



Payment is good, control is better

**Why payments for
forest environmental services
in Vietnam have so far
remained incipient**

Sven Wunder
Bui Dung The
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Abbreviations and Acronyms

5MHRP	5 Million Hectare Reforestation Programme
ADB	Asian Development Bank
CDM	Clean Development Mechanism (of the Kyoto Protocol)
CIFOR	Center for International Forestry Research
CO ₂	carbon dioxide
CPC	Commune People's Committee
CREED	Collaborative Research in the Economics of Environment and Development
CSERGE	Centre for Social and Economic Research on the Global Environment, University of East Anglia
DARD	Department of Agriculture and Rural Development
DC	District of Columbia (USA)
DFID	Department for International Development
DONRE	Department of Natural Resources and Environment
DPC	District People's Committee
ed.	editor
eds.	editors
e.g.	'for example'
etc.	etcetera, 'and so forth'
FAO	Food and Agricultural Organization of the United Nations
FDB	Forest Development Branch
FPB	Forest Protection Branch
FPS	Forest Protection Station
FSIV	Forest Science Institute of Vietnam
GSO	General Statistical Office of Vietnam
ha	hectares
ICDP	Integrated Conservation and Development Project
ICRAF	World Agroforestry Center

i.e.	'that is'
IIED	International Institute for Environment and Development
IISD	International Institute for Sustainable Development
IN	Indiana
IVM	Institute for Environmental Studies, Amsterdam University
km	kilometres
LATEN	Latin America Environmental Division, The World Bank
MARD	Ministry of Agriculture and Rural Development
m	metre(s)
m.a.s.l.	metres above sea level
MB	Management Board
NGO	non-governmental organisation
No.	Number
Nos	Numbers
NR	natural resources
NTFP	non-timber forest product
OECD	Organization of Economic Co-operation and Development
p.	page
pp.	pages
PES	payments for environmental service(s)
PPC	Provincial People's Committee
PRISMA	Programa Salvadoreño de Investigación sobre Desarrollo y Medio Ambiente
PROFOR	Programme on Forests, The World Bank
PSA	Pago por Servicios Ambientales
RAP	Regional Office for Asia and the Pacific, FAO
RRF	Resources for the Future
RUPES	Rewarding the Upland Poor for Environmental Services
SDC	Swiss Agency for Development and Cooperation
SFE	State Forest Enterprise
TTHRDP	Thua Thien Hue Rural Development Programme
UCL	University College London
UK	United Kingdom
UNDP	United Nations Development Programme
USA	United States of America
USD	United States dollar (currency)
VND	Vietnamese dong (currency)

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Executive Summary

This study reviews what kind of schemes (direct and indirect) related to payments for environmental services (PES-related schemes) currently exist in Vietnam, and what have been the success stories of, as well as the obstacles to, PES implementation. For that purpose, concrete experiences needed to be identified, analysed and evaluated. Our definition of the PES principle refers to a voluntary arrangement where a well-defined environmental service is being ‘bought’ by a (minimum of one) service buyer who compensates a (minimum of one) service provider—and does so if and only if the service provider continuously secures the provision of that service over time (conditionality). Using this definition, we conclude that one can find a number of incentive schemes we will call ‘PES-like initiatives’, but that the PES principle as such has not been implemented in Vietnam so far. The fundamental reasons for this are:

- (1) **No real land-use choice:** In most sites, little forestland has been allocated to households—much less so for forests that are critical for environmental services. If the State fully owns the land and completely controls land-use choices, the payments become just ‘icing on the command-and-control cake’.
- (2) **There is seldom true conditionality:** Payments are normally not truly conditional, in the way that compliance is monitored and payments would be stopped or diminished in the case of non-compliance. We found no recent field examples where villages or contracted groups had had their contract cancelled or payments denied due to their non-compliance with the protection requirements.
- (3) **Too little money:** Payments in forest protection contracts from the State to households (mostly under Programme 327 and its successor Programme 661) typically make up 1–2% of total household income (with a few exceptions). Even if the landowner had property rights and a significant degree of land-use choice (see 1), the amount offered would

normally be insufficient to fully ‘compensate’ the opportunity costs for foregone alternative uses.

It is basically impossible to consider the use of PES when households have no or only very limited proper leverage on land use. The State typically keeps a firm grip on those lands that are considered critical for the protection of environmental services, and uses payments only as an instrument that is supplementary to pre-existing command-and-control measures. In our fieldwork, we did not find a single case of protection payments for land with free land-use choice. The households were in charge of protection, but had little or no *de facto* leverage on land and resource use. Thus, in some cases, one can think of the payments as a performance-based forest-ranger salary. In other cases, they are more to be seen as unconditional minor welfare subsidies that are used to ease the implementation of command-and-control measures. In both scenarios, the payments are not decisive parameters, either for household welfare or for land-use decision making.

Establishing pilot PES scheme(s) is clearly not an aim in itself—it’s desirability depends upon the local necessities. To go into the PES direction one would probably need to start on a micro-scale, selecting an applied case with clearly pre-identified environmental-service buyers, a strong land-use linkage to environmental-service providers, and choosing a site where command and control is *not* working. Thus, if one manages to establish such a successful pilot experience on a small scale, there might be chances of scaling up the experience and influencing policies. Hence, the need for PES could arise in certain circumstances when the prevailing tools or approaches do not work well and PES is found to have an added value in addressing the problem. Even in the absence of PES, a lot of useful work can be done in Vietnam in terms of bringing economic incentives into the command-and-control system, a task that would be less ambitious and—perhaps for the time being—more realistic than establishing full-fledged PES schemes.

1. Introduction

1.1. Background

Payments for environmental services (PES) have emerged in recent years as a concept and tool for achieving ecosystem conservation, and at the same time improving the livelihoods of environmental-service providers. Nevertheless, in Vietnam as elsewhere considerable uncertainty remains as to what exactly PES means, and how much of it is currently being implemented. In broadly defined terms, environmental services refer to those services from natural areas that contribute to maintain or enhance society's welfare (e.g. drinking water, maintenance of micro-climate and soil, recreation areas). Though these services are often substantial, they are frequently ignored in resource-use and land management decisions. Undervaluation of forests and other natural ecosystems results in the depletion of natural vegetation cover and soils, damaged watersheds and species extinction, frequently causing losses to societies (Peuker 1991; Kishor and Constantino 1993; Repetto 1993; Adger and Brown 1994; Pearce 1996; IISD 1999; Richards 2000).

