



These two women in Nueva America, Pimampino, Bolivia, are benefiting from a Payments for Environmental Services (PES) scheme. Water consumers downstream are paying farmers upstream to protect forests in the headwaters. (Photo by Sven Wunder)

Cash for conservation

Over the past decade, farmers in the lower reaches of the Los Negros River in Bolivia have noticed that the water level has been steadily decreasing, especially in the dry season. As the local economy is based on irrigated agriculture, this represents a serious threat to their livelihoods. The farmers have attributed

the declining water flows to the clearance of cloud forest and an increase in irrigation higher up the valley.

You will hear stories such as this across the mountainous tropics. But this story doesn't end there. Four years ago negotiations began between the lowland and upland farmers. A local organisation, Fundación Natura Bolivia, helped to broker a deal which seeks to create a system whereby some of the former make annual payments to some of the latter. In return, the upland farmers have agreed conservation contracts that cover over 1000 hectares. The deal is designed to help ensure a steady supply of water in the future, and it is a classic example of what is known as 'payments for environmental services', or PES.

As human pressures on natural ecosystems become greater, and the services they traditionally provide free of charge – clean water, biodiversity and so on – become scarcer, schemes such as this are likely to become more widespread. 'Our deforestation research over the past 10 years has shown that landowners normally clear forests because it's profitable to do so,' explains CIFOR economist Sven Wunder. 'If you want to conserve the forests and maintain the environmental services they provide, you need to work out ways of compensating landowners for the loss of income they incur. One way of doing this is through payments for environmental services.' It is not, however, a simple matter, as research by CIFOR and its partners has revealed.

In the Occasional Paper, *Payments for Environmental Services: Some Nuts and Bolts*, Wunder defines a PES scheme as a voluntary transaction with at least one seller, one buyer and a well-defined environmental service. Payment should be conditional on delivery of the service. Most schemes focus on four services: carbon sequestration, watershed protection, biodiversity conservation, and tourism based on fine landscapes and wildlife.

By examining schemes in Vietnam, Bolivia and elsewhere, Wunder and his colleagues

have gained valuable insights into the factors which determine why they succeed or fail. In Vietnam, they found that the command and control economy is so strong that PES-like schemes remain relatively ineffectual. It is strong law enforcement, rather than payments to provide environment services, which dictates what farmers do, even in areas where some form of payment is made. However, the outlook in Bolivia is far more encouraging.

'I think the existence of many of the Bolivian initiatives owes much to the innovative environmental legislation that was introduced in the 1990s,' says Nina Robertson, co-author with Wunder of *Fresh Tracks in the Forest*, which analyses the experiences of 17 PES-like initiatives. 'We were continually impressed by how dynamic the process was and how the organisations involved – the villagers, NGOs and funders – were eager to experiment with different models to make the schemes work.'

Experience around the world suggests that payment schemes related to the provision of water have a relatively good chance of success. People who depend on water, either for drinking or irrigation, are unlikely to balk at having to pay, say, an extra 10 per cent on their water bills if it means that they are guaranteed secure, high-quality supplies. For poor farmers in the uplands, and households or farmers in the lowlands, the benefits are easily understood: cash for the former, and reduced risk of water shortages for the latter.

The same cannot be said for biodiversity conservation schemes, which can prove much more difficult to finance. 'For one thing,' explains Wunder, 'it's not a question of making a one-off payment, or setting up a conservation project that takes X amount of time – after which the problem will be solved.' In most cases, the buyers need to keep on paying year after year, and that means they have to set up something like a trust fund which will yield continuous returns.

Conservation can also be a very expensive business when looked at in terms of opportunity costs. Studies in the Brazilian

Amazon suggest that the payments that would need to be made to encourage a farmer not to clear forest to grow, say, soya beans would be prohibitively high. However, on marginal lands where the opportunity costs of forsaking agricultural activities are modest, PES schemes may offer a feasible conservation strategy. Here, a relatively small annual payment could tip the balance in favour of conservation.

Eco-tourism schemes have proved particularly successful in Bolivia. For example, the creation of Chalalán Ecolodge in the Bolivian Amazon has significantly improved local incomes by providing rotational employment opportunities for some 60 people. It has also helped to stem the migration of young people to distant cities. The scheme has strengthened community organisation and encouraged villagers to protect an area which is outstanding for its scenic beauty and wildlife. It has also had a knock-on effect, stimulating others to set up small eco-tourism operations in the area.

Using market forces to achieve environmental goals is an attractive idea. But will PES schemes ever take off in a big way? 'I think it'll take time to demonstrate that this is a workable proposition, and that's not going to happen until there are more schemes, which means getting more buyers involved,' explains Wunder. He believes it is essential to get marketing people involved in PES research and development so that a good business case can be made to attract the private sector. Development agencies should also consider using PES schemes as a way of supporting biodiversity projects. Nina Robertson emphasises that it is essential to build trust among stakeholders and address local concerns about PES schemes. 'If local people feel that the schemes are being imposed from outside,' she says, 'then they won't develop successfully.'

Besides publishing an Occasional Paper, an Infobrief and two books on payments for environmental services during 2005, CIFOR co-hosted, with the University of Bonn, a high-level international workshop on the subject at Titisee, Germany, in June 2005.

