Delivering Environmental Services in Landscapes: Experiences with PES through IUCN's Livelihoods and Landscapes Strategy

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Scoping out the PES potential

Payments for environmental services (PES) have been popularised relatively recently as a form of conservation finance. Its potential is widely debated in academic and policy circles, and its application is being tested in a variety of contexts. Nevertheless, there still is no clear consensus on what the real potential of PES is. One recurring question concerns the conceptual foundation of PES: what is it that makes it distinctive from other forms of conservation finance, such as subsidies, offsets, or eco-labels? While there have been many efforts to provide robust theoretical frameworks for outlining the different shapes and sizes of PES (Landell-Mills and Porras 2002; Salzman 2005; Ravnborg et al., 2007) its scope is still poorly understood.

At the global level, it is the market for carbon credits that is dominating the PES portfolio through the proliferation of forest-based carbon projects (plantations, restoration, and avoided deforestation). At more localised scales, most examples of PES schemes relate to transactions between downstream beneficiaries and upstream landowners for the sustainable management of watersheds (e.g. payments for erosion control, water filtration and flow regulation). While both forms of PES involve the use of incentives for the regulation of critical natural cycles (i.e. carbon and water), they have little more than that in common.

With the aim of investigating the scope of PES as an ecosystem management tool, this article draws from ongoing work being carried out by the International Union for Conservation of Nature (IUCN) to explore how two different forms of PES (carbon- and water-related) can potentially be combined to strengthen conservation efforts.

The landscape approach to PES

IUCN's experience with PES exists within a broader endeavour to implement a landscape-based approach to conservation, as reflected in the ongoing Livelihoods and Landscapes Strategy (LLS). This approach is also referred to as the 'ecosystem approach' (Shepherd (ed.) 2008). In the landscape approach adopted by LLS, forests are seen as an integral part of a wider landscape in which people and nature interact in multiple ways. Forest resources must be managed to meet multiple demands, and their management must be responsive to biological and socio-economic processes elsewhere in the landscape, and beyond. The basis of such as strategy is the recognition that dynamic solutions to management challenges must be found through negotiating trade-offs between the interests of different groups of people with a stake in the landscape. It can be applied everywhere, yet it emphasises the regional specificities (e.g. different land use patterns and decision making processes) of a given area (Singer 2007).

Generally speaking, the landscape approach to implementing PES in forest landscapes consists of similar attempted linkages - greater coherence between payments for environmental services of global importance (e.g. regulation

Example of an agroforestry system, fodder and cardamom. Photo: Elisabeth Kerkhoff.

of the climate) and those of more local importance (e.g. soil retention). In practice, such an endeavour unites the two most popular types of PES transactions: carbon and water.

As with any type of carbon-motivated scheme, there is a real risk that other environmental services, which might have importance for different purposes and at smaller scales, could be undermined by carbon-dominated interests. An example would be the depletion of water tables in support of large-scale timber plantations. By focusing on the landscape as opposed to a specific environmental service, trade-offs and potential conflicts of interests between land-uses are dealt with in an integrated way. It is thus hoped that the landscape approach can address risks associated with a potential mismatch between global services (e.g. the carbon market) and local livelihoods, such as the depletion of water tables in support of carbon-fuelled investments in forest plantations. While an adequate 'fit' between ecosystem management and the pre-existing range of institutions is rarely present at the outset (Folke et al. 2007), adaptive management and institutional evolution will take place over time (Shepherd 2008).

The carbon locomotive

Incentives for the climate regulating services of forests currently form the largest PES market. This market is being fuelled by the growing interest in paying for reduced emissions from deforestation and forest degradation, conservation, enhanced carbon stocks, and sustainably managed forests (all of which are now united under the banner of REDD+). While discussions on establishing an international compliance market for such projects are still ongoing, the voluntary marketplace is witnessing a rapid increase in REDD+ projects. The high expected consumer appetite for pro-poor and biodiversity-friendly REDD+ projects thus represents a strategic entry point for presenting a joint supply of environmental services to the marketplace.

One strategy for supporting bundled carbon and water related services consists of directing carbon-motivated incentives towards areas where water-related environmental services are being delivered (e.g. filtration, flow regulation, storm buffering). In the field, this approach is attractive in places such as the Lachuá eco-region in Guatemala, a forest landscape that also happens to be recognised as an internationally important wetland by the Ramsar Convention. In Lachuá, which is located in the mountainous region of the Alta Verapaz, IUCN is attempting to use the carbon market as a means of supporting conservation efforts within the landscape. Through reforestation and conservation, the project will notably aim to conserve biodiversity and create additional habitat for endangered species such as the jaguar, restore and enrich degraded soils, and – most importantly – conserve intact forests and wetlands that provide essential sources of food, water, fuel and medicines for local communities.

The project is currently in the process of seeking appropriate entry points into the carbon market. The proponent of the project is FUNDA LACHUA, which was jointly formed in 2007 by several local organisations. FUNDA LACHUA is recognised by all actors of the Eco-region, since its purpose is promoting the sustainable development of the 55 indigenous communities, *'q´eqchi´es'*.

The main advantage of this carbon-driven strategy is the strong demand that could be generated in more developed countries – especially if a future climate change agreement includes a provision for investing in forest-based mitigation projects. However, a major challenge in situations such as these consists in ensuring that the income generation potential of the carbon benefits (in this case, they are estimated at some US $600,000/year, at a price of $10/tonne) does not undermine the social stability and cultural integrity of the landscape.