In an effort to prevent such depletion, some analysts and practitioners have called for the incorporation of environmental-service provision into standard economic valuations (Peuker 1991; Kishor and Constantino 1993; Repetto 1993; Pearce and Brown 1994; Pearce 1996; OECD 1999; Richards and Moura Costa 1999; Richards 2000) and, conversely, the use of direct incentives in conservation (Pagiola and Platais 2002; Daily and Ellison 2002). The logic of the argument underlying PES is as follows: The maintenance of those 'free' environmental services that are at odds with local development aspirations (e.g. competing land uses) will eventually come under pressure. When this pressure on resources takes its course, the services become scarce, which increases their economic value. Therefore, external service users might want to compensate local resource managers to ensure that the services they need are provided. Conversely, the local service providers would obtain an income for their additional protection

efforts. Since the mid-1990s, PES systems have begun to evolve in the tropics, in particular in Latin America.

1.2. Objectives

This study is an attempt to review what kind of PES schemes currently exist in Vietnam, and what have been the success stories of, as well as the obstacles to, the implementation of PES. For that purpose, concrete experiences needed to be identified, analysed and evaluated. The objectives of this study are:

- to provide an overview of various PES-related initiatives in Vietnam;
- to analyse their salient and critical environmental and livelihood effects;
- to identify the obstacles and enabling factors for PES establishment;
- to provide possible suggestions for developing PES in the Vietnamese context.

The present report does not constitute a comprehensive assessment of projects or impacts—neither does it aim to categorise specific initiatives in terms of their relative overall success or failure vis-à-vis self-declared or donor-determined objectives. Rather, our objective is to assess the likely impacts of specific direct-reward schemes on local livelihoods and forests, and how these schemes fit into a concept of PES in Vietnam. Also, we aim to identify the circumstances under which it is likely that PES schemes could be implemented in the country.

1.3. Study Methods

Our methodology consisted of case study analysis. On the basis of the findings of a previous study (Bui Dung The *et al.*, 2004) that covers a wide range of direct and indirect incentives for environmental services to upland farmers in Vietnam, it was decided to further investigate PES initiatives with the direct payments that currently exist in the country. The selection of cases for the analysis was based on a desire to cover initiatives closely related to the principle of PES found in various settings—different regions and ecosystems, different environmental-service markets, and different types of buyers and sellers. We intentionally avoided repeating cases that were reviewed by the previous study.

There may thus be cases of PES-related initiatives that we have omitted, either unknowingly or consciously. Notably, we chose not to include certified timber markets, which could be argued to constitute a PES-type scheme, because we felt that this type of initiative relates more to forest products than to environmental services. Likewise, we did not include non-forest cases that might exhibit important features illustrating the PES mechanism, as our particular interest focuses on forest environmental services. Geographically, we concentrated (for logistical reasons) on central and Northern Vietnam, where most PES-like initiatives seemed to have been carried out.

More than 20 interviews were made with government officials from ministries, environmental and forest-sector institutions, representatives of donors and international organisations. Two weeks were spent visiting seven districts in four provinces for field interviews in Thua Thien Hue and Quang Nam provinces (in central Vietnam) and the provinces of Ha Giang and Yen Bai (in Northern Vietnam). More than 25 field interviews were conducted with local farmers, commune leaders, forestry agency officials, state forest enterprises, forest management boards and others. All interviews were carried out using semi-structured interview techniques.



Research team conducting an interview with the owner of a forest garden on Cu Lao Cham island, Quang Nam Province (Photo by Sven Wunder)

The analysis of PES-related initiatives was made using both pre-existing secondary sources and information from the interviews. The selected cases were analysed following aspects such as environmental-service types, buyer and seller, modes of contract, and livelihood effects. The scope of the livelihood impact assessment encompasses economic and social changes that result from the PES system for environmental-service providers. Whenever possible, economic impacts were quantified to provide a range of possible income effects. To assess the livelihood impacts of the initiative, the benefits and costs to the local actors were examined.

2. Payments for environmental services

2.1. What are Payments for Environmental Services?

The PES definition used in this study refers to a voluntary arrangement where a well-defined environmental service is being ‘bought’ by a (minimum of one) service buyer who compensates a (minimum of one) service provider—and does so if and only if the service provider continuously secures the provision of that service (conditionality) (Wunder 2005).

The emergence of direct economic incentives for the conservation of environmental services indicates a shift from the predominant use of command-and-control mechanisms (such as park establishment or logging bans) to, it is hoped, more flexible and efficient ecosystem protection (Landell-Mills and Porras 2002). The World Bank and the International Institute for Environment and Development (IIED), for example, have identified markets for environmental services as a potential tool for environmental protection as well as poverty alleviation (Landell-Mills and Porras 2002; Pagiola and Platais 2002; Grieg-Gran *et al.* 2005).

Pagiola and Platais (2002) point to several advantages of PES that include more efficient, sustainable and mutually beneficial arrangements between environmental-service providers and users. Similarly, Landell-Mills and Porras (2002) show through global comparative case study analysis that PES systems can, under the right conditions, result in both more conservation and improved livelihoods for poor people. Rosa *et al.* (2003) emphasise the potentially positive social outcomes that, monetary benefits aside, can be achieved through increased cooperation among participants in a PES system, including improved internal organisation and strengthened land tenure.

Historically, the dual objectives of increased conservation and improved livelihoods have also been the focus of the so-called Integrated Conservation and Development Projects (ICDPs), but unfortunately many of these projects have not reached their objectives. Critics attribute this failure to the core project

assumption that enhanced economic development leads directly to improved conservation outcomes (Ferraro 2000; Ferraro and Simpson 2000). PES present a new approach that focuses directly on creating a conditional benefit transfer between providers and beneficiaries of an environmental service. As such, they do not implicitly assume that natural ‘win–win’ solutions with simultaneous gains in both conservation and development exist. On the contrary, the payment option is being pursued in recognition of existing ‘hard trade-offs’ between conservation and development. Conversely, if both service providers and users have fully overlapping *ex ante* interests, e.g. both would naturally choose to conserve the same forest areas, then there is no rationale for introducing PES schemes. It is the conflict of interests that provides the rationale for PES.

The existing literature does not clearly define what is a PES and what is not. Here we adopt the definition of Wunder (2005), which is based on CIFOR’s PES fieldwork in various countries. PES is:

1. a *voluntary* transaction where
2. a *well-defined* environmental service (or a land use likely to secure that service)
3. is being ‘bought’ by a (minimum of one) environmental-service *buyer*
4. from a (minimum of one) environmental-service *provider*
5. if and only if the service is provided continuously (*conditionality*).

