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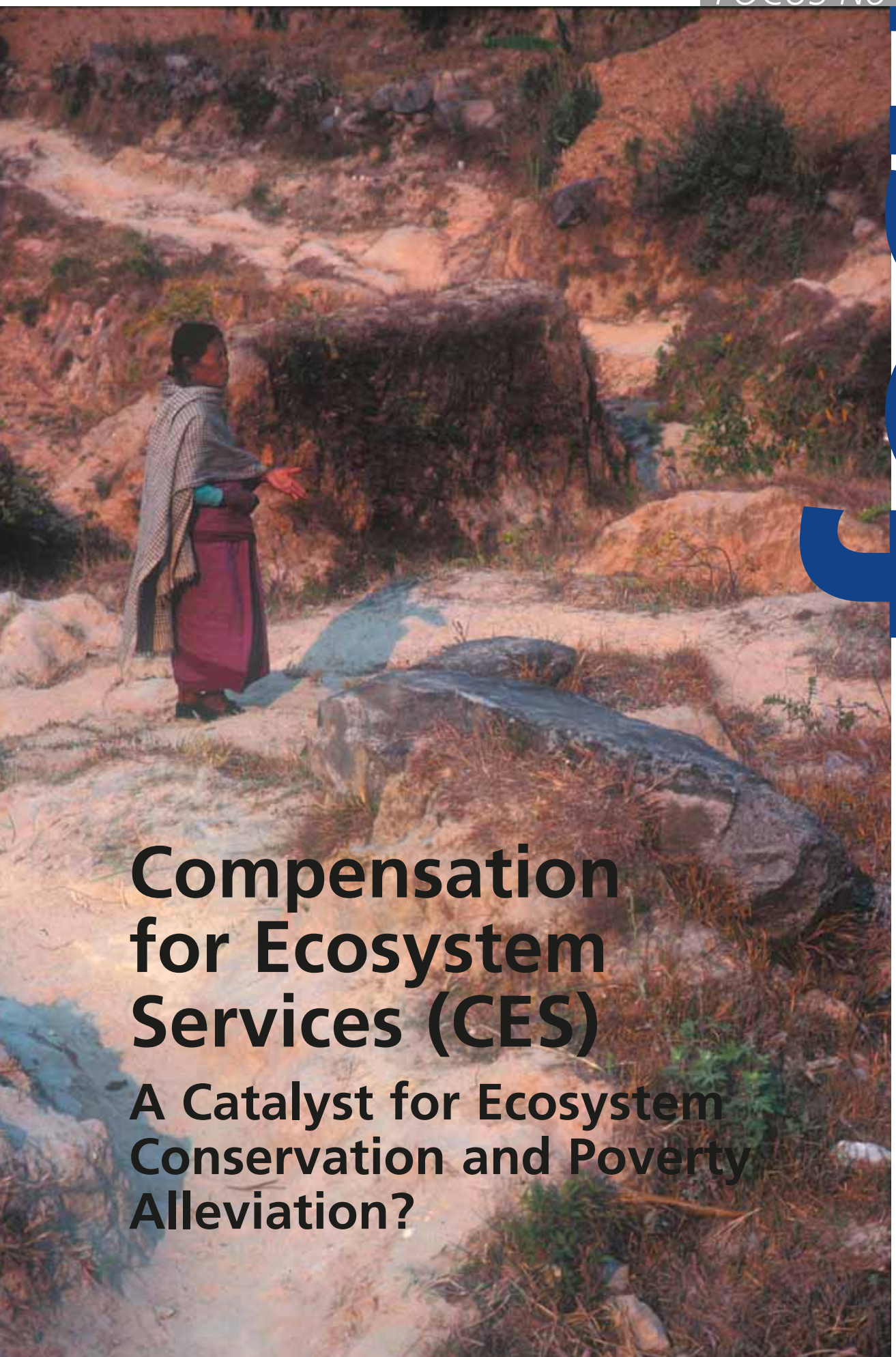

Compensation for Ecosystem Services (CES)

A Catalyst for Ecosystem Conservation and Poverty Alleviation?

Contents

Cover photograph:
Improving land management and at the same time mitigating poverty; could CES help here? Dhulikhel Watershed, Nepal.
Photo by S. Wymann

Impressum

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Understanding the concept

The multifunctionality of ecosystems

Ecosystems provide human beings with many different types of services: they are multifunctional. Forests, for instance, exhibit a high degree of biodiversity, provide a wide range of products in addition to timber, make water infiltration and water retention possible, represent a reservoir of fertile soils, purify the air, influence the climate, offer significant recreational functions as natural landscapes, and not infrequently have religious significance as well. Ecosystem services such as these may be limited to a local area, but they may also be of national or even international importance. Up to now, these services have been largely free of charge.

