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DIIS Brief

Payments for ecosystem services – pro-poor opportunities for development assistance

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June 2007**

Abstract

The emergence of the concept of payment for ecosystem services during the late 1990s has raised expectations among rural natural resource managers, local and national authorities, public utilities and donor organizations alike, that ecosystem conservation can be achieved through popular payments to ecosystem service providers rather than through unpopular measures of command and control.

Late 2005, Danida asked researchers from the natural resources and poverty research unit at Danish Institute for International Studies (DIIS) to undertake a review of experiences to date regarding payments for ecosystem services with particular emphasis on identifying pro-poor options for development assistance support.

The findings of this review are presented in a DIIS Report (<http://www.diis.dk/sw37381.asp>) . This brief introduces the concept of payment for ecosystem services and presents the four main options identified as part of the study for development assistance in support of pro-poor payments for ecosystem services.

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Payment for ecosystem services (PES)

The most precise – and, some would argue, restrictive – definition of payment for ecosystem services (PES) is that offered by Sven Wunder and his colleagues. They define PES as a “*voluntary, conditional transaction with at least one seller, one buyer, and a well-defined environmental service*”.

Payment for environmental or ecosystem services has become fashionable. A simple internet search gave more than five million hits. The basic notion underlying the concept of payment for ecosystem services is that ecosystems, such as natural forests, landscapes with mixed patterns of human use and natural vegetation, as well as intensively cultivated agricultural landscapes, all provide important services to people – locally, regionally and globally – but that often these services do not accrue to those directly or indirectly responsible for their provision. The fact that such ecosystem services in many places are perceived to be threatened has contributed to a growing willingness among ecosystem service users to pay for natural resource management which will ensure their continued provision. Thus, the payment from users to providers of the ecosystem service is meant as a direct incentive to encourage that the ecosystem is managed in ways that ensure the continued provision of the service.

The concept of ecosystem services

Recognition of the importance of these ecosystem services is not new, nor is the recognition of the impact that human activity has upon ecosystems. However, as documented by the Millennium Ecosystem Assessment,¹ the speed at which ecosystems change as a direct or indirect consequence of human activity is unprecedented.

Attempts to estimate the value of ecosystems services suggest that they might represent significant value. As an example, crops pollinated by wild bees and honey bees in the United States are estimated to represent a value of USD 30 billion, a value which has recently been dramatically accentuated because an unknown disease has killed large populations of honey bees and thus threatens pollination, e.g. of almonds.

The Millennium Ecosystem Assessment distinguishes between the following four types of ecosystem services, based on a functional perspective:

- provisioning services, such as food, water, timber, and fibre;
- regulating services, such as regulation of floods, drought, land degradation, and disease;
- supporting services, such as soil formation and nutrient cycling; and

¹ The Millennium Ecosystem Assessment was carried out between 2001 and 2005 under the auspices of the United Nations to assess the consequences of ecosystem change for human well being and to establish the scientific basis for actions needed to enhance the conservation and sustainable use of ecosystems and their contribution to human well being.

- cultural services, such as recreational, spiritual, religious and other non-material benefits.

The PES literature, on the other hand, tends to distinguish between ecosystem services on the basis of the resource contents of the service. Typically, four services are mentioned: hydrological services, carbon sequestration, biodiversity protection, and landscape beauty.

Types of ecosystem services

Category of ecosystem service	Examples of ecosystem services	Functional type of ecosystem service (according to MEA classification)	Spatial boundedness of ecosystem service beneficiaries		
			Local (beneficiaries within area where ES is produced)	Regional (beneficiaries distant from area where ES is produced)	Global (beneficiaries anywhere on the globe)
Hydrological services	Water (quality and quantity)	Provisioning	X	X	
	Erosion and landslide prevention	Regulating & supporting	X	X	
	Micro-climate regulation	Regulating	X	X	
Landscape beauty	Eco-tourism	Cultural	X	X	X
Biodiversity conservation	Habitat protection	Regulating & cultural			X
	Gene-pool conservation	Provisioning			X
Carbon sequestration	Vegetative carbon sequestration	Regulating			X

Payment for ecosystem services – one among several conservation instruments

The emergence of PES has to be seen partly as a response to a need to identify additional sources for financing conservation, and partly as a response to the widespread disappointment with more conventional approaches to conservation. As described by several authors, these approaches have been based e.g. on command and control or unconditional economic incentives, such as those provided as part of the so-called integrated conservation and development projects promoted during the 1980s and 1990s.