There are several details to note here. First, PES are *voluntary* not forced agreements, which notably distinguishes them from command-and-control measures. Regarding the definition of the voluntary provision of a service (2), it must be clear what environmental service is being bought. In some cases, it could be the service itself (e.g. the preservation of natural beauty around a tourist resort). In other cases, there will be a contract stipulating a certain land use that is likely to lead to that service—for instance, the downstream urban water users want regular quantities of clean water, and plan to pay upstream farmers near the headwaters to preserve their natural forests in trying to achieve that. However, migrant farmers could occupy a part of the watershed in between the providers and consumers of the service, and jeopardise the service by diverting irrigation water and polluting the stream. Or the frequency of tropical storms could be so high that overall water quality is compromised, in spite of any minor improvements in upstream management. It is thus rational for the service users to first assess how important the alleged service is vis-à-vis intervening anthropogenic and natural factors. Service consumers will often decide to ‘buy’ providers’ compliance with a certain land- or resource-use that has a *probability* of achieving the service improvement—and only enter into such a deal if that probability is high.

With respect to the number of buyers (3) and sellers (4), the widely used concept of ‘markets for environmental services’ would suggest that multiple agents interact in a competitive manner to bargain for the right price as determined by

supply and demand. Actually, this may or may not be the case. If carbon credits are being traded on the Chicago stock exchange, this principle certainly does apply. But when one single service buyer pays one single provider, this has little to do with a 'market'. The principle here is that the two parties can negotiate a bilateral agreement that makes both better off. For this reason, we prefer the more general term of 'payments' rather than 'markets' for environmental services. Other terms that have been used are 'compensations' and 'rewards', though the latter with a slightly different connotation.¹ Note also that 'payments' need not always be implemented in monetary terms; they could be in-kind or a combination of different benefits to local land users.

Considering *conditionality* (5): payments are made only if the service is provided. In other words, payments are issued based on monitoring of compliance with contractual obligations. This is a feature that fundamentally distinguishes PES from the aforementioned ICDP approach or from altruistic rural development projects in general. In principle, PES constitute a commercial transaction, and we judge them by that standard. This also means that typically payments will be made periodically, rather than on a buy-out fashion, so as to provide a clear incentive for the provider to continue to adhere to the contractual obligations, and a possibility for the buyer to exit the scheme in the case of the provider's non-compliance.

What are the environmental services that are most typically being bought, and from what ecosystems do they originate? Most attention has been focused on forests. First, this is because forests collectively provide valuable services to humans. Second, high deforestation rates over recent decades have increased concerns about the need to try out innovative tools for preserving forest ecosystems. The broad categories of forest environmental services that are currently commercialised on a significant scale are carbon sequestration, watershed protection, landscape beauty and biodiversity conservation.

Carbon sequestration: Growing trees have the ability to absorb atmospheric carbon dioxide (CO₂), a major greenhouse gas that can be assumed to contribute to global warming. Markets for carbon sequestration are currently opening up under the Clean Development Mechanism (CDM) of the Kyoto Protocol, rewarding the planting of trees to compensate for greenhouse gas emissions. Analogously, although the storage of CO₂ in trees that would otherwise have been felled or

¹ 'Rewards' implies an *entitlement* to be paid for any environmental service that is provided. This is problematic in the sense that if there is no pressure on the service, e.g. when provided from largely untouched areas without credible threats, then normally there will be no willingness to pay for the service. Payments are thus more related to foregone benefits that in economics jargon are termed 'opportunity costs'. 'Rewards' can also include the transfer of more permanent rights, such as formal land tenure in the case of one South-East Asian programme, RUPES ('Rewarding the Upland Poor for Environmental Services'). However, this may conflict with the principle of conditionality (4). For these reasons, 'compensation' or 'payments' are probably more adequate terms.

cleared—‘avoided deforestation’—has until now not been eligible under the CDM, experimental extra-Kyoto markets exist that reward active measures to conserve forests which one could reasonably expect to be otherwise lost.

Landscape beauty: Forests also provide landscape beauty in recreational areas, which people enjoy and value. The classical valuation of landscape beauty is the hedonic value captured in property markets, e.g. the premium price of a house with a forest panorama, compared to the neighbouring one with a view to a garbage deposit. ‘Beauty’ can here refer both to a scenic view in general, or to the likely sight of a rare and charismatic animal in the wild. Both domestic and international tourists are willing to pay for landscape beauty, and this has been the most important value in developing countries. Tourists often reveal their willingness to pay for this beauty in part through elevated travel costs of getting to an attractive site and, as a more reliable indicator, through additional entrance fees, higher-than-normal accommodation costs and other surplus charges. Conversely, local people can be rewarded for the preservation or restoration of landscape beauty either directly through a share in entrance fees paid by tourists, through site-operation fees and fringe benefits paid by tourism companies, or through tourism-derived employment and petty trade (food, handicrafts, etc.) that is more highly remunerated than the locally available economic alternatives.

Biodiversity: The increased attention on the intrinsic and utilitarian importance of biodiversity has prompted both private conservationists and governments to pay for its protection. Pharmaceutical companies have paid for the value of bioprospecting the biodiversity contained in certain spatially defined areas, though the payments have been low and the number of schemes very few. Governments pay for the option value of biodiversity—use values which until now have not been discovered. The global wildlife enthusiast may be willing to pay for the existence value of biodiversity—the knowledge that a certain species survives although he or she will never derive a utilitarian value from this knowledge. Donations to large international conservation organisations are one way of manifesting this willingness to pay.

Watershed protection: Since, in Vietnam, watershed functions are the clearly dominating forest environmental service, we will discuss the forest–water linkage in slightly greater detail. Among the four environmental services currently being paid for, watershed protection is, in biophysical terms, the most controversial. To scientifically prove the linkage between a certain land use and the additional provision of a water-related service vis-à-vis a pre-defined baseline can be complicated, and sometimes more expensive than the alleged value of the service itself. The lack of scientific clarity also means that there has been room for a number of myths and half-truths about the forest–water linkage not only to persist, but in some cases to gain significant influence on policies and natural-resource management practices (Bruijnzeel 2004; Kaimowitz 2004).