*Ecosystem services are the benefits people obtain from ecosystems. These include **provisioning services** such as food and water; **regulating services** such as regulation of floods, drought, land degradation, and disease; **supporting services** such as soil formation and nutrient cycling; and **cultural services** such as recreational, spiritual, religious and other nonmaterial benefits.*

Ecosystems and Human Well-being
www.millenniumassessment.org/en/products.ehwb.aspx

Ecosystems can provide these many services, however, only if multifunctionality is taken into account in ecosystem management. Inappropriate use such as excessive intensification and mechanisation, over-exploitation of resources, expansion of agriculture to marginal, fragile areas, environmental pollution and urbanisation are only some of the factors that are increasingly threatening multifunctional ecosystem services. The costs that result from loss and restoration of ecosystem services are externalised, i.e. they are not charged to the parties responsible. Thus, prices for the most important food staples such as maize and wheat have declined steadily in recent years as a result of rationalisation. But the costs of such things as water pollution and declining soil fertility are passed on to the general public.

Forests and Water: Managing Interrelations
pdf-files of the report can be ordered at infoservice@cde.unibe.ch

Compensation for ecosystem services (CES)

In the past, two principal solutions were pursued to combat increasing degradation of ecosystems and threats to their multifunctionality. On the one hand, a system of command and control was used in attempts to shape land use along more sustainable lines. At the same time, expensive forms of infrastructure such as dams to control flooding were employed to mitigate the impacts of inappropriate forms of use. But in addition to being inefficient, these approaches frequently met with little success. They focused on combating symptoms and their consequences while having virtually no impact on the causes of degradation processes. Moreover, they provided little incentive to preserve multifunctionality. Another approach, developed further in the last ten years, involves recognising and compensating work done by people who manage the land in ways that contribute to the long-term security of ecosystem functions through sustainable forms of land use. The beneficiaries of ecosystem services are the ones who provide some form of compensation for these services (Figure 1). It is hoped that this new mechanism will constitute, among other things, a new financial resource for funding conservation measures to ensure vital ecosystem functions.

During the 1980s, water resources for irrigation agriculture in the Cauca Valley of Columbia were becoming increasingly scarce owing to growing urbanisation and industrial and agricultural development. 12 water users' associations voluntarily decided to raise the fees for water use. Water-use revenues, which increased fourfold, were used to improve cultivation in the upper part of the catchment area, by means of afforestation, erosion control, protection of sources and water courses, etc.

Case Studies of Markets and Innovative Financial Mechanisms for Water Services from Forests
www.forest-trends.org/resources/pdf/casesWSofF.pdf

Documents mentioned in the margin are annotated in the bibliography

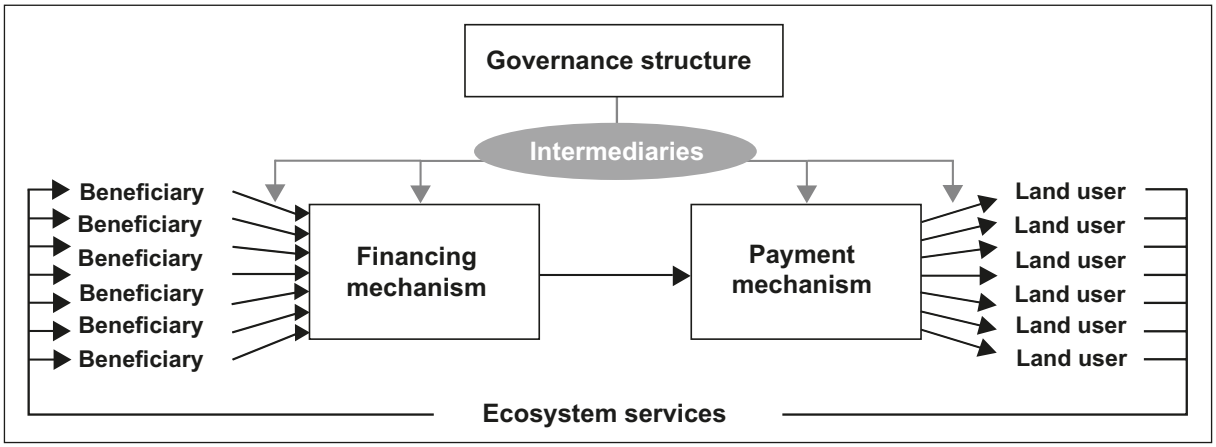

Figure 1: The flow of compensation from beneficiaries to land users and the role of the intermediaries (Pagiola S., Platais G. 2002 modified by InfoResources)

Compensation mechanisms have led to the development of new markets. Markets in this context should not be interpreted in the strictly economic sense, but also understood as platforms for exchange. Buyers and sellers are brought together in order to reach agreement on the provision and use of ecological services. In the case of CES mechanisms, those who manage the land are the sellers, ecosystem services are the goods, and the beneficiaries are the buyers.
Different stakeholder groups assume different roles in CES mechanisms. The private sector, public authorities and governments, donors, local and international NGOs, and civil society organisations may function as sellers, buyers, traders or intermediaries.

