

Payments for Environmental Services: A New People Centric Approach for Biodiversity Conservation in Nepal

Lina Chalise¹

Abstract

Payment for Environmental Services (PES) in its preliminary stage is gaining much attention. The worth of many valuable environmental services is undermined from centuries due its free access. But now with the advancing time the blind conservation practices seem to be unreal. Thus, PES mechanism provides an attractive and convincing package in conservation and valuation of most of the indirect services of environment. This is a review article based on the introductory queries on emerging issue of valuation of environmental services via PES mechanism.

Key Words: Environmental services, Global biodiversity, Conservation practices

Introduction

Human, as a small entity of the vast global biodiversity, is entirely dependent upon it for its survival and sustainable existence. They derive all their utilitarian benefits from the environmental services. Environmental Services (ES) are public assets. Public goods have two important characteristics: non-rivalry and non-excludability. The non-rivalry and non-excludability nature of environmental services implies that markets often fail to exist for these services. A number of factors may hinder the establishment of market for such services. First, suppliers of environmental services may lack the property rights. Second, both buyers and sellers may be unaware of the existence and value of environment services. Third, there may be limited buyers and sellers in the market. Fourth, the transaction of doing business may be too high. Payments for Environmental Services (PES) could be an effective mechanism to provide incentives for enhancing and maintaining beneficial environmental services

Payments for environmental services (PES) has been defined as (1) voluntary transaction where (2) a well defined ES (or corresponding land use) is (3) being bought by a (minimum one) ES provider (4) if and only if ES provision is secured (conditionality) (Wunder, 2005). Payments for environmental services (PES) is a market based approach to conservation based on the twin principles that those who benefit from environmental services should pay for them, and that those who generate services should be compensated for providing them. More specifically, it is where beneficiaries of environmental services make payments or provide other non financial rewards to those who secure the provision of such services. These environmental services are non material, non extractives benefits from natural resources,

¹ Kathmandu Forestry College, Kathmandu, Nepal, bruisedevil@yahoo.com

such as watershed protection and carbon sequestration. Payments, in addition to monetary exchanges, can be more broadly understood to be compensation mechanism that reward providers of ES, and thus can include payment in kind and access to resources and markets. The approach seeks to create mechanisms to arrange transactions between service users and providers that are in both parties' interests, thus internalizing what would otherwise be externality. In PES mechanism, service providers receive payments conditional on their providing the desired environmental services (or adopting a land use thought to generate those services). The PES approach is attractive in that it (i) generates new financing, which would otherwise be available for conservation; (ii) is likely to be sustainable, as it depends on the mutual self-interest of service users and providers and not on the whims of government or donor funding; and (iii) is likely to be efficient, in what it conserves services whose benefits exceed the cost of providing them, and does not conserve services when the opposite is true. Payments for environmental services have attracted increasing interest as a mechanism to translate external, non market values of the environmental services (ES).

Pouring a real view PES program needs to consider both the environmental and economic factors that are necessary and feasible to effectively improve or maintain the provision of an ES. From an environmental perspective, a realistic PES scheme requires a clear relationship to have been established between the land use modification that forms the basis for the payment scheme and the proposed ES outcomes. This means that management practices by ES providers could actually maintain or improve the ES provision. One major problem is that there are gaps in perception of these environmental services, and what actions can best secure them, among ES providers, beneficiaries and intermediaries. In many cases, providers of ES, even intermediaries, do not know the real effect of their land management practices on ES provisions. Buyers of ES often remain unaware of the level of ES provision they are receiving in return for their payment (or even that such values are being generated in the first place). Furthermore, the science of how to address the complexity of landscape and ES provision interactions is nascent. On top of these factors, a viable PES program should be realistic in terms of the timing, adequacy and quality of implemented practices, and allowing enough time for desired environmental outcomes to emerge.

From an economic perspective, it is important that the scheme is based on an understanding of the economic costs and benefits accruing to various stakeholders. At least three types of costs are involved in a PES scheme: operational (or direct) costs to implement the conservation activities, opportunity costs of alternative land and resource uses forgone due to conservation activities and transaction costs, the financial and other costs involved in establishing a PES scheme. For a PES scheme to work, the payment or reward needs to be adequate and acceptable for: 1) the ES sellers to cover their operational and opportunity costs; 2) the intermediaries to cover their transaction costs; and 3) the ES buyers to be willing and able to pay for all of these costs and still receive a net benefit in ES value. Ideally, there are some real additional benefits to be shared beyond these costs. A realistic PES scheme recognizes the need to match the ES beneficiaries' willingness to pay (WTP) and the ES providers' willingness to accept (WTA) the offered payment or reward as the basis for negotiation of benefit sharing. (RECOFTC)

Wunder (2005) has identified four types of PES that currently stand out:

- Carbon sequestration and storage (electricity companies are paying farmers for planting and maintaining additional trees),
- Biodiversity protection (conservation donors are paying local people for setting aside or naturally restoring areas to create a biological corridor),
- Watershed protection (downstream water users are paying upstream farmers for adopting land uses that limit deforestation, erosion and flooding risks), and
- Landscape beauty (a tourism operator is paying a local community not to hunt in a forest being used for tourists' wildlife viewing)

Who are the service providers?