What is ‘myth’ versus the scientifically most likely relationship (at the current state of knowledge) about the watershed functions of forests? There is a widespread general belief, including in Vietnam, that forest cover, compared to most alternative vegetation cover types, will always increase average runoff, regulate flows, increase dry-season flows, reduce erosion rates, provide clean water and diminish the risks of downstream flooding. In other words, many people believe that any type of forest cover is conducive to any type of watershed protection. In fact, considerable scientific doubts remain about most of these linkages, and many of them are highly complex and dependent on site-specific conditions. Scientific assessments, including some in Vietnam, have shown the following regarding these claims (Chomitz and Kumari 1998; Calder 2000; FSIV and IIED 2002; Johnson *et al.* 2002; Bruijnzeel 2004; FAO and CIFOR 2005; Hayward 2005).

1. *Belief 1: ‘Forests increase surface runoff’*: Normally forest cover actually *decreases* average runoff, compared to agricultural soils—sometimes significantly so, since trees (especially deep-rooted ones) consume and evaporate more water than crops. Trees also increase filtration, which can help recharge groundwater deposits. Furthermore, this reduction in runoff is usually more accentuated for natural forests than for forest plantations, because of (among other factors) lower quantities of leaf litter and humus in the plantations. A rare counter-example is high-altitude cloud forests that can genuinely ‘produce’ water by capturing cloud-borne moisture. The fact that the popular belief about forests and water runoff is refuted by empirical evidence has particular importance for water services that depend on high runoff amounts, such as hydroelectric plants and irrigation users.
2. *Belief 2: ‘Forests increase dry-season flows’*: In fact, forest can either increase or decrease dry-season flows, compared to agricultural soils. This is because two opposite effects are at work: higher evapotranspiration from forests with a negative effect (as described in 1 above) versus higher infiltration and water storage with a positive effect. Which of the two effects dominates is highly site-specific. In South Africa, for instance, tree cover has been clearly shown to *reduce* dry-season flows. Despite the conflicting evidence, the water runoff stabilisation effect, with an alleged increase in dry-season runoff, is often the most powerful argument for forest plantation and protection in watersheds. The Vietnamese case is no exception in that respect.
3. *Belief 3: ‘Forests reduce erosion rates and sedimentation’*: In some but not all cases, this assumption holds. Forests are effective in reducing sheet erosion, but for gully erosion and landslides the effect is less clear. Forests may have little comparative protection effect on relatively flat lands (where erosion rates are negligible) as well as on extremely steep slopes (where

erosion rates are high independent of land cover), whereas they can make a real difference on intermediately sloped areas. However, the effects of forest cover also depend much on what alternative vegetation cover one is comparing it with. Certain crops and pasture types may reduce erosion almost as much as forests do. It may also depend heavily on vegetation-cover management, e.g. whether (and how) that forest at some stage will be logged, which can dramatically increase erosion.

4. *Belief 4: 'Forests help provide clean water'*: If we extend the argument under erosion and sedimentation to the filtration of contaminants and nutrients affecting the quality of, for instance, urban drinking water, there is relatively good evidence that 'forests are good for providing clean water'. This characteristic is more valid for the conservation of natural forests than for forest plantations. In addition to urban drinking-water plants, breweries and mineral-water producers are also among the actors that are often willing to pay for forest protection in upper watersheds.
5. *Belief 5: 'Forests reduce the risks of flooding'*: Research confirms that during heavy storms in small watersheds, storm-flow volumes are higher from bare land or logged slopes than from areas where natural forests remain intact. However, this effect tends to dissipate in larger watersheds (more than 50 km²), because floods in various small individual watersheds with variable rainfall patterns are equalled out rather than accentuated when adding to a single larger stream. Also, there is evidence that flood frequency is relatively robust, and perhaps less affected by vegetation cover *per se* than by how that vegetation is managed. Massive reforestation tends to have no impact of mitigating large-scale floods.

In summary, the evidence on forest–water linkages is in some cases clearly contrary to common belief (e.g. the 'forests increase runoff' myth), in others indeterminate (e.g. 'forests increase dry-season flow'). In some cases (e.g. the 'forests reduce erosion' and 'forests reduce flooding' beliefs), the environmental service is more dependent on general vegetation cover and its management rather than on forest cover itself. How 'good' forests are for a certain hydrological service provision also depends on scale effects and to what vegetation cover one compares forest cover with. It has been argued that it may be impossible at the scale of a single (smaller) watershed to make the case for a clear 'tradable' linkage between upland land uses and specific downstream water users, because of subterranean 'leakage' effects that dissipate benefits to neighbouring watersheds (Hayward 2005).² There is thus not always a clear scientific answer to the question of what

² If more generally true, this finding would erode the scientific basis for any localised watershed PES scheme between upstream service providers and downstream water users, thus focusing attention more on regional and national scale PES schemes.

the linkages between vegetation cover and hydrological services are. Moreover, the necessary studies are often too complex, time-consuming and resource-demanding. However, in some cases where the standing forest has proven to provide a satisfactory delivery of services in the past, the buyers may—even without scientific ‘proof’—opt for promoting forest conservation from a precautionary principle: it is safer to maintain a large share of vegetation cover as it is, when the consequences of erring regarding the impact of land-use and land-cover change could potentially be disastrous.

Combining services: Some PES systems are based on payments for more than one type of environmental service, and can thus be considered ‘bundled’. Bundling is often convenient when the payments for one environmental service from a natural habitat are not enough to pay for its conservation, compared to the benefits derived from alternative uses. In particular, it seems that biodiversity is an environmental service that is often bundled with other environmental services, like protection of natural forest for both species conservation and watershed services.

There is no ‘iron law’ prohibiting payments for other forest environmental services than the four mentioned here. For instance, the protection from tropical storms or pollination services provided by natural forests are examples of services that can maintain human welfare. Until now, however, willingness to pay has simply concentrated in the four areas highlighted above, and they also proved to be the relevant ones to look at in the Vietnam case.

There are three critical questions, originally developed for carbon schemes, but that in principle can be asked with respect to any PES scheme. First, to what extent is the specific PES *additional*—how much does it change behaviour compared to what would have happened without it? If it does change behaviour, what is the relevant baseline? Second, is the mechanism subject to *leakage* (inadvertent displacement of destructive activities to somewhere else)? Third, is it *permanent*, or could foreseeable later changes in behaviour partially or fully negate the benefits it provides? To the extent that a PES is not fully additional, subject to leakage and not permanent, the services it buys can be significantly reduced or even nullified.