To date, compensation mechanisms have taken three main forms:

- Financial compensation (payment for ecosystem services; PES): This consists of direct payments from the beneficiaries of ecosystem services to land managers as the providers and guarantors of such services, or payments to farmers from government offices or public institutions. Financing of such compensation may come from various sources, i.e. taxes, user fees, etc.
- Payment in kind: infrastructure development, access to training, etc.
- Access to resources or markets: e.g. land-use rights, access to new markets through certification.

Today attempts are being made to develop different markets in such areas as: provision of clean water, conservation of biodiversity, preservation and creation of beautiful landscapes, conservation of soil fertility, and carbon sequestration.

CES: a challenging mechanism

Potential linkages between poverty alleviation and CES

Sustainable development can only take place if sustainable use of natural resources is ensured while poverty is also tackled. Yet it would be precarious to conclude that CES constitutes a straightforward instrument of poverty alleviation. The first goal of CES is to ensure ecosystem services through sustainable resource management.

Case studies show that CES programmes can have quite positive impacts on local livelihoods. But does this also apply to poor and marginalised population groups? Frequently, it is precisely these groups, for example, which either facilitate or endanger provision of ecosystem services in the upper reaches of catchment areas. Sustainable management and employment of conservation measures are often costly, and they involve considerable effort. Poor land users cannot afford to take risks, however, and usually do not possess the necessary capacity and reserves to make changes in their systems of resource use and land management. They also lack the competence and the institutional support to participate in markets for ecological services.

For the consumers of ecosystem services, payment for compensation mechanisms takes the form of additional costs for goods that were previously free of charge. This can result in new disadvantages for the poorest classes of society. This temporary adverse impact needs to be neutralised by state subsidies. In the long term, even the poorest population groups benefit if CES mechanisms can ensure the sustainability of such fundamental things as clean water resources.

In shaping CES mechanisms, particular care must be taken to guard against widening the gap between rich and poor. This requires specific measures to guarantee that new economic opportunities are open and accessible to the poorest population groups. Moreover, at the minimum, such mechanisms should be poverty-neutral.

In Costa Rica in the Central Volcanic Mountain Range farmers were compensated financially and through non-financial incentives. Positive impacts were:

- *Farm household budget: PES received ranged between 4%–34% of the total budget*
- *Social assets (resources such as networks, access to national institutions, community development) were generated through various institutional innovations*
- *Human assets (e.g. skills, knowledge, health) were generated through learning processes and environmental awareness creation*
- *Natural assets were generated by protection of primary forests, reforestation and sustainable forest management regimes.*

The social impacts of payments for environmental services in Costa Rica
www.iied.org/eep/pubs/documents/MES1.pdf

Silver bullet or fools' gold?
www.iied.org/docs/flu/psf_silvbullet.pdf

Evaluating ecosystem services

A study in *Nature* estimated the global economic value of 17 different ecosystem services at US$ 16–54 trillion (10^{12}), or approximately 1–3 times the global gross domestic product of US$ 18 trillion (1998). A sum of this magnitude certainly commands attention, and clearly underscores the importance of natural resources and ecosystem services. Different economic approaches have been developed for placing monetary value on individual ecosystem services. These include calculation of the costs of social and economic damage, of damage prevention and restoration, as well as determination of willingness to pay and willingness to accept. Yet assigning monetary value to ecosystem services is possible only to a limited extent. First of all, it is difficult to make a thorough assessment of ecological interconnections. Moreover, it must be borne in mind that not all types of value can be expressed in economic terms. Ecosystem services were valued in cultural and political terms long before economic value was assigned to them.

The value of the world's ecosystem services and natural capital
www.nature.com/cgi-taf/DynaPage.taf?file=/nature/journal/v387/n6630/full/387253a0.html&filetype=pdf

For details on different approaches to evaluation, see
www.ecosystemvaluation.org/

Compensation for Environmental Services and Rural Communities
www.prisma.org.sv/pubs/CES_RC_En.pdf

In the Goulborn Broken Catchment in Australia, an attempt was made to involve the population in evaluating ecosystem services. A combination of two techniques — a "Citizens' Jury" consisting of 10 to 20 members, and a "Multicriteria Decision Analysis" — made it possible to set priorities and establish values for ecosystem services.

