefits are economically significant the relevant scale.

In the sections above examples have been highlighted where the demand for ecosystem services is being driven by expectations of economic returns. A number of companies (e.g. Help Green and Bio Foods) have realized the advantages of including environmental considerations in their business strategy and marketing approach thereby gaining price premiums and a valuable image.

As highlighted in this report a number of incentives for securing the provision of environmental services do exist. Especially, hydropower schemes and the tourism industry seem to have a lot to gain. Also coupling existing land use practices (e.g. Kandyan Home Gardens) with environmental friendly production should be noted as offering an opportunity to improve and diversify livelihoods and reduce their vulnerability to shocks, while acknowledging environmental, ethical and cultural values.

BIBLIOGRAPHY

Asian Development Bank (ADB), (2003). Project Performance Audit Report on the Participatory Forestry Project in Sri Lanka.

Amarasinghe, S., (2003). The use of Forests by Rural Communities and its Importance to Forest Conservation Planning: A Case study in Knuckles Forest of Sri Lanka, Department of Environmental Science and Technology, Imperial College London UK.

Department of Wildlife Conservation, (2001). Administrator Report.

IUCN (1994). Management Plan for the Conservation of the Knuckles Forest. Unpublished report.

IUCN, (2004). Operational Support for the Medicinal Plant Project: Institutionalization of VPMCs/CAMCs. Unpublished report.

IUCN, (1996). An Investment proposal for the Conservation and Sustainable Use of Medicinal Plants in Sri Lanka.

IUCN, (2004). Medicinal Plants: Conservation and Sustainable use in Sri Lanka. Washington. World Bank.

Landell-Mills, N., and I. Porra, (2002). Silver Bullet or Fool's Gold? A Global Review of Markets for Forest Environmental Services and their impact on poor. London: IIED.

Ministry of Agriculture and Livestock, (2003). National Policy on Agriculture and Livestock 2003-2010, Sri Lanka.

Ministry of Environment and Natural Resources, (2003). Caring for Environment 2003-2007, Sri Lanka.

Ministry of Environment and Natural Resources, (2002). State of the Environment in Sri Lanka : A National Report prepared for South Asian Association for Regional Co-operation, Sri Lanka.

Ministry of Environment and Natural Resources, (2003). National Environmental Policy and Strategies. Sri Lanka.

Ministry of Environment and Natural Resources, (2002). Sri Lanka's Middle Path to Sustainable Development in the 21st Century: National Report of Sri Lanka to the World Summit on Sustainable Development. Sri Lanka.

Ministry of Irrigation and Water Management, (2003). Draft National Water Resources Policy. Sri Lanka.

Ministry of Policy Planning, (2003). Regaining Sri Lanka: Vision and strategy for accelerated Development. Sri Lanka.

Mohotti, K. (2004). Bioprospecting of Organic Farmlands:Evidences from Sri Lankan Organic Tea Soils, Tea Research Institute of Sri Lanka, Talawakele. Sri Lanka.

Wild Life Policy of Sri Lanka (2000). http://www.dwlc.lk

Pagiola, S. Bishop, J. Landell-Mills, N (eds.). 2002. Selling Forest Environmental Setvices: Market-based Mechanisms for Conservation and Development. Earthscan Publication (Ltd), UK.

Draft Watershed Policy (2004). http://www.uwmp.org

About IUCN

IUCN -The World Conservation Union brings together States, government agencies, and a diverse range of non-governmental organizations in a unique partnership. As a Union of members, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

http: //www.iucn.org

About the IUCN Water & Nature Initiative

The IUCN Water and Nature Initiative is a 5-year action programme to demonstrate that ecosystem-based management and stakeholder participation will help to solve the water dilemma of today - bringing rivers back to life and maintaining the resource base for many.

http: //www.waterandnature.org

This document was produced under the project **"Integrating Wetland Economic Values into River Basin Management"**, carried out with financial support from DFID, the UK Department for International Development, as part of the Water and Nature Initiative of IUCN - The World Conservation Union.

This project aims to develop, apply and demonstrate environmental economics techniques and measures for wetland, water resources and river basin management which will contribute to a more equitable, efficient and sustainable distribution of their economic benefits at the global level and in Africa, Asia and Latin America, especially for poorer and more vulnerable groups.

For more information about IUCN's economics activities under the Water and Nature Initiative, please contact:

Africa:
IUCN Eastern Africa Regional Office
PO Box 68200, Nairobi, KENYA
Email: mail@iucnearo.org

Meso America:
UICN Oficina Regional para Mesoamérica
Moravia, Apartado Postal 0146-2150, San José, COSTA RICA
Email: correo@orma.iucn.org

Asia:
IUCN Ecosystems and Livelihoods Group Asia
53 Horton Place, Colombo 7, SRI LANKA
Email: iucn@iucnsl.org

South America:
Av. De Los Shyris 2680 y Gáspar de Villarroel, Edificio Mita-Cobadelsa, Penthouse, PH, Casilla 17-17-626, Quito, ECUADOR
Email: samerica@sur.iucn.org

Global:
Water & Nature Initiative
IUCN - The World Conservation Union
Rue Mauverney 28, 1196 Gland, SWITZERLAND
Email: waterandnature@iucn.org

Water and Nature Initiative

IUCN
The World Conservation Union