PREM
Poverty Reduction and Environmental Management

Policy Brief

No.8 November 2005

Compensating upland forest communities for the provision of watershed protection services: using 'Payment for Environmental Services' instruments in the Philippines.

Overview

Like many developing nations, the Philippines, a Southeast Asian archipelago, is striving to halt the degradation of its environmental resources. Of particular concern is the gradual loss of its swathes of upland forests, which have both direct value (supplying timber and non-timber products, and recreation/tourism opportunities) and indirect value (providing hydrological services, carbon sequestration and biodiversity). 'Onsite' benefits accrue to the 20 million Philippinos living in this upland terrain: a particularly poor and marginalized group that depends directly on agriculture and forest-associated resources for their livelihoods. 'Offsite' benefits extend beyond the forests' boundaries and accrue principally to wealthier lowland dwellers (irrigated rice farmers, tourism industry, etc.). Policy-makers are increasingly interested in valuing these downstream services in monetary terms and exploring mechanisms by which beneficiaries pay upstream residents for their provision. Such 'Payment for Environmental Services' (PES) instruments are envisaged to achieve the combined goals of resource management and poverty alleviation by providing an economic incentive for upland dwellers to engage in much-needed forest conservation activities. This study evaluates the potential for such a mechanism in two Philippine watersheds, paying specific attention to the scientific, social, economic and institutional requirements of a successful PES system. There is particular scope for such a mechanism in the protected area of Peñablanca, where clear downstream demand exists for its watershed protection services. Overall, the study recommends that PES be promoted by policy makers, NGOs and global donors where both clear providers and beneficiaries (local, national and global) of environmental services exist.

This policy brief is based on the PREM Project Report, 'Designing payments for watershed protection services of upland dwellers: Two Philippine case studies' by Ma. Eugenia Bennagen, Anabeth Indab, Arlene Amponin, Rex Cruz, Renato Folledo, Pieter van Beukering, Luke Brander, Sebastiaan Hess, Arnout van Soesbergen, Kim van der Leeuw and Jaap de Jong. The full report is available online at: www.prem-online.org

Study Area

The Philippines comprise 7,107 islands, sustaining around 87 million people. The hilly and densely forested terrain characteristic of many of its central islands forms the focus of this study. Specifically, watershed dynamics in two Philippine provinces were evaluated:

- *In the Cagayan Province: The Pinacanauan Watershed, which is part of the newly expanded Peñablanca Protected Landscape and Seascape (PPLS) in Peñablanca.*
- *In the Nueva Vizcaya Province: The Imugan Watershed, which is part of the Ikalahan Ancestral Domain. A substantial portion of this watershed falls within the Kalahan Forest Reserve.*

These sites were chosen due to their i) fairly high-quality and stable watershed conditions; ii) well-defined environmental service provision and demand aspects (i.e. the provider was not also the beneficiary); iii) adequate institutional capacity; and (iv) accessibility and political stability.

The **Poverty Reduction and Environmental Management Programme:** An **Institute for Environmental Studies (IVM)** initiative, funded by the **Dutch Ministry of Foreign Affairs (DGIS).**

Issues facing policy-makers:

- **What are the specific land-water linkages within a given watershed, and how are these affected by the land use practices of upland dwellers?**
- **Is there demand for the environmental services provided by upland dwellers in the two study sites?**
- **If so, under what institutional conditions could payments for these services be established?**
- **Would PES be effective in promoting both forest conservation and poverty alleviation in the uplands?**
- **What set of policies would best support PES systems in the Philippines?**

Land-water linkages in the two watersheds

One principal environmental service associated with well-managed upland forests is the provision of a reliable and high-quality downstream water supply. Yet, such watershed protection services can be undermined by unsustainable agricultural practices, forestry, mining, and urbanization. These activities can affect surface water availability, impede the recharging of aquifers, and reduce the quality of the water supply. Where vegetation has been cleared, erosion and resultant sediment loads are typically greater. Equally, levels of organic matter and chemical compounds tend to be higher downstream of inhabited areas.