Ecosystem Services Project
www.ecosystemservicesproject.org

The pipal tree in Nepal, for example, is revered as a holy tree, and religious ceremonies are conducted under its shade. The tree is accordingly valued by society in terms beyond any form of economic reckoning. Economic approaches to valuation cannot encompass the complexity and the ecological, socio-cultural and institutional heterogeneity of a particular area. Furthermore, the different interests of stakeholder groups and the dynamics among them cannot be assessed by traditional methods of valuation. Hence alternative or complementary approaches to valuation of ecosystems are being developed. The "integrative approach" attempts, through a social process involving all stakeholder groups, to define a non-economic scale of values for ecosystem services, and to determine productive activities and ways of helping to secure ecosystem services in processes of mutual negotiation.

Geographic expansion brings together very different stakeholder groups

International public goods, global and regional, address issues that: (i) are deemed to be important to the international community, to both developed and developing countries; (ii) typically cannot, or will not, be adequately addressed by individual countries or entities acting alone, and, in such cases (iii) are best addressed collectively on a multilateral basis.

International Task Force on Global Public Goods
www.gpgtaskforce.org/bazment.aspx?page_id=147

Markets for ecosystem services are characterised by very different spatial dimensions, ranging from small and local to national, regional and international markets. CES mechanisms that aim to improve management of catchment areas are frequently local in scope, bringing together farmers from the upper reaches of a river and downstream inhabitants for joint negotiations. Projects to protect natural global public goods, or carbon sequestration projects under the Kyoto Protocol's Clean Development Mechanism (CDM), on the other hand, are global in dimension. The challenge is to establish platforms of exchange to bring together a variety of sellers and buyers who are often located far from one another and have different levels of competence and different capacities. This requires the involvement of institutions that act as intermediaries.

Development of markets

Silver bullet or fools' gold?
www.iied.org/docs/flu/psf_silvbullet.pdf

Linked with resource valuation and establishment of economic platforms of exchange is the hope that the scarcity of ecosystem services will be revealed and that this will lead to sustainable resource management. But establishment of markets for such services is a complicated matter that depends on a variety of factors.

- Ecosystem services cannot be defined simply as tradable commodities. Frequently, numerous services are provided by one good. It is difficult to provide evidence of the connections between certain forms of resource management and certain ecosystem services.
- Very different stakeholder groups participate in the markets under very different conditions.
- It is frequently unclear who has rights of ownership of natural resources, particularly in developing countries.
- True competition is often lacking in newly developing markets.
- Clear and stabile institutional conditions and transparent administrative procedures play a key role and are crucial for investments in development of markets.
- Development of new markets requires a great deal of time. Moreover, set-up and transaction costs (costs of providing information, negotiations, business procedures) are very high.

Opportunities and risks of CES

Numerous objectives can be met by compensation mechanisms. Incentives can be used to support forms of sustainable resource management. CES also makes complementary economic alternatives possible. The services of farmers in generating and maintaining ecosystem services are acknowledged, helping to strengthen self-awareness. The necessary negotiations between the actors involved can also serve as mediation platforms in conflicts and help achieve resolution. CES mechanisms are also instruments that allow benefits to flow to the economically and socially vulnerable groups that provide ecosystem services. And they facilitate recognition of new indicators for the functions and significance of natural resources.

Frequently, however, expectations are too high; in reality, CES is time-consuming and complicated to implement. Social and political development processes are often necessary before compensation mechanisms can be established. And these new economic opportunities are not infrequently linked with risks for farmers. Markets are often unstable and uncertain, and suppliers not having the competence and the capacity to make direct contact with buyers must rely on intermediaries and are thus dependent on middlemen. Very high set-up and transaction costs are underestimated, making projects dependent on external financial resources. Furthermore, CES mechanisms are frequently based on hypotheses about interactions within ecosystems.

The Kakadu National Park in Australia is managed jointly by aboriginals, traditional land owners, and Parks Australia. The Kakadu Traditional Land Acts guarantee land ownership to approximately 50% of the total area to the indigenous population. But this land is leased by the Park administration. In compensation, the aboriginals receive:

- *Traditional rights of land use*
- *Training and jobs in the Park administration*
- *Support for development of their own businesses.*

Aside from clearly defined land rights, the strong participation of aboriginals is a decisive factor in successful conservation of the Park.