Whether at community, district, national or international level, people have, throughout history, sought ways to regulate human activity in an effort to regulate the flow of ecosystem services. Questions fundamental to such efforts, such as which and whose activities to

regulate; who should regulate them; by which means; and to the benefit of whom, constitute the core of the contested nature-society interface.

Instruments that have been developed over time to regulate human use of natural resources, and thus the flow of ecosystem services, include :

- *regulations and restrictions* sanctioned either culturally (e.g. sacred trees, forests or places) or through customary or formal law (e.g. through the establishment of protected areas or the regulation of the use of chemicals through prohibitions). Such regulations and restrictions may thus be enforced through cultural, social or legal control;
- *increasing the level of information and awareness* by informing people on ecosystem interactions, the importance of the continued flow of ecosystem services and the potential impact of their own activity upon these services and *vice versa*, assuming that such awareness may influence behaviour; and
- *economic instruments* in the form of *sanctions*, such as fines to discourage pollution or deforestation; *resource use fees*, such as licenses to be paid for the right to cut timber or use water; *incentives*, such as tax reductions; or *direct payments*, to encourage specific types of human activity such as maintaining forest cover, implementing technological change (e.g. switching from conventional to ecological farming).

It is important to recognize that what recently has become known as payments for environmental or ecosystem services, only constitute *one* among many possible instruments that may be employed to ensure the continued flow of ecosystem services.

Payment for ecosystem services and poverty reduction

In addition to environmental concerns, poverty reduction is a crucial concern – and objective – of most development assistance, including that provided by Denmark. Clearly, the conservation of ecosystems and maintenance of ecosystem services can be important in its own right, i.e. regardless of who benefits from them or are involved in their provision. Nevertheless ecosystems and ecosystem services which benefit poor people, or which poor people are involved in providing, are of particular interest in the context of development assistance, and thus, of the present report.

This is not to say that all PES arrangements have to be pro-poor. Actors such as the international community, national and district governments, town councils or private companies may all have valid arguments for seeking to establish PES schemes, irrespective of their potential impacts for the poor. However, in the context of development assistance, PES schemes that can be characterized as pro-poor represent a particularly interesting funding opportunity.

Options for development assistance

When considering options for supporting PES schemes through development assistance, it should be recalled that a PES scheme is a voluntary transaction between sellers and buyers with respect to a well-defined ecosystem service or an associated land use or resource management practice. Unless a development agency opts to become a long-term and direct party – i.e. by financing the purchase² of an ecosystem service – to a PES scheme, it is important that funds are not provided for the core functioning of the PES scheme. Otherwise, the sustainability of the PES scheme will be at risk.

In this context, the following options exist for supporting PES schemes through development assistance without sacrificing its nature as a voluntary transaction between buyers and sellers:

1. support the adjustment of legal and institutional frameworks in partner countries to enable the legal recognition of PES schemes;
2. support the careful design of PES schemes, including the design of monitoring compliance by parties to the PES agreement;
3. provide support to enlarge the offer of high-quality certification services in more remote areas and thereby reduce certification costs; and
4. support the design and, if necessary, the implementation of ecosystem and social impact monitoring through national/local authorities.