2.2. Worldwide PES Experiences

Where in the world have PES systems actually been implemented? Many PES systems in developed countries have focused on agro-environmental services and on regenerating forests by subsidising the abandonment of marginal agricultural areas. In the tropics, the most prominent PES system has been developed over almost a decade in Costa Rica. In the Costa Rican system of PES, landowners enrolled in the scheme agree to conserve their forests, or establish forest plantations or agroforestry areas. In return, they receive a per-hectare annual payment from a

State-run national forest fund, which receives its funding from a tax on fossil fuels, from international loans, as well as from specific environmental-service users such as hydroelectrical dams and breweries. The State acts as an intermediary between service providers and buyers.

Like most pioneer experiences, the Costa Rican PES scheme also flags areas where there is significant space for improvement. In practice, the number of forest owners who apply for enrolment of areas in the scheme greatly exceeds the availability of funds. This is probably due to a combination of underfunding of the scheme and its lack of spatial targeting of priority areas. In many cases, those receiving PES funds may not have had genuine intentions of putting the land to an alternative use, thus implying limited *additionality* of the scheme—i.e. the PES systems buy less extra environmental protection than would have been possible with increased targeting (Ibarra 2003; Zbinden and Lee 2005).

There are other PES experiences in the tropics, many of which have been carried out in Latin America. In Ecuador, the water consumers in the town of Pimampiro pay upstream farmers not to deforest and degrade the watershed that is generating the bulk of their drinking water (Echavarría *et al.* 2004). Sparked by the evolution of the Kyoto Protocol, carbon sequestration payments have occurred in many countries. Similarly, ecotourism is globally growing rapidly, as vacationers seek out pristine landscapes, including forests, and ecotourism provides benefit from increased tourist revenue (e.g. Wells 1997). Finally, attempts to protect biodiversity have manifested in various schemes. Conservation concessions are schemes where environmental-service providers receive a direct payment for setting aside private lands as natural habitats that would otherwise have been put to alternative uses (Hardner and Rice 2002). Bird-friendly coffee in El Salvador is an example of a product being sold to environmentally conscious consumers paying a price premium over normal coffee prices. This premium flows back to producers, financing their extra costs of producing in an environmentally friendly manner (Pagiola *et al.* 2004).

2.3. PES Challenges in Developing Countries

There are specific legal and social obstacles making the application of a direct payment approach challenging in developing countries (Kiss 2002). PES approaches are much easier to use when land is securely and privately owned than when it is held communally or without a legal title. In communal lands, there must first be an effective, locally recognised organisational structure to negotiate and implement contractual arrangements. Another significant challenge is that rural populations in developing countries mostly earn their living directly from subsistence agriculture or extraction of natural resources. When land is dedicated to remunerated conservation through direct payments, the original owners might become dispossessed if their land rights had not been secured in the first place.

Even if the local people become the direct beneficiaries of conservation-related payments, large numbers of people depending on the capped environmentally degrading activities may become unemployed. This could lead to social disruption, and many of the people are likely to continue their previous activities (Kiss 2002; Wunder 2005).

In developed countries, the financial incentives provided to landowners for environmental services are sometimes in the form of property tax breaks. This is not applicable in countries where property taxes do not exist or routinely go unpaid. The financial incentives must therefore be provided as direct cash transfers, which is usually more difficult to implement than tax reliefs. In developed countries, permanent conservation easements can be implemented and enforced through the legal system, but in developing countries these mechanisms are predominantly absent, so that payment always has to be tied to the periodic monitoring of contract compliance (Wunder 2005).

There is also the issue of enforcement and timing of payments. The weak judicial systems typical of many developing countries can make it difficult to obtain and enforce long-term legal commitments, so the most likely method is to provide the payments distributed over time. However, the up-front opportunity costs to poor landholders of changing land uses can be high. A balance must therefore be struck between effective short-term incentives and sustainable long-term incentives.

Poor upland farmers are important potential suppliers of environmental services. Payments for environmental services could be a welcome addition to their income. It is important to ensure that the poor have access to the new opportunities created by the environmental payment scheme. However, it should be noted that working with small, dispersed farmers imposes high transaction costs. Conversely, poor farmers may also bear high transaction costs, e.g. when management plans and different paperwork are required as prerequisites for entering a PES scheme. Organising farmers into bundled groups through which they can join an incentive programme is one possible way to reduce transaction costs (Pagiola and Platais 2002).

3. PES context in Vietnam

3.1. Forest Resources

During the last decade, in the context of the country's reforms, Vietnam's forestry sector has undergone significant changes, resulting in, among other things, the recovery of forest resources. The country seems to be regaining its forest cover, following rapid loss from 43% in 1943 to 29% in 1991, rising to 33.2% by the end of 1999. The forest-loss turnaround is thus probably due to a combination of strong extrasectoral trends (a rise in lowland agricultural productivity that has rendered highland agriculture less profitable) and active reforestation and protection policies—the relative force of the two factors is under debate. Forest plantations have expanded and there is natural forest regrowth on abandoned marginal agricultural lands. However, old-growth natural forests continue to be under threat of deforestation in certain areas, e.g. in the central highlands.

In Vietnam, forests are classified into three categories: special use forest (national parks, natural reserves, historical areas, etc.), protection forest (watersheds, sandy areas, etc.), and production forest. The protection forest is further divided into three sub-categories: highly critical, critical and less critical. The minimum forest cover thresholds for these three sub-categories are 80%, 50% and 30%, respectively. At present, the country's forest resources include 1.52 million hectares of special use forest, 5.35 million hectares of protection forest, and 4.04 million hectares of production forest (Do Dinh Sam and Le Quang Trung 2001).

There are differences in the management mechanisms of these forest categories. The forestry policies have been revised and amended with a view to reconciling economic development and environmental protection objectives. In the less critical protection categories, more land has been allocated to households, as in the case of production forest. For some of the stricter protection forests, households have been contracted under Programmes 327 (1993–98) and 661 (after 1998) to patrol and protect these forests to ensure their regeneration and improving quality, typically for a period of five years. Nevertheless, households

do not have complete ownership rights to the forests they were allocated, since land-use options are determined by the Government.³

In Vietnam, reforestation policies have been motivated by both wood production and environmental-service motives. The country's demand for construction timber, paper, furniture, etc., is growing rapidly. Producer prices for wood have risen, and so have timber imports from Laos, providing motives for the Government to give priority to reforestation with fast-growing native and exotic species, and giving incentives for rural households to grow trees. There are cases where people with allocated production forestland have made good economic gains from growing trees—sometimes in a spontaneous way without receiving any Government support, sometimes with Government credits and technical assistance.