Rewarding the Upland Poor for Environmental Services:
www.worldagroforestrycentre.org/sea/Networks/RUPES/download/paper/AGouyon_RUPES.pdf

The Kakadu National Park
www.deh.gov.au/parks/kakadu/index.html

Necessary conditions at the policy level

For Services Rendered
www.itto.or.jp/live/Live_Server/724/TS21e.pdf

Favourable political, legal and institutional conditions, as well as conducive governance structures, are necessary for the establishment and successful implementation of CES mechanisms (see Figure 1). Various aspects must be taken into account in this respect:

- Creation of markets requires proactive efforts on the part of governmental and non-governmental organisations to create a framework which is embedded in an overall strategy for natural resource management.
- International competition must not further disadvantage countries that provide important public goods and ecosystem services but have too little political and financial influence at the international level to advance their interests successfully.
- CES mechanisms engender demanding political and social tasks and raise difficult questions of equity and ethics. Who has the right to ecosystem services? How can the different interests of farmers, landowners and beneficiaries in ecosystem services be balanced? Must those responsible for ecological damage pay for this damage? Should those who provide ecological services be compensated for their labour? In addition, public resistance to the commercialisation of ecosystem services must also be taken into account.

Shortcomings at the global level

International Treaty on Plant Genetic Resources for Food and Agriculture
www.fao.org/ag/cgrfa/itpgr.htm

There is no coherent internationally binding framework that acknowledges the multifunctionality of ecosystems. Some progress is evident in the development of global compensation mechanisms related to specific ecosystem services, however. The International Treaty on Plant Genetic Resources for Food and Agriculture regularises the distribution of benefits from the use of plant genetic material, while the Global Environment Facility (GEF) supports projects to protect the global environment in developing and transition countries.

Other international agreements, which have impacts on the environment that should not be underestimated, take only limited account of the significance of ecosystem multifunctionality and the importance of potential markets for ecosystem services, while also limiting the possibilities with regard to policies to protect natural resources. Thus WTO agreements, through the Green Box provision, allow direct payments to farmers for environmental protection, although criteria for ecological sustainability are not an integral part of WTO negotiations.

Shortcomings also exist in the area of monitoring and control. There is a lack of legal as well as methodological and technical instruments for monitoring the impacts of international agreements.

The need for action at the national level

Countries are faced with various challenges in creating a framework for CES mechanisms that ensures equitable market access for everyone:

- Public debate about the value of ecosystem services that includes everyone affected, recognition of farmers' cooperatives, and of the importance of differentiated local strategies for resource use are important preconditions for the creation of a political and legal framework at the national level.
- Fragmented and sectoral laws relating to the environment, the economy, and the resource property rights must be better harmonised, in order to acknowledge the multifunctionality of natural resources. This requires greater cross-sectoral collaboration and coordination. Harmonized stable environmental legislation can foster the development and investments in markets for ecosystem services.
- Decentralisation is an important foundation on which to build transparent and stable CES mechanisms and the necessary governance structures at the local level.

At the same time it is also important to present in future a more realistic picture of the state of natural resources in national economic accounting. The costs of ecosystem degradation are still not properly included in national budgets. While activities undertaken for piecemeal repair of damaged ecosystems are labelled as an expense, loss of natural capital should also be listed in national budgets in the same way. This would clearly identify practices that degrade and destroy natural resources as a loss of national capital, while sustainable management would be presented as a positive counterbalance.

Steps for implementation

There are virtually no guidelines for concrete elaboration of CES mechanisms, and even fewer methods and instruments for planning and implementing them. The diversity among different goods, stakeholder groups, geographic areas, and local conditions is too great. Previous experience shows, however, that certain steps are inevitable in implementing CES mechanisms, although the specifics depend on the context and on local conditions.

- **Acknowledgement** of the importance of ecosystem services.
- **Identification and quantification** of specific, individual ecosystem services that can be traded as goods. Scientific knowledge can help to clarify the connections between land use and services.
- **Identification of actors and stakeholder groups** and their roles. Who are the providers and the beneficiaries, and who are the possible intermediaries in CES mechanisms? Who benefits, and who pays?
- **Valuation** of services using methods from environmental economics and alternative models that integrate the people directly concerned.
- **Institutionalisation** of a CES system by means of supporting conditions.
- **Realisation** based on concrete agreements about the type and amount of services to be provided, as well as on forms of compensation and their scope.

The following factors are crucial to the successful implementation of pro-poor CES mechanisms:

- Clear definition and assignment of ownership rights and rights of use for natural resources.
- Sufficient information, adequate training, and specifically tailored education for farmers, in order to demonstrate to them the contribution they can make through sustainable land management and how their labour can be valued.
- Institutional strengthening of social organisations among poor population groups as an important precondition for participating in markets.
- Guarantees of better access to financing to cover high initial costs.

