

Payments for watershed services: opportunities and realities

Ivan Bond

Many nations have found that regulatory approaches to land and water management have a limited impact. An alternative is to create incentives for sound management – under mechanisms known as payments for ecosystem services. It is a simple idea: people who look after ecosystems that benefit others should be recognised and rewarded. In the case of watersheds, downstream beneficiaries of wise upstream land and water use should compensate the stewards. To be effective, these ‘payments for watershed services’ must cover the costs of watershed management. In developing countries, they might also aid local development and reduce poverty. But new research shows that the problems in watersheds are complex and not easily solved. Payments for watershed services do not guarantee poverty reduction and cannot replace the best aspects of regulation.

Natural landscapes are being cleared or severely degraded at unprecedented rates. This is limiting the provision to society of key ‘ecosystem services’, such as the quality and quantity of water. Indeed, the Millennium Ecosystem Assessment (2005) estimated that 60% of ecosystem services are degraded or being used unsustainably.

A major reason why ecosystems are not properly managed is that markets fail to value their benefits. For years, environmental economists have talked about correcting this market failure by internalising the costs and benefits of supplying ecosystem services.

One way to do this, for land-based ecosystem services, is to provide monetary or other forms of direct incentives to land managers. This has been termed ‘payments for ecosystem services.’ What makes it new and different is that payments are contingent on land-use changes being made by the service provider.

But as new research¹ by IIED and its partners

shows, things are not so simple when the theory is applied to payments for watershed services. Implementing them is extremely challenging due to the physical, social and economic complexity of most watersheds.

Between 2003 and 2007, IIED coordinated the action-learning project “Developing Markets for Watershed Protection Services and Improved Livelihoods.” The project aimed to develop and test payments for watershed services that would both address land use and livelihood challenges. In three out of ten sites, new payment-based mechanisms were developed between water users and upstream land managers, while an existing mechanism was strengthened in a fourth site (see Table). In the remaining six sites, no payment mechanisms were developed. The reasons why mechanisms did not develop within the project timeframe included: no clear hydrological rationale (Caribbean) and limited demand from potential buyers (South Africa).

What we learnt

Livelihoods and land use: The results from the project sites and evidence from a growing body of literature^{2,3} strongly suggest that payments for watershed services are not an appropriate intervention on their own for reducing poverty in upland catchments. Where poverty reduction is the main aim, organisations need to address the institutional causes of poverty (i.e. policies that are causing people harm) and to improve basic services such as health, education, sanitation and the provision of clean water.

Where the project did facilitate new relationships these were generally small scale, of uncertain sustainability and environmental impact. The Indonesian schemes are small pilots (about 50ha) set in massive catchments, while in India a payment mechanism was developed between two villages. These interventions are at too small a scale and too recent to significantly affect the quality and quantity of water. Yet all three cases present opportunities or principles that can be

KEY MESSAGES:

- **Payments for watershed services should not be considered as a poverty eradication tool with widespread applicability in developing nations.**
- **In these countries, there is very little evidence that such payments have had a significant positive effect on land and water management.**
- **There can, however, be considerable indirect benefits and new relationships from payments schemes.**
- **As demand for new tools for land and water management grows, it is important not to discard the positive aspects of regulation.**
- **Payments need to be developed in the social, political and economic context of specific watersheds.**
- **Governments provide the legal and policy framework in which payments for watershed services can be an option, and are themselves increasingly acting as buyers of services on behalf of society.**