The Lachuá landscape presents distinct advantages that safeguard against many of the social risks associated with REDD+. Most important of these, the project builds on a long-lasting effort of community-owned ecosystem management. The previous implementation of a government-led forest incentive scheme has allowed the establishment of a capable and representative institution (the FUNDA LACHUA) which is responsible for administering PES transactions. However, the challenge of building appropriate institutional capacity is not so easily achieved. In other forest landscapes around the world, the possibility of accessing carbon finance opportunities is still far removed.

Starting with watersheds

Through the LLS initiative, explorations into the potential of PES are mainly preoccupied with the search for more 'bottom-up' approaches to conservation finance. At the more local level, by far the most common PES architecture focuses on the transfer of payments to upstream landowners for the water-related environmental services enjoyed by downstream beneficiaries (e.g. urban dwellers, hydro-electric facilities, bottling companies). This PES template is currently being studied in the Chinese landscape of Miyun, just outside of the capital city, Beijing. In this LLS site, authorities are using economic incentives to conserve and restore the forest cover which enhances the water quality of Beijing's water supply. While the payments are motivated by local concerns, they also contribute to the conservation and enhancement of carbon stocks in forests.

Building on its experiences in Guatemala and China, IUCN's exploration of the application of PES within a landscape-based approach to conservation is currently informing the scoping of opportunities for integrating water and carbon markets in forested landscapes. A potential site for piloting such a project has been identified in the Guinean landscape of the upper Tinkisso basin, a tributary to the Niger. This landscape is situated at the border between the mountainous highlands of the Fouta Djallon and the arid plains of the Sahel. It is an area with a high level of poverty, unstable governance and it is particularly vulnerable to unstable water regimes and increasing desertification.

The degradation of this area has contributed to the silting of the Dabola dam reservoir – resulting in a significant decrease in electricity production. It is hoped that the development of a local-level PES system to promote the preservation of forest cover in the degraded hills of the upper Tinkisso basin (an area which also harbours many endangered species, such as the chimpanzee) can be carried out in coordination with efforts to bring REDD+ opportunities to the landscape. The project aims to reward the conservation and restoration of the upland forests by granting access to electricity to those communities who engage in such activities.

Local markets for watershed services and the global carbon market have little in common. However, in areas which currently do not have access to the growing market for carbon

credits, the establishment of watershed management structures capable of administering PES funds could help ensure that potential opportunities from the carbon market are effectively and sustainably seized. In areas such as the Tinkisso landscape, the challenge of strengthening institutional capacity will inevitably need to be met if carbon-related opportunities are to be seized. Existing efforts aiming at instituting and supporting local watershed management authorities, such as those being carried out through the establishment of 'local watershed committees' (CLE – *'Comités Locaux de l'Eau'*) , could serve as a useful starting point for experimenting with PES in this region. Managing the landscape around the maintenance and enhancement of locally-enjoyed environmental services could then serve as a means of capitalising on these services with more widespread effects.

Marketing landscapes

While lessons are still being learned, it appears that the landscape approach is well adapted for the joint management of different environmental services, as it seeks to balance different kinds of land-use. The integration of global and local concerns is particularly important in terms of ensuring that local livelihoods (e.g. food security) are not undermined by external interests, but it could also support economic development within the landscape.

Ghazoul et el. (2009) advance the idea of expanding the PES model to create 'landscape labels' that could be used to market the different goods and services provided in a given area. In this perspective, environmental services which receive less attention or that cannot be easily measured in quantitative terms (e.g. cultural services) could be included in the marketing of different goods and services. Herein lies the 'strong suit' of PES – its capacity to highlight under-appreciated attributes of ecosystems and to raise awareness of their economic values. One of these attributes is socio-ecological resilience, which deserves to be a key focus of conservation efforts.

In the true PES spirit of reaching out to previously unengaged actors (i.e. beneficiaries of environmental services), it is hoped that the landscape-level integration of different environmental goods and services could serve as a means of capturing tourism-related benefits. As the qualitative attributes of conservation (e.g. landscape beauty, socio-ecological resilience) gain in prominence, marketing opportunities could be more easily seized. Capitalising on environmental services to make conservation more economically attractive can help support rural development in many parts of the world. However, as stated by Ribot (2008), these opportunities can only be effectively realised if conservation efforts also support the strengthening of local democracy and governance.

Some basic recommendations for developing PES in landscapes

Van Noordwijk et al. (2007) provide a useful framework for assessing the relevance and effectiveness of implementing PES in landscapes. The main criteria put forward are to ensure that the intervention is feasible (e.g. opportunity costs are covered by the payments), voluntary (e.g. free, prior and informed consent is achieved), conditional (e.g. sanctions exist), and pro-poor (e.g. vulnerabilities are reduced). It needs to be emphasised that PES may not be desirable everywhere, and especially not in areas where there is a high risk of conflict over resources. Another important consideration is that the payment options need to remain broad, as cash might not be the preferred incentive in certain instances.

Bearing these main elements in mind, the LLS experience has revealed some additional lessons which might be useful for experimenting with PES in rural landscapes. A key finding is the importance of balancing the opportunities brought through access to international markets with local needs (e.g. access to resources). Identifying and addressing trade-offs is a central concern of the LLS approach, and capitalising on environmental service benefits therefore needs to fit within a broader strategy for sustainable rural development. It is recommended that international markets for environmental services are only pursued in contexts where local-level benefit sharing mechanisms have been reliably tested. The existence of functioning institutions that are capable of ensuring an equitable sharing of benefits at the landscape level could offer a reliable template for ensuring that the global carbon market is supporting, and not disrupting, the sustainable development of rural landscapes.

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