It is worthwhile to ask the following questions at the outset of a project:

- *Environmental: are market-based approaches effective at protecting and providing the desired quantity and quality of environmental services without adverse environmental impact?*
- *Economic: are they more cost-effective than previous or alternative instruments? Do they create positive incentives for continuous environmental improvement? Do they create alternative or improved livelihood opportunities for resident community members, especially the poor?*
- *Social: are the costs and benefits of markets for ecosystem services (MES) shared equitably? Are the processes of design and implementation of MES inclusive, transparent and flexible, to allow earning and adaptation while fostering support from key stakeholder groups?*

Developing pro-poor markets for environmental services in the Philippines
www.iied.org/eep/pubs/documents/MES3.pdf

From Good-will to Payments for Environmental Services
www.conservationfinance.org/Documents/CF_related_papers/Final_WWF_Survey_31-8-03.pdf

Recommended reading

The following list features a documented and targeted selection of print documents and internet sites of relevance to "Compensation for Ecosystem Services". For easier reading they have been listed by title in alphabetic order in four rubrics.

Overview and general context

Policies and strategies

Methods and instruments

Case studies

Many documents are available online and can be downloaded (accessed on 1st November 2004).
The others are part of InfoResources' documentation.
For more information on this issue and the publications, please contact us by e-mail at:
info@inforesources.ch

Danièle Perrot-Maître and Patsy Davis, Esq.

Case Studies of Markets and Innovative Financial Mechanisms for Water Services from Forests

Forest Trends, the Katoomba Group, 2001, 43 p.
www.forest-trends.org/resources/pdf/casesWSofF.pdf

Nine case studies have been analysed for the publication "Developing Markets for Water Services from Forests: Issues and Lessons for Innovators" (see www.forest-trends.org/resources/pdf/Developing_Markets_for_Water_Services.pdf) and are presented here in detail. They were selected to represent various types of financial mechanisms in various settings. The cases chosen are those in which administrative and financial mechanisms capture the value of hydrological services provided by forests in an "innovative" way. Each case study is examined through a set of questions, making analysis and comparison easy. Summaries are provided for the hasty reader and references for those who want greater insight into the subject.

Rosa H., Kandel S., Dimas L.

Compensation for Environmental Services and Rural Communities: Lessons from the Americas and Key Issues for Strengthening Community Strategies

PRISMA, El Salvador. 2003, 78 p.
www.prisma.org.sv/pubs/CES_RC_En.pdf

Equitable access to and control over natural resources, as well as equitable sharing of benefits for the providers of environmental services, should be at the centre of every concept of compensation for these services. In this regard the publication first provides an overview of compensation schemes as established in five American countries with different natural and social contexts. The focus is on their connection to and impacts on rural communities. Case studies are presented and lessons drawn.
The second part goes beyond the geographical focus, offering a synthesis of the different elements to be considered in the successful design of mechanisms to compensate rural communities and small producers for the environmental services they provide.

Cordero Sarah

Costa Rica – Introducing Water Use Charges to Pay for Environmental Services, Case # 1

Integrated Water Resources Management Toolbox, Global Water Partnership GWP
www.gwpforum.netmasters05.netmasters.nl/ZappEngine/objects/ACF621.pdf

One concrete examples of the establishment of environmental fees for forest and watershed protection is related here. The narrative of the introduction of water use charges in Costa Rica is accompanied by information concerning the institutional and legal frameworks, and pricing details. Furthermore, the author embellishes this case study by including a list of the complicating factors as well as lessons and recommendations based on the Costa Rican experience.
Further information concerning the economic and legislative instruments used in this case study is available in the Global Water Partnership Toolbox.

Johnson N., White A., Perrot-Maître D.

Developing Markets for Water Services from Forests: Issues and Lessons for Innovators

Forest Trends, the World Resources Institute, the Katoomba Group. Washington D.C., 2001, 19 p.
www.forest-trends.org/resources/pdf/Developing_Markets_for_Water_Services.pdf

One specific type of ecosystem service, namely the hydrological service of forests, is examined by studying nine innovative cases of forest-water markets. The common issues and essential elements are filtered and bundled up in the following groups: relevant financial mechanisms, key questions to be considered when designing a PES-scheme, early lessons and rules of thumb for innovators, and next steps.
Presentation of the case studies in table form allows the reader to compare elements of interest. The case studies themselves are presented in detail in the publication "Case Studies of Markets and Innovative Financial Mechanisms for Water Services from Forests" (see separate comment).

Rosales R. M. P.

Developing pro-poor markets for environmental services in the Philippines: Markets for environmental services N°3

Environmental Economics Programme IIED, 2003, 90 p.
www.iied.org/eep/pubs/documents/MES3.pdf

The Philippines have begun developing markets for environmental services. In the course of introducing these economic instruments, there have been parallel efforts to address livelihood and income concerns for communities. The study provides an initial assessment of the development of markets for environmental services for the poor. It aims to document all the PES efforts in the Philippines and to assess the institutional mechanisms that have evolved in the development of these new markets. Finally, it aims to develop a framework for monitoring and evaluating the efficacy of markets for environmental service.