In the *Pinacanauan* watershed, upstream forest and brush land areas are progressively being replaced by agricultural and grassland areas. There are clear indications that this has increased the variability of downstream flow (comparatively higher in the wet season, and lower in the dry season) and, reduced its quality. If forest cover continues to decline, these impacts are likely to worsen. Poor upland dwellers in the Peñablanca Protected Area are aware of the negative consequences of illegal logging and their own unsustainable farming and forest use practices. However, they presently have few alternative livelihood options.

The *Imugan* watershed displays superior hydrological functions: a steadier downstream water flow, lower erosion and minimal sedimentation. This is a consequence of the well thought out conservation practices of the indigenous residents of the Kalahan Forest Reserve. The Ikalahan people have, for example, developed sustainable systems of harvesting non-timber forest products, thus providing supplementary income and precluding (as yet) the need to expand agricultural areas. As a result, forest cover has remained stable since 1990. Nonetheless, poverty among the Ikalahan remains the greatest threat to the reserve's sustainability.

Payment for Environmental Services (PES) and its applicability in the Philippines

As conventional, government-led environmental management strategies have often failed to deliver, policy makers are exploring the application of market based instruments (MBI) to achieve both conservation and poverty reduction goals. One such MBI is 'Payment for Environmental Services' (PES), a mechanism through which those providing environmental services are compensated by those benefiting from these services. For example, in a watershed context, PES seeks to support upland dwellers' conservation activities with funds from downstream beneficiaries of watershed protection services. International bodies may also finance global environmental services associated with upland forests (e.g. carbon sequestration).

For a watershed PES system to be viable, certain scientific, economic and institutional criteria have to be met (see Figure 1).

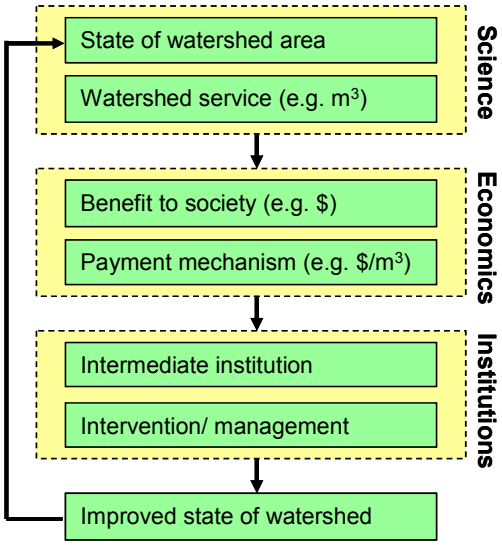

Figure 1: Integrating Framework for the Scientific, Economic and Institutional Dimensions of PES

- **Scientific:** Scientific evidence that a well-managed watershed provides specific and measurable environmental services is vital: this study found the differences in hydrological functions between the two watersheds were indeed attributable to the differential upland practices.

- **Economic:** Watershed protection services subsequently need to be valued in monetary terms, according to their role in sustaining downstream residents and industries. The Pinacanauan watershed supplies water to Peñablanca and Tuguegarao City for irrigation, domestic use, and recreational activities (e.g. white-water rafting). Farmers, residents and the tourism industry are prepared to pay for these vital watershed services. Conversely, demand for equivalent services in Imugan is weaker: this watershed barely contributes to the nearby Magat reservoir (which provides irrigation and hydropower generation downstream). The Kalahan Forest Reserve's greatest beneficiaries are lowland rice farmers. The economic value and 'willingness to pay' for its watershed services is, therefore, currently lower.