The species used for reforestation differ according to the forest type. In protection and special use forest, broad-leaved species are most commonly planted, like *Erythrophleum fordii*, *Canarium* species, *Chukrasia tabularis*, *Manglietia* species, *Peltophorum pterocarpum*, *Cinnamomum camphora* and some Dipterocarpaceae species (*Dipterocarpus alatus*, *Anisoptera costata*). In addition, some coniferous species, such as *Pinus kesiya*, *Pinus merkusii*, and some *Bambusa* species may be planted. Species most commonly planted for production purposes are acacia and eucalyptus species. Some internationally supported projects also select indigenous species like *Pinus kesiya*, *Pinus merkusii*, *Peltophorum pterocarpum* and *Canarium album* for afforestation purposes (Do Dinh Sam *et al.* 2004).

A lot of reforestation is, even for protection forest, carried out through planting fast-growing species, instead of a slower—and probably cheaper—process of assisted natural regeneration. There may be several explanations for this. It could indicate that timber production purposes actually play a relatively large role even in protection forests. Yet, it could also be a faster way of achieving reforestation to mechanically fulfil the Government's forest cover targets, without too much concern about what specific benefits these forests would or would not provide. One possible explanation might be the perception that the protection or regeneration of *any type of* forest cover could be conducive to watershed protection. Another explanation for such practices is related more to the technical aspect of reforestation. The technical explanation received during the fieldwork is that on very degraded land it is necessary first to cover the area with fast-growing species to restore soil fertility and microclimate, in order to later selectively cut the exotic trees and plant local species. Upon further consultation, we remain doubtful if

³ Property rights are complete when they are: (1) comprehensive—the asset is assigned to a specific economic agent with the right to use and dispose of it at will; (2) exclusive—all benefits and costs pertaining to the use of the asset accrue to the owner; (3) transferable—the owner can transfer the property in a voluntary exchange. Additionally, property rights must be enforceable, which means that property cannot be held without assurance that there is proper enforcement (of 1, 2 and 3) by the State (see, e.g., Wang and van Kooten 2001, p. 13).

this represents the service-maximising and most cost-effective procedure—planted exotic trees may reduce erosion and sedimentation compared to cropland, but they also consume water that reduces the runoff available for hydroelectric power generation (see discussion in Chapter 5). Finally, it might be that economic incentives for plantation forestry are much more attractive than for natural forest regeneration, making this land use the agents' preferred choice.



Local authorities in A Luoi (Thua Thien Hue Province) explained that to restore the forest cover on degraded hillsides, exotic species need to be planted to accelerate vegetation regrowth and soil regeneration, for later replacement by native tree species (Photo by Enrique Ibarra)

Under the 5 Million Hectare Reforestation Programme (5MHRP), the aim is to increase forest cover to 43% by 2010. As mentioned above, increased forest protection services have been an important motive behind massive reforestation, in particular for watershed protection. It is open to debate to what extent reforestation and forest protection are driven by wood production versus environmental-service motives. Protection forests allow for some degree of timber exploitation and, in the field, various examples of reclassification from production to protection forest, and vice versa were reported. There is thus some flexibility built into the system in order to respond to society's changing demands on forest resources in the future.

3.2. Legal Framework

In Vietnam, laws issued by the National Assembly are complemented with various additional legal documents, including Ordinances, Resolutions, Orders, Decrees, Decisions, Directives and Circulars. Some of these are interpretations of the law; others are to provide guidance for local authorities. Since 1990, the National Assembly of Vietnam has issued a number of laws establishing the legal framework for the management of the environment and natural resources, including forest resources. Major laws include the Land Law with its multiple revisions (1993, 1998, 2000, 2001), the Law on Forest Protection and Development (1991) and its draft revision, and the Law on Environmental Protection (1991). Important and core under-law legislations related to the management of the forest resources and PES-related initiatives comprise:

- Government Resolution 01/CP 1995 on the allocation and contracting of land for agriculture, forestry and aquaculture production to state enterprises;
- Prime Minister Decision 661/QD-TTg (1998) on the objectives, tasks, policies and organisations for the establishment of 5 million hectares of new forest;
- Government Decree No. 163/1999/ND-CP (1999) concerning allocation and lease of forestland to organisations, households and individuals for long-term forestry purposes;
- Ministry of Agriculture and Rural Development Circular No. 56/1999/TT/BNN-KL (1999) guiding the development of regulations on forest protection and development to village/hamlets and communities;
- Prime Minister Decision No. 08/2001/QD-TTg (2001) issuing regulation on management rules of special use forest, protection forest and production forest;
- Prime Minister Decision No. 178/2001/QD-TTg (2001) on the rights and obligations of households/individuals allocated and contracted forest and forestland for benefit sharing.

These legislations define, among other things, (1) the responsibilities of the State in the management of forest and forestland; (2) the ownership of forest and forestland; (3) forest and forestland contract and allocation; and (4) benefit sharing policy.

3.2.1. State Management of Forest Resources

The Ministry of Agriculture and Rural Development is responsible for nationwide State management of forests. The General Department of Land Administration (now under the Ministry of Natural Resources and Environment) is responsible for nationwide State management of forestlands. At the provincial level, the Provincial People's Committee (PPC) is responsible to the Prime Minister for protection,

development and utilisation of forest and forestland in the province territory. The main forestry organisations in the province are the Forest Protection Branch (FPB) and the Department of Agriculture and Rural Development (DARD). At the district level, the Forest Development Branch (FDB) and Extension Centre perform these functions. Forest Protection Stations (FPS) (according to the Prime Minister's Decision No. 245/1988/QD-TTg) are the agencies responsible of controlling and supervising the observance of the legislation on the management, protection and development of forests in the province. In special cases, they should coordinate with army and police forces in the locality to patrol and track down forest poachers, and prevent and fight forest fires.

The FDB and the Extension Centre are parts of the DARD organisation. According to the Prime Minister's Decision No. 245/1988/QD-TTg, DARD is the principal agency to help the PPC in the State management of forests and forestlands in the province. The Extension Centre 'Khuyen Nong' is providing agricultural and forestry extension services to farmers. The People's Committees at district and commune levels are responsible to the People's Committee of the next higher administrative level for the protection, development and utilisation of forest and forestland in their territory.