Ecosystem Services Project

www.ecosystemservicesproject.org/

The Ecosystem Services Project is a collaborative initiative by various Australian institutions. The aims of the Project include: increasing awareness and understanding of ecosystem services among members of society; exploring the value of ecosystem services (in economic and other terms) to people in relation to real decisions and challenges; and investigating new mechanisms and institutional arrangements for recognizing and making better use of these values.
At the same time, the Markets for Ecosystem Services Project, carried out by the same main partners, concentrates on regional capacity building to initiate markets for those services.

The publication "Natural Values: Exploring Options for Enhancing Ecosystem Services in the Goulburn Broken Catchment" (to be downloaded) summarises the results of the first ecosystem services project undertaken in Australia.
The website provides information on both components of this initiative and their concepts and implementation, accompanied by links to relevant institutions and case studies.

King Dennis M. and Mazzotta Marisa

Ecosystem Valuation

www.ecosystemvaluation.org/

Designed for non-economists, this website provides valuable information on how economists can define the value of ecosystems and their services. Clear, non-technical texts introduce the visitor to the relevant concepts, methods and applications, complemented by case studies, references and links, and a glossary. A separate chapter is dedicated to the notion of indicators of relative ecosystem value and the way to define them.

Millenium Ecosystem Assessment

Ecosystems and Human Well-being: A Framework for Assessment

Island Press, 2003, 245 p.

www.millenniumassessment.org/en/products.ehwb.aspx

This publication presents the conceptual and methodological framework used for the Millennium Ecosystem Assessment: a UN programme that aims to provide a comprehensive overview of the world's ecosystems and their importance for human well-being, and to present options and scenarios to enhance ecosystem conservation.
The framework shows the complexity of factors influencing ecosystems, the interdependence of various drivers of change, as well as the importance of spatial and temporal scales when elaborating options and scenarios.
Chapter 6 provides valuable information about ecosystem value and valuation approaches.

Brüschweiler S., Höggel U., Kläy A.

Forests and Water: Managing Interrelations

CDE Development and Environment Reports No 19, Geographica Bernensia, Berne, 2004, 48 p., Pdf-files of the report can be ordered at: infoservice@cde.unibe.ch

A synthesis of the results and conclusions of two conferences concerned with the theme of forests and water, this publication provides insight into the relationship between these two resources, different approaches to their management, and the influence of the socio-cultural and economic setting. It introduces the concept of payments or other types of compensation for environmental services as a possible approach in confronting difficulties in implementation of sustainable resource management regimes that result from this complex interdependence. The overview of the different aspects of PES/CES focuses on the issues to be considered when establishing such a scheme, and is accompanied by short presentations of case studies.

Scherr S., White A., Khare A.

For Services Rendered: The current status and future potential of markets for the ecosystem services provided by tropical forests

ITTO Technical Series No 21. 2004, 72 p.

www.itto.or.jp/live/Live_Server/724/TS21e.pdf

This study explains the types of ecosystem markets already in place and their characteristics, before identifying three important strategic issues to be considered in policy-making: the recognition of property rights and development of national legal frameworks, the design of market schemes to provide equal access to low-income stakeholders, and the need to reduce transaction costs and financial risks. Finally, the study defines knowledge gaps related to market instruments, legal and regulatory frameworks, practical data on costs, and capacity building.

Gutman Pablo (ed.)

From Good-will to Payments for Environmental Services: A Survey of Financing Alternatives for Sustainable Natural Resource Management in Developing Countries

WWF, Danida. 2003, 142 p.

www.conservationfinance.org/Documents/CF_related_papers/Final_WWF_Survey_31-8-03.pdf

This report is composed of contributions from different institutions and considers payments and markets for environmental services within the scope of alternative financing options for sustainable natural resource management (SNRM) programmes and projects in developing countries. It presents 52 different alternatives and discusses experiences and emerging trends before offering conclusions and recommendations. 12 case studies provide a concrete view of some financing schemes, while the available hyperlinks and training materials guide the reader to further information and resources.

Katoomba Group

www.katoombagroup.com/

Katoomba is an international experts' working group promoting conservation and advancing community livelihoods through markets for environmental services. In addition to information on the group, its composition and functioning, the website provides publications and workshop materials, tools, and links to relevant sites. Finally a "Marketplace" (under construction at the moment of publication) aims to foster exchange between buyers and sellers of environmental services.