The identification of service providers of an environmental service is crucial and targeted issues for PES, to ensure the sustainability of the mechanism as well as to ensure positive environmental outcomes for the service buyers and livelihood improvements for the service providers. A starting point is to understand the characteristics and contexts of the people who provide the environmental services, which can help to plan the best strategies to engage with them in a meaningful and sustainable way. A key characteristic of service providers is that they are usually rural or peri-urban. In many cases, they are small scale farmers practicing subsistence and market farming, or horticulture in a mixed landscape that includes farms and forests. The providers may also be users of natural resources, such as forests, based on formal or informal rights to the resource. Along with limited information, poor service providers usually have weak political voice and even lesser power to negotiate. In the Kulekhani case, for example, the people of watershed did not know that their activities were benefiting others besides themselves. The potential sellers of an ES are those actors who are in a position to safeguard the delivery of the ES.

Who are the buyers?

Another critical issue concerning PES implementation concerns who the buyers of the ES are. In particular, there is an important distinction between cases in which the buyers are the actual users of the ES and cases in which the buyers are others (typically the government, and NGO, or an international agency) acting on behalf of the users of the ES. Like in case of user financed PES program, the buyers are the actual users of an ES: a PES program in which a hydroelectric power producer pays upstream land users to conserve the watershed above its plant would be an example. In government financed PES programs, the buyers are a third party acting on behalf of service uses. This is a typically a government agency, but could also be an international financial institution or conservation institution in the case of global externalities.

PES Practice in Nepal

On the implementation front, a PES like scheme being implemented in Kulekhani hydropower in Makwanpur district is a very good and pioneering initiative. Kulekhani watershed supplies

water to two hydro electric plants that generate a total 92 megawatt of electricity, and Nepal Electricity Authority earns revenue from its sale. However its operation often suffered from limited availability and heavy sedimentation in the water reservoir. To address these issues, Winrock Nepal facilitated the setup and operation of a reward mechanism to upland communities to motivate them to change their land use patterns. A certain percentage of hydropower royalty is allocated for the development activities for the upland communities in the watershed. Land use changes in upland area has visibly resulted in reduced sedimentation and increased sedimentation and increased dry season water flow to the reservoir, which in economic terms are estimated at NPR 3.12 million a year (RECOFTC).

There is also another study carried out in Shivapuri National park highlighting the importance of payments for environmental Services (PES) as a tool to address currently faced key management issues of conserving the protected areas in Nepal while supporting the livelihoods in and around them. This park protects a vital watershed that contributes about one fifth of total piped water in Kathmandu valley. A key management issue currently facing ShNP is the ongoing effort to conserve the forested catchment that is contained within the park boundaries in the face of intense and growing threats and at the same time recognizing the need to ensure sustainable and secure livelihoods for the park dwelling population. PES mechanism are implemented for hydrological services as upstream land uses affect quantity, quality and timing of water flows downstream. Even though conservation of ShNP makes economic sense overall, continuing to expect catchment land resource managers (DNPWC and local communities) to cover the costs of conserving ShNP for downstream water benefits is neither equitable, nor it is likely to be sustainable. The high (and currently uncompensated) economic costs of catchment conservation, the high (and currently freely received) economic benefits of downstream water services and the large excess of (downstream) benefits over (upland) costs of ecosystem conservation indicate both the potential and the need to effect economic transfers in support of conservation. For the case of ShNP, some form of payment for environmental services scheme would be both desirable and potentially viable in hydrological, economic and livelihood terms.

Opportunities for PES in Nepal

Nepal's rich natural resources and biodiversity are a continuous deterioration though it has large potential to support the local communities and the economy if properly conserved and utilized. PES mechanism seems to have greater importance in Nepal as their state's conservation fund is inadequate and the poverty and conservation issues are to be addressed together. The concept is emerging in Nepal now, and many organizations have shown interest and are at different stages, and few studies have already established the feasibility for PES in some areas.

Basic policies and institutional infrastructure required to setup PES schemes are also already in place. The National park and Wildlife Conservation Act (1973), The Local Self Governance Act (1999), The Electricity Act (1992), The Forest Act (1993), among few others contain the concept of benefit sharing. With dual objective to develop incentive systems for resource conservation and to improve livelihood, Ministry of Local Development has developed

guidelines to use environmental funds collected from natural resources use, emphasizing to reward local people, especially the poor, who contribute to provide environmental services. (Upadhaya, Shyam K)

Some key challenges identified

- Lack of scientific evidences establishing linkages between watershed ecosystem management and hydrological services generated. So far this sector has received no attention though there are lots of efforts of watershed management;
- Lack of awareness about PES concept among people, resource managers and policy makers and thus , lacks recognition in national policies
- Lack of property rights in the hills, which adds complexities to design and implementation of PES schemes.

Conclusion

Despite many success stories of PES schemes around the globe, it still has to gain recognition in Nepal to address dual goal of conservation and livelihoods. Nepal has a strong backing up of policies and institutional framework to establish PES mechanism, what it needs is substantial ground research and field level practicality for its refinement. Even the appropriate quantifying measure of environmental services is debatable due to vague idea among policy makers, buyers and suppliers and lack of well defined property right over natural resources pose another constraints in its progress. Despite all the constraints implementation of PES should not be lingered, the additional theoretical backing must be provided from recent scientific findings and practicality can be polished from field experience.

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