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The Economy and Environment Program for Southeast Asia (EEPSEA) was established in May 1993 to support training and research in environmental and resource economics across its 10 member countries: Cambodia, China, Indonesia, Laos, Malaysia, Papua New Guinea, the Philippines, Sri Lanka, Thailand, and Viet Nam. Its goal is to strengthen local capacity for the economic analysis of environmental problems so that researchers can provide sound advice to policymakers.

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# Paying For Environmental Services: A Trial In Vietnam

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One of the most difficult challenges facing developing countries is balancing the needs of rural people with the demands of nature conservation. All too often, conflicts occur because local needs are not taken into account in conservation planning. One of the more promising approaches to solving this problem involves paying local people to →

A summary of EEPSEA Research Report 2006-RR3, *Payments for Environmental Services in Vietnam: Assessing an Economic Approach to Sustainable Forest Management* by Bui Dung The and Hong Bich Ngoc. Contact: Dr. Bui Dung The, College of Economics, Hue University, 100 Phung Hung, Hue City, Vietnam. E-mail: [Buidungthe@dng.vnn.vn](mailto:Buidungthe@dng.vnn.vn).

# “The PES scheme had a number ...

→ protect and conserve the environment. Such 'Payments for Environmental Services' (PES) compensate rural people for any income they might forgo when farming or forestry is constrained in protected area and reward them for contributing to the common good.

A new study from Vietnam has looked into the potential of the PES approach. The study undertook a PES pilot scheme in the country's uplands. Results were promising. Interest and involvement in the scheme among local people was quite high, in spite of the experiment's limited duration. The project also had positive environmental impacts, including a reduction in soil erosion and the extraction of natural forest products. Because of a number of barriers to PES implementation, the study recommends that further PES trials be run to gain more experience and knowledge before any large-scale implementation is tried in Vietnam.

## PES Explained

The underlying premise of PES is that ecosystems such as forests provide useful services, to people, including erosion control, climate stabilization

and maintenance of biodiversity. Many of these benefits are enjoyed by people living outside of the forest. But people living in the forest must refrain from damaging it in order to maintain the flow of services. Doing so will often require them to forego income from fuelwood extraction, landclearing for agriculture, and so on. Off-site beneficiaries may find it worthwhile to induce the forest dwellers to maintain the forest in good condition by compensating them for this foregone income. The essence of PES, then, is a bargain between those who benefit from environmental services and those responsible for maintaining them.

The appeal of such schemes is obvious and they have attracted much attention in recent development literature. Several PES programs are already underway. But there are potential barriers to their adoption. For example, when such schemes are set up, people may become dispossessed if their land rights are not secured. The weak judicial systems typical of many developing countries can also make it difficult to obtain and enforce the long-term legal commitments that PES schemes

depend on.

Vietnam already has a number of schemes in which people are paid for conserving the environment (such as the government's Five Million Hectare Reforestation Program). However, these are at their early stages or do not fully utilize PES principles. The need to explore the potential for PES in Vietnam is therefore high. This is vital work, as it could provide a model for true sustainable development in rural areas.

## Piloting The Idea

Three upland communes (Khe Tre, Huong Phu and Xuan Loc) in Thua Thien Hue province, Central Vietnam, were selected for the study. Although the rate of deforestation in the uplands of Vietnam has slowed in recent years, this area still faces immense social and environmental problems. This means that, potentially, a PES scheme has a lot to offer the region.

A trial PES scheme was set up to investigate what impact the approach would have on local people's welfare and on the environment. The pilot scheme lasted for 26 months and involved 89 farmers. An annual payment was made to those farmers who adopted a forest management regime designed to protect and enhance the region's watersheds. This involved selective timber harvesting that maintained adequate vegetation cover and prevented soil erosion. The scheme also provided farmers with a more regular income flow and a stable supply of firewood.

Prior to this study, commune

Natural forest extraction of the adopter and control households

	Person-days of Labour Used
<b>BEFORE</b>	
Adopter Group 1	72.0
Adopter Group 2	71.1
Control Group	69.8
<b>AFTER</b>	
Adopter Group 1	66.7
Adopter Group 2	66.3
Control Group	72.7

# of positive environmental impacts.”

residents engaged in a number of environmentally degrading activities, including destructive timber harvesting. Farmers typically clear-cut the forest. This was causing severe soil erosion, loss of biodiversity and increased carbon emissions.