Option 1:

Support the adjustment of legal and institutional frameworks in partner countries to enable the legal recognition of PES schemes

While some of the best known PES schemes in countries in the South have emerged within considerably well-established institutional settings, such as the Costa Rican forest PES scheme or the Mexican Payment for Hydrological Environmental Services Programme, others are characterized by a much higher degree of institutional informality. While such informality might be conducive to experimentation in new approaches, it is important to ensure that the direct parties to a PES agreement have access to adequate dispute arbitration mechanisms in case of disputes emerging between them as well as between one or more of the direct parties and their intermediaries. For third parties to a PES agreement, e.g. the general public or individual competing resource users, transparency with respect to the contents of the PES agreement is important as a safeguard against – tenuous – resource capture by one or more of the direct parties to the PES agreement.

² Either directly, as the legal person purchasing the ecosystem service, or indirectly, by granting budget support to e.g. a national or municipal government, allowing it to establish e.g. a trust fund, or to directly purchase the ecosystem service or associated land use or management practice from the providers.

Hence, many countries will need to revise their legal and institutional frameworks in order to facilitate the participation of public utilities in PES schemes, to ensure that direct as well as third parties to a PES scheme have access to legal support in case of disputes, or to ensure that third parties have access to information about PES agreements. It is particularly important:

- to review and (where required) amend national legal and regulatory frameworks to ensure that there are no obstacles to the establishment of PES in all their diverse forms and scopes; and
- to issue guidance regarding under which law a PES management entity should most suitably be registered in order to be recognized as a corporate entity that can issue and administer the PES contract; the legal/institutional form(s) the entity may take; and the requirements it has to fulfil under the law.

Option 2:

Support the careful design of PES schemes, including the design of monitoring compliance by parties to the PES agreement

Translating the basic PES concept into an operational scheme tends to be complex. The description of the process of designing the Mexican Payment for Hydrological Environmental Services provides an instructive illustration of this. A large number of detailed and fundamentally important issues had to be dealt with, ranging from which land-use practice to use as a proxy for the hydrological service; how much to pay per proxy-land use unit; how to define eligibility of providers in order to give buyers the highest value of hydrological services for their contribution; whether to pay providers – forest owners – to refrain from illegal deforestation; and who should undertake the financial management and how – just to name a few.

While some of these issues have to be settled through political deliberations, others require empirical data and analysis to be settled. Referring again to the Mexican case, studies had to be carried out of the importance of different types and locations of forests for aquifers and watersheds, of the per hectare opportunity cost of different forest areas, and of the deforestation risk associated with different types of forests at different locations.

Supporting such a design process, including the necessary background studies, represents a funding opportunity where development assistance can make a positive difference. In the Mexican case, the preparatory phase was funded through a donation from the Japanese government, channelled through the World Bank's Environment Department upon request from the Mexican Ministry of Environment and with the National Forestry Commission, CONAFOR, as the client agency.

Although assistance from experts, external to the direct parties to the PES scheme-in-the-making, is likely to be needed during the design phase, it is important that the design process is institutionally anchored with the parties to the PES scheme.

The following reminders should, however, be heeded during the design process:

- Always see PES as one among a number of ecosystem protection instruments.
 - PES is a questionable instrument in situations where potential providers have real but not legally recognized natural resource use choices
 - Depending on the amount paid, PES might represent an attractive alternative to some potential providers while not to others. In such situations of differential opportunity costs for different types of resource managers, PES will have to be combined with other ecosystem protection instruments.
- Beware that PES might be used to strengthen – or weaken – contested claims to natural resources
 - PES represents an additional source for defending access or property claims for both buyers and providers.
- Beware that intermediary PES management agents, who are not directly accountable to the direct parties – the buyers and sellers – of the PES scheme, may impede the development of a true PES scheme by imposing rather than facilitating what should be a voluntary agreement; by obstructing the direct contact – and contract – between buyers and sellers or their direct representatives, or by obstructing or putting non-PES conditions on the payment transfer.