FAO

Payment schemes for environmental services in watersheds

Land and Water Discussion Paper – 3. 2004, 74 p.

ftp://ftp.fao.org/docrep/fao/006/y5305b/y5305b00.pdf

The publication documents the results of a regional workshop, which aimed to draw lessons from PES experiences in Latin America, to define assessment criteria and to formulate recommendations for future actions. The advantages and opportunities of these schemes, as well as their difficulties and limitations, are defined. Lessons learned and recommendations are presented in a clear and structured fashion, followed by summaries of the workshop presentations. The case studies are available separately as a CD ROM.

Pagiola S., Platais G.

Payments for Environmental Services

World Bank Environment Strategy Notes No 3, Washington D.C. 2002, 4 p.

lnweb18.worldbank.org/ESSD/essdext.nsf/41DocByUnid/8A104D56E559682D85256BCA00546749/$FILE/EnvStrategyNote32002.pdf

A short and concise presentation of the concept of payments for environmental services, accompanied by information on World Bank support for this approach. A useful introduction to the subject, even though the notion of "non-payment" compensation is not in the paper.

Gouyon Anne

Rewarding the Upland Poor for Environmental Services: A Review of Initiatives from Developed Countries

IFAD, World Agroforestry Centre. 2003, 89 p.
www.worldagroforestrycentre.org/sea/Networks/RUPES/download/paper/AGouyon_RUPES.pdf

This analysis includes five types of mechanisms for compensation for environmental services: people-friendly conservation strategies, contractual rewards for environmentally-friendly agriculture and forestry, eco-tourism, sharing the benefits of genetic resources, and trade in emissions permits. It concludes that compensation schemes are often rendered ineffective by perverse incentives, which are biased against the upland poor and environmentally-friendly practices. Furthermore, a sound institutional environment provided by capacity building activities and the involvement of all stakeholders is a sine-qua-non condition for the success of all such initiatives.

Landell-Mills N., Porras I.T.

Silver bullet or fools' gold?: A global review of markets for forest environmental services and their impact on the poor

IIED, London. 2001, 253 p.
www.iied.org/docs/flu/psf_silvbullet.pdf

Based on a review of more than 280 case studies, the authors present the current situation and analyse the opportunities and constraints of markets for forest-related environmental services such as biodiversity conservation, carbon offsets, watershed protection, and landscape beauty, as well as the emerging markets for bundled environmental services. Particular attention is given to the positive or negative impacts these markets may have on poor people. Despite the diversity of cases, some cross-cutting lessons are drawn and recommendations formulated, concerning not only the markets themselves but also framework conditions and stakeholders.

Miranda M., Porras I., Moreno M.

The social impacts of payments for environmental services in Costa Rica

Markets for Environmental Services N°1. Environmental Economics Programme IIED, London. 2003, 50 p.
www.iied.org/eep/pubs/documents/MES1.pdf

What are the impacts of the Payments for Environmental Services Programme on poverty and other social factors in the Virilla Watershed in Costa Rica? Using the asset categorisation of the Sustainable Livelihoods Approach — a diagnostic tool developed by the UK's Department for International Development (DFID) — the authors present the various positive effects the programme has on the financial, human, social, physical and environmental capital of the area. In a second step, for each one of the different assets, they point out the limitations of the programme and accompany them with a series of recommendations.

Bibliography

Costanza R. et al.

The Value of the World's Ecosystem Services and Natural Capital

In: Nature Vol 387, 1997, pp 253–260

www.nature.com/cgitaf/DynaPage.taf?file=/nature/journal/v387/n6630/full/387253a0.html&filetype=pdf

Even if it is commonly accepted that ecosystems are indispensable for human well-being, the total value of their services includes non-marketed elements, making them at least partly intangible. They therefore do not receive the necessary consideration during decision-making processes, putting preservation of healthy ecosystems for future generations at risk. This article is based on research that gives an estimate of the total value of ecosystem functions and services, regardless of whether they are marketed. It is based on an estimate of the global extent of ecosystems, and calculates the value per unit of each renewable ecosystem service for each ecosystem type. At the same time, it points out the limitations and uncertainties of this approach.

Environmental Economics Programme

Valuing Forests: A Review of Methods and Applications in Developing Countries

IIED. London, 2003. 159 p.

www.iied.org/docs/eep/valuing_forests.pdf

Aiming to help land use planners and forest policy makers, this publication provides an overview of the different methods of valuing non-timber forest environmental benefits in monetary terms. Based on more than 50 case studies, which are commented on in the appendix, it focuses on developing countries, where forest values are often related to production and subsistence.

The possibility of including forest values in an economic assessment of forest projects or programmes is also shown by means of an extended cost-benefit-analysis framework.

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The second section presents a selective and commented choice of documents, books, CD ROMs and Internet sites. The range of documents presented reaches from basic introductions, through instruments, methods and case studies, to conceptual texts.

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