- **Institutional:** A successful PES scheme necessitates: a fair and transparent legal system, well-defined property rights, appropriate cooperative mechanisms (e.g. village councils), and government support. Local stakeholder involvement in PES development is also critical. Although a suitable legal basis for PES exists in the Peñablanca Protected Area, the region's ambiguous property rights system and underdeveloped community organisation are limitations. In contrast, the Ikalahan people of the Imugan watershed have exclusive property rights and jurisdiction over the Kalahan Forest Reserve and its resources. They also have an appropriate intermediary body (the Kalahan Educational Foundation) and a strong community-led willingness to establish a PES scheme.

Policy recommendations

Having established scope for PES systems in the two watersheds, researchers used a dynamic simulation model to identify the most effective policy strategy for the period 2005-2035. Eight different 'scenarios' (plus a baseline scenario) were considered, each varying according to i) the level of forest conservation (specifically reforestation and agroforestry); ii) the inclusion of carbon sequestration benefits; iii) the type of intermediary institution; and iv) the type of payment: cash or non-cash. A multi-criteria analysis was also performed with the participation of local stakeholders, in order to integrate criteria that are difficult to quantify in monetary terms. The resultant policy recommendations were identified for the two protected areas and associated watersheds:

The Peñablanca Protected Area
A PES scenario with high levels of conservation, cash for watershed protection payments and the financing of carbon sequestration services would be most beneficial in the Pinacanauan watershed. High levels of conservation would provide alternative income generation opportunities for upland dwellers, thus achieving the dual goals of poverty reduction and forest preservation. However, for a PES mechanism to succeed, certain institutional changes will be necessary.

Firstly, better regulation of migration into upland areas is required, and the current property rights system needs to be strengthened. Building the capacity of upland dwellers, both in terms of community organisation and sustainable farming practices, will also be pivotal. Given the deficit of suitable intermediary organizations to link upstream service providers with downstream beneficiaries, the support of local NGOs (e.g. Conservation International) will be invaluable. Finally, there is a strong preference amongst stakeholders for a private body, rather than the Department of Environment and Natural Resources (DENR), to take responsibility for the management of PES funds. In terms of potential for carbon sequestration projects, the protected area has extensive regions that could be reforested with international funding.

The Kalahan Forest Reserve

A PES scenario with high levels of conservation, the KEF as an intermediary body and the financing of carbon sequestration services would be most beneficial in the Imugan watershed. A more ambitious conservation programme would enhance employment levels within the Ikalahan community, thereby helping to reduce poverty. Current institutional conditions are conducive to the development of a PES system. The KEF is a trusted community body: it would competently liaise between the Ikalahan and downstream beneficiaries, and manage associated funds. Yet long term success now depends on the identification of more direct service beneficiaries (regional, national and international), potentially through the International Center for Research in Agroforestry's 'Rewarding Upland Poor for Environmental Services'(RUPES) scheme. In the meantime, the KEF could further explore potential compensation payments from beneficiaries in the Magat region. Establishing a carbon sequestration project will be difficult to achieve: forest cover is already high, and most international funding is for reforestation only. An alternative source of financing may originate from private investors seeking an improved corporate image.

Overall, PES should be promoted by the

Philippines Government, in-country NGOs, and global donors (such as the GEF) where both clear 'providers' and 'beneficiaries' of environmental services exist. As outlined, this depends on certain scientific, economic and institutional criteria being met. In all cases, the value of a PES system must be clearly communicated to the broader stakeholder community (particularly the service beneficiaries). Already, the DENR has initiated the development of MBIs; a PES for watershed protection, as proposed by this study, would be in line with this policy direction. Payments for Environmental Services provide powerful economic incentives for conservation; however they remain just one in a suite of tools that will be required to reverse the degradation of upland forests in the Philippines.

PREM: In brief

The Poverty Reduction and Environmental Management (PREM) programme aims to deepen and broaden the exposure of economic researchers and policy advisors in Africa and Asia to the theory and methods of natural resource management and environmental economics. It is anticipated that this will encourage policy changes that address both poverty reduction and sustainable environmental management.

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This policy brief is an output of a research project funded by PREM. The views expressed herein are not necessarily those of PREM or its sponsors.