In its code of conduct on PES, the UN Economic Commission for Europe singles out monitoring as one of the most critical aspects of establishing and operating PES. Two levels of monitoring are distinguished: operational and impact monitoring. Both are of crucial importance to ensure the willingness of buyers and sellers to continue as parties to the PES scheme, and both should be contemplated as part of the design process. However, whereas the funding of impact monitoring may constitute an opportunity for donor assistance – and therefore is discussed separately below – the operational monitoring forms part of the core functioning of the PES scheme and thus should be funded by the direct parties to the agreement. The operational monitoring consists as a minimum of monitoring the compliance of the buyers and sellers with the agreed terms of the PES contract as well as, if relevant, the compliance of the participating intermediaries with the agreed terms of its participation. The operational monitoring should be able to document the extent to which:

- buyers are paying as agreed;
- sellers are undertaking the agreed resource management practices at the agreed locations and to the agreed intensity;

- transfer of payments are made as agreed to sellers complying with agreed terms; and
- intermediary agents are undertaking agreed functions at agreed costs.

Option 3:

Provide support to enlarge the offer of high-quality ‘environmental’ certification services in more remote areas and thereby reduce certification costs

Most countries have established practices for financial ‘certification’, namely accounting and auditing systems, to assure tax payers, cooperative members, investors, etc. that their funds are spent according to agreed purposes. Obviously, such financial ‘certification’ is also a crucial element of the operational monitoring of a PES scheme described above. However, in addition, what in broad terms could be labelled ‘environmental certification’ is necessary to ensure that resource management is undertaken according to agreed terms. In some cases, such environmental certification is straightforward, consisting of testifying e.g. whether trees have been planted and are surviving. However, such environmental certification quickly becomes more complex, as when parts of a forest have been destroyed and the cause of the destruction has to be established in order to provide the basis for determining whether the provider is partly or fully responsible for the destruction, and on this basis the extent to which he or she is eligible to receive (part of) the payment. It thus requires a certain level of environmental qualifications to earn the trust of buyers of ecosystem services so they feel convinced that their payment is well spent.

During recent decades, specialized companies have emerged to fill the need for certification of organic agricultural production. As new standards emerge, such as the ‘bird friendly’ standard for shade-grown organic coffee, certification companies have accommodated certification for these new standards within their portfolio of services. Encouraging such companies to provide certification services also in the context of PES schemes that are not related to organic production might constitute a feasible modality for meeting the need for environmental certification of PES schemes. Moreover, finding ways of enlarging the offer of such environmental certification services in more remote areas, e.g. through environmental private sector support (as provided e.g. in the case of the Danida environmental sector support to Nicaragua) may contribute to reduce the operating costs relating to such certification. Donor support can be instrumental in initiating such processes of enlarging the offer of environmental certification.

Option 4:**Support the design and, if necessary, the implementation of ecosystem and social impact monitoring through national/local authorities**

As many PES schemes are likely to be based on assumed rather than proven causal relationships between paid-for resource management practices and desired ecosystem services, there will be a need to carefully monitor the effectiveness of the agreed management practices in delivering the desired ecosystem service outcomes. Apart from site-specific monitoring data, this might require the capacity to draw upon and learn from a wider pool of knowledge.

Likewise, it is necessary to examine the distributional impacts of the PES scheme, both among the direct parties to the PES scheme (e.g. between providers and users), and within each of these two groups. Finally, there is a need to monitor the intended or unintended impacts of PES agreements upon third parties' access to resources as well as their ability to benefit from ecosystem service. As the direct parties to the PES agreement can only be expected to be partially interested in such wider environmental and societal monitoring, this should be regarded as a public good. Thus, the design and implementation of ecosystem and social impact monitoring through appropriate national and local authorities represents an important funding opportunity for development assistance.

Concluding remarks

In summary, while PES certainly should be welcomed as an additional mechanism to promote the maintenance of ecosystem services, care should be taken not to perceive it as a panacea, nor to discard mechanisms employed hitherto in order to achieve ecosystem conservation. As briefly mentioned above and further elaborated in the DIIS report upon which this DIIS brief is based, several caveats exist with respect to PES which in some situations render it a socially and environmentally undesirable conservation mechanism.