## Training, Monitoring And Evaluation

Participants in the scheme were selected through training workshops. These were open to all commune households that had at least 0.5 ha of forest to manage. At these training courses, the ideas behind the pilot scheme were discussed and villagers were asked how much they would expect to be paid to take part (their Willingness To Accept price or WTA). The WTA results were used to select participants. A survey was also carried out to collect data on the socio-economic characteristics of the eligible households. Results were analysed to see what factors made some farmers keen to take part in the PES pilot (i.e. to give a relatively low WTA).

All participants in the pilot scheme signed a memorandum of understanding. The scheme was carefully monitored to ensure that villagers managed their land properly. Monthly and quarterly monitoring visits were made by assessors. Once the pilot scheme was completed, its environmental and social impacts were assessed. To help evaluate its effects, a control group was selected, consisting of fifty households from another upland commune. Alongside the pilot scheme, the researchers assessed the national context in which PES schemes would have to operate in

Vietnam.

## PES Prove Popular

Given the small scale and the short time frame of the project, it was difficult to assess all of its potential social impacts. However, it is clear that the scheme would be unlikely to

Estimated transaction cost of the experiment, in USD

	Total TC	TC per contract	TC per ha enrolled
Year 1	2840	63	38
Year 2	1732	20	12
Average	2286	35	21

have a significant impact on poverty. This is because the average payment that households received was approximately VND 230,000 (15 USD) per year, equivalent to 2% of household income. This can be partly explained by the fact that the farmers involved in the scheme were resource-poor, and could, on average, only commit 1.5 ha to the pilot scheme.

On the other hand, the participating households had limited options to earn money from the land they work (since the government has a lot of control over how land is used). There is also underemployment in the study area and much paid work is seasonal. This could explain why households were willing to participate in return for relatively low economic returns. The participants also considered the technical assistance and the training they received - both in forest management and in budgeting and other management aspects of the project - to be important benefits from the experiment.

## Environmental Paybacks

As for its socio-economic impact, it was also difficult to fully assess the effects that the PES scheme would have on the natural environment. However, an estimate was made for the improvements that the scheme would make to soil erosion if it were

continued. It was found that it would reduce soil erosion by almost 10 tons/ha/year for the first four years of operation. This could lead to a number of important benefits. Reduced soil loss from erosion can result in improved soil fertility and increased land values. Since the scale of the pilot study was small, it was not possible to link it directly to any improvements in the water quality of the river in the area. However, it was clear that if the scheme was adopted in a large enough area, improvements in water quality and flow would be observed.

The forest management regime that villagers followed under the PES scheme gave them a more regular income and a more stable supply of firewood. This was expected to decrease the amount of family labor allocated to the extraction of natural forest products. To see if this happened, a "with and without project" comparison was undertaken. It was found that there was a significant decrease in the number of person-days that participating

households spent extracting non-timber forest products (NTFPs) from natural forests. This was confirmed by comparing the control and adopter groups and by undertaking a regression analysis.

### Challenges And Constraints

Among the constraints holding back the implementation of PES schemes in the country is the fact that there is no private land ownership and that the use of the land is partly pre-determined. It is therefore difficult for PES schemes to work as intended: as a mechanism to influence resource-use choices. The one area where the local people have some leverage on land use is in production forests. Unfortunately, government policy gives little importance to environmental services from production forest, something that needs to change if the potential of PES schemes is to be realized.

In general, the focus of the Vietnamese forest environmental service is on watershed protection; other services provided by forests have largely been ignored. This limits the development of the market for environmental services in Vietnam. Moreover, the provision of environmental services is primarily

taken care of by the government through a 'traditional' command and control approach. Therefore, there is little incentive for the State to investigate an experimental idea like PES.

### More Pilot Studies Needed

Among the factors in favour of the development of PES schemes is the fact that forest environmental services are now officially recognized in Vietnam. The need for more forest environmental services is also increasing. Moreover, there are a number of embryonic PES schemes that could be used to develop PES or PES-hybrid initiatives. International carbon trading programmes that focus on reforestation and afforestation could also offer a potential way to finance reforestation and PES initiatives in Vietnam.

Given these factors, and the positive results from the pilot project, it is clear that a lot of useful work could be done in Vietnam to bring PES or PES-like initiatives into the country's nature conservation system. However, because there are a large number of challenges to overcome, more experimental policy and program trials should be undertaken, to get more experience

and knowledge, before any large-scale implementation of a PES is attempted. Given the findings of this study, watershed protection services provided by production forests should be a first priority for any PES experiments. These experiments should also be targeted at State Forest Enterprises that manage larger areas of production forest. Targetting such enterprises will reduce transaction costs and organisational problems.

Note: 16,400 VND = 1 USD (June, 2006)

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