3.2.2. Land Ownership

In Vietnam, the land belongs to the State. However, households, individuals and organisations are allocated land and water surface planned for long-term use and management for agriculture, forestry and aquaculture. Hence, they have the right to exchange, transfer, rent, inherit or mortgage the land that has been allocated to them. These formal land allocations are known as the reception of the "Green Book", a forest-land certificate that was issued by the government authorities before 1999, when it was replaced by its successor, the "Red Book". Landowners are also allowed to contribute their land as capital for joint ventures with domestic and foreign organisations and individuals.

With regard to the ownership of forest resources, special use forests and protection forests are under the unified management of the State. A Forest Management Board is established for special use forests with areas of over 1000 ha; special use forests of less than 1000 ha can be allocated to organisations, households and individuals for management and protection. A Forest Management Board is also established for the management of protection forests of 5000 ha and above. If the protection forest is larger than 20 000 ha, a Forest Protection Unit is set up under the Forest Management Board. On the other hand, protection forests of less than 5000 ha can be allocated to organisations, households and individuals for management and protection.

Production forests are allocated or leased to organisations, households and individuals. Natural production forests can be allocated and leased by the State to entities other than State Forest Enterprises (SFEs), such as households, individuals,

cooperatives, companies and factories. In short, there is a wide variety of forest users including: SFEs, management boards of special use and protection forests, Provincial People's Committee (PPC), District People's Committees (DPC), Commune People's Committees (CPCs), and other organisations such as schools, cooperatives, army institutions, village communities, households and individuals.

The role of households and individuals as forest holders is clearly defined in the Land Law, the Law on Forest Protection and Development, and in related resolutions by the Government. One of the recent changes in forestry policy is associated with the forest categories allocated to households and individuals. In the past, only barren land and plantations could be allocated to households and individuals. Now, special use forest (less than 1000 ha), protection forest (less than 5000 ha, or scattered plots) and natural production forest can be allocated or contracted to households and individuals for management, protection and development. Though households and individuals are 'virtual' owners of these forest categories, they have restricted use rights to those forests, i.e. they have incomplete property rights.

3.2.3. Forest and Forestland Contract and Allocation

State Forest Enterprises, as well as management boards for special use and protection forests, contract forests and land for afforestation to households and individuals legally residing in the localities for long-term protection and development of forests. The State allocates forestland to organisations, households and individuals for long-term use as either 'land allocation without land-use charge' or forestland lease. The term of forestland allocation and lease is 50 years. The scale of forestland allocated to households does not exceed 30 ha per household. Upon expiry of the term, if the land has been used properly and the land user wishes to continue using the land, the State can allow the extension of the allocation period. The State also contracts forestland to organisations, households and individuals, with the duration dependent on the type of forest (protection forests and special use forest: 50 years; production forest: depending on the business rotations). Protection contracts are usually for 5 years and can also be renewed if funds allow; however, they are reviewed annually.

Recently, attention has been paid to community forest management. The Ministry of Agriculture and Rural Development (MARD) issued Circular 56/1999/TT/BNNKL, guiding the development of rules for the protection and development of forests by village communities. The rules and regulations are proposed, discussed and finalised/agreed through community meetings with the participation of all villagers or representative households. The rules govern the protection and the mobilisation of local resources to tend, maintain and develop forests allocated or contracted to village or hamlet communities. According to the Forest Protection Department within MARD, up to June 2001, some 1023 communes in 146 districts of 24 provinces and cities had established community

forest management plans encompassing a total forest area of 2.35 million hectares (Do Dinh Sam and Le Quang Trung 2001).

3.2.4. Benefit Sharing Policy

Under Programme 661, the Government reserves budget for investment in protection and establishment of special use forests and protection forests, while loans are provided to production forests. The annual payment for forest protection is typically VND 50 000 (equivalent to USD 3.3)⁴ per hectare per year. The Government finances VND 2.5 million per hectare for planting and tending protection forests (i.e. forest plantations). The payments are distributed over the first 3 years. Likewise, it pays VND 1 million per hectare for natural regeneration combined with additional planting, and VND 2 million per hectare for planting and tending production forests of rare precious species with high economic value with rotation periods of more than 30 years. This constitutes only supplementary funding, it does not cover the full investment for one hectare of protection forest. Individuals and organisations that invest in reforestation or regeneration combined with additional planting, enjoy preferential regulations as stipulated in the Domestic Investment Promotion Law (Vietnam Government 1994).



The production of bamboo is highly valued in Yen Bai Province, as local farmers can boost their income by selling bamboo-shoots as part of the benefit-sharing policy (Photo by Enrique Ibarra)

Decisions Nos 08/2001/QD-TTg and 178/2001/QD-TTg were issued to detail regulations of benefit sharing and the obligations of the beneficiary households and individuals which had been allocated or contracted as stewards of

⁴ Exchange rate: USD 1 = VND 15 500

forest and forestland in the categories of protection, special use and production forests (Vietnam Government 2001a,b). The benefit sharing policies cover all three types of forest and forestland.

1. *Special use forest*: Households and individuals to whom special use forests are allocated by the State for management, protection and establishment are funded by the State to carry out their work and are allowed to conduct scientific, cultural and social research services, and ecotourism. Households and individuals to whom contracts of protection or regeneration of special use forest are granted are entitled to payment for plantation, protection and regeneration protection, and they are allowed to participate in tourist or service activities.
2. *Protection forest*: Household and individuals who are allocated with protection forest for management, protection and establishment are entitled to payment for protecting, regenerating and planting forests. They are allowed to harvest non-timber forest products (NTFPs), dry timber, dead trees, and to harvest bamboo with maximum cutting intensity of 30% when the forest cover reaches 80%. They are also permitted to harvest timber by selective cutting with maximum cutting intensity of 20% of the total stand volume (and not exceeding 10% of the basal area) when the forests are allowed to be harvested, and to ‘enjoy’ 85–90% of the harvested products after taxes.

Households and individuals to whom tracts of land without current forest cover are allocated, but which are planned for protection forests, are entitled to financial support by the State for planting and tending forests. They can also benefit from a variety of by-products like supplementary trees, additional planted trees and thinned trees (provided that the vegetation cover remains over 60% after thinning). They are allowed to harvest timber by selective cutting with a cutting intensity not higher than 20%. In addition, they are allowed to use a maximum of 20% of the non-forest covered, *intended* forestland area for agricultural or aquaculture production. If households or individuals invest their own funds, they are entitled to reap 100% of the products when their forests reach harvesting age.