Watershed and country	Payments	Buyer	Seller
Rio Los Negros watershed, Santa Rosa community, Bolivia	One beehive for 10 hectares of cloud forest per year	USFWS (donor) and local municipality funds, facilitated by NGO Natura	Upland subsistence agro-pastoralists – 34 involved to date, doubling in each of the last two years
Kuhan catchment India	Grazing agreement Saplings Grass	Villagers of (downstream village) Kuhan Khas. Provided 330 saplings, financed from irrigation charges	21 families in (upstream village) Oach Kalan closed about 12 hectares to grazing for 8 years, and planted saplings there.
Brantas watershed, Indonesia	One-off payment of US\$5,175 to farmers group	PJT-I – government river basin authority	Farmers at Tlekung (66), Bendosari (77) and Sukomulyo (27) pilot sites.
Cidanau watershed, Indonesia	US\$17,500 p.a. to farmers group at pilot site for 5 years	KTI – industrial conglomerate	Farmers at Citamen (43) and Cibojong (29) pilot sites.

replicated over a much greater scale with potentially important impacts on land use. At the site in Bolivia, the payment mechanism is contributing to the conservation of about 2,000ha of forest, with substantial lessons for elsewhere in the country.

Payments and indirect benefits: There has been much debate about how payments for watershed services should be allocated. Evidence from the project suggests that payments do not need to be equal as long as they are perceived to be fair. In Los Negros, farmers accepted payments that varied with both the area and type of forest they were conserving. Simple measures of area or distance from a river or stream, modified perhaps by slope, may prove to be sufficient proxies to design credible but differentiated schemes.

While the direct impacts of payments for watershed services may be limited, the indirect benefits may be substantial. The small amounts of funding that Indonesian farmers received allowed them to invest in activities that met their needs and gave them opportunities to engage confidently with a diverse set of new partners. The exchange of labour and materials between villages in India carried with it a higher moral value than externally supplied inputs. This is likely to increase the sustainability of the arrangement.

Role of governments: Incentive based mechanisms are frequently offered as an alternative to government regulation. This project has shown that payments for watershed services do not and cannot diminish or exclude national and local government, which provide the legal and policy framework for payment mechanisms. Indeed regulation, including creating and managing protected areas, can play an important role in maintaining supplies of fresh water.

Further, the governments of China, Costa Rica, Mexico and South Africa use various mechanisms to buy watershed services. The payments can legitimise private sector initiatives as in Costa Rica. However, when there is only one buyer as in China, the government domination of the 'market' through multiple forestry and land-use programmes stifles private sector investment.

Many governments have incentives in place for land and watershed management that are not strictly recognised as 'payments for watershed services'. Examples include the provision of seedlings, tax credits for land and water

management and grants to community-based organisations. At the same time, instruments such as subsidies on agro-chemicals can create incentives for resource managers that result in environmental damage. It is important to harmonise such policies and improve the efficacy of the prototype mechanisms for making payments for watershed services.

The future of payments for watershed services

There is a growing demand for innovative ways to manage ecosystems. Evidence from developed countries suggests that public and/or private sector payments for watershed services can be an effective approach to ecosystem management that can also support farmers' livelihoods.

For these approaches to work in developing countries too, we need to develop and test payment mechanisms, and find better ways to evaluate their effectiveness. These mechanisms must be designed to fit the local environmental, social and economic contexts, as well as the desirable aspects of the regulatory framework.

In particular, payments for watershed services might help to mitigate the detrimental effects that regulatory approaches have had on livelihoods of poor people living in critical areas of watersheds. Lessons can also be learnt from related fields such as joint forest management and community based natural resource management.

We are only just starting to understand the opportunities and challenges that new instruments such as payments for ecosystem services present. With increasing pressure on water and land, and threats to these resources from climate change, it is essential that we continue to pursue these new approaches.

Footnotes

1 Full details of the research and project partners will be published later this year in. Mayers, J., Bond, I., et al. 2007. Fair Deals for Watershed Services: Lessons from a multi-country action-learning project. IIED.

2 Landell-Mills, N. and I.T. Porras. 2002. Silver Bullet or Fool's Gold: A global review of markets for forest environmental services and their impact on the poor. IIED.

3 Porras, I., Grieg-Gran, M. and N. Neves. 2007. All That Glitters: A review of payments for watershed services in developing countries. IIED.