3. *Production forest*: Households and individuals allocated with natural forest for production management are allowed to undertake agroforestry and silvopastoral practices. They have the right to collect dead trees, trees damaged by fire or other natural causes, and other trees (or parts thereof) during the process of applying silviculture technologies; they may also harvest forest products to meet their own family consumption needs. They can submit for approval their wood requirements to construct a house for newly established families, with a limit of 10 cubic metres per family being granted. Following permission, they can harvest the trees

and are entitled to 100% of products from poor regeneration forest or 70–80% in the case of regenerated forest (after shifting cultivation). In the case of bamboo forest, they are entitled to 95% of forest products. Where natural production forests are contracted (not allocated) to households for securing protection, the households are allowed to use the forest by-products resulting from silvicultural treatments, to interplant, and to graze cattle. When the trees reach harvesting age, households receive 1.5–2% of the harvest for each year (after taxes).

Households and individuals who are allocated with plantations established with State funds are entitled to 75–80% of the total forest products, in addition to the benefits from inter-planting and herbs, for household needs. If households are allocated with forestland for production forest development, they are financially supported by the State to plant the trees. If households use their own funds to establish plantations, they have the right to decide on the tree species and planting techniques, to harvest and use all of the forest products, as well as to market them. Where land for production forests is contracted (not allocated) to households for forest development, the households are funded for planting, tending and protecting the forest. They are allowed to carry out inter-planting and agroforestry and are also entitled to 2–2.5% of each year's harvest.

3.3. PES-related National Programmes

The three major nationwide programmes of forest rehabilitation in Vietnam are the United Nations World Food Programme, Programme 327 and Programme 661 (the so-called 5 Million Hectare of Reforestation Programme, 5MHRP). However, only Programmes 327 and 661 have elements related to the PES concept (discussed earlier). In these two Programmes, direct payments have been made for reforestation and forest protection. Rural people have been offered cash incentives through forest contracts to replant trees and to protect existing forests. State Forest Enterprises, management boards of special use and protection forests, and forest-product inspection stations have signed forest rehabilitation and protection contracts with different individuals and organisations such as army units, communities, groups of households, as well as individual households. There are community-based forest protection contracts where payments and other incentives or support are available to the village or community. Primary beneficiaries are households, groups of households and communities living in or near forests (Bui Dung The *et al.* 2004).

3.3.1. Programme 327

Programme 327 is a Government-sponsored programme that started in 1993 and terminated in 1998. At its inception, Programme 327 covered forestry, agriculture,

aquaculture, resettlement and new economic zones. Within the forestry domain, Programme 327 focused on re-greening barren land and hills, including protection of existing forest areas, natural regeneration and forest plantations. In 1994, the Programme was amended and shifted its focus mainly towards forest protection in critical areas, and areas where slash and burn cultivation persisted. From 1995, the Programme focused only on protection forests and special use forests in areas where local farmers practised slash and burn cultivation. From 1996 to 1998, the scope was again narrowed down to protection and establishing new protection forests in special use forestlands, forest protection through natural regeneration, and forest plantations. In short, during its life, Programme 327 narrowed its objectives and progressively concentrated on protection of forests.

During its 6 years of implementation, the Programme cost VND 2.981 billion (USD 213 million). All financing for this Programme was allocated from the Government budget. Project financing was mainly channelled through SFEs to individual projects that were implemented by SFEs either directly or through subcontracts with farmers and collective bodies.

Cash incentives were given to farmers to establish forest plantations on bare hills and to protect and manage natural forests. The subsidies for tree planting were VND 2.1 million per hectare, including establishment and maintenance costs for the next 3 years. Later on, the income from forests was shared in accordance with the proportion stipulated in the relevant legal documents. Regarding protection and special use forests, the legislation stipulates that they should be allocated to and managed by State-run management boards. However, in reality large areas of protection and special use forests are under SFEs, which have been encouraged to outsource their management to SFE workers and local farmers. Programme 327 provided such contractors with a fixed payment of VND 50 000 per hectare per year for forest protection. Most observers are of the opinion that this amount was too little to provide adequate incentive for the contractor to protect and manage the area effectively (Nguyen Xuan Nguyen *et al.* 1999; Chu Huu Quy 2002).

Programme 327 had several weaknesses in its implementation. The allocation of land and the provision of forest management contracts to households, organisations and individuals for forestry uses was fragmented. Likewise, allocated forestland to each contracted household was small (5 ha on average) and the boundaries of each owner were not clearly marked in the field. Forest plantations focused on protection purposes only, and ignored economic viability and benefit sharing mechanisms. Flat per-hectare rates resulted in inefficient use of funds (Nguyen Xuan Nguyen *et al.* 1999).

3.3.2. Programme 661

Programme 661, or 5MHRP, is a continuation of Programme 327. Programme 661 started in 1998. The general objectives until year 2010 are: (1) to plant 5 million hectares of forest, as well as to protect the existing forests in order

to increase forest coverage to 43% of the country's land area, contributing to environmental security, alleviation of natural disasters, increase of aquatic life, and conservation of genetic pools and biodiversity; (2) to make efficient use of 'wildlands' and bare hills, to create more rural jobs, contributing to poverty reduction, human settlements, income increase of upland inhabitants, sociopolitical stability, and national defence and security, especially near national borders; (3) to provide wood as material for paper production and plywood, and to meet the needs for timber and other forestry products for domestic consumption and production for exports, as well as to develop the forestry processing industry in order to increase the economic importance of the forest sector, contributing to socio-economic development in mountain areas.

The 5MHRP allocates forestland and forests to different organisations, households and individuals. The validity of the allocation or lease of land to organisations and allocation of land and forest to households and individuals is 50 years. If the organisations, households or individuals still need the land after that period, and they have been using it for the correct purposes, the allocation or lease will be prolonged. If the land user has established a forest plantation with a rotation period of more than 50 years, the validity of the allocation or lease will be prolonged, in the 50th year, for the period remaining until harvest. After land has been allocated or leased, Land Tenure Certificates are issued to organisations, households and individuals. The Programme provides incentives including cash payments to organisations, households and individuals engaged in forest protection and reforestation, as stipulated in Decisions No. 08/2001/QD-TTg and 178/2001/QD-TTg (see above) (Vietnam Government 2001a,b).

4. Case studies

4.1. Quang Nam Province, Cu Lao Cham Island

The province of Quang Nam is located in central Vietnam. The province's area is nearly 11 000 km² with a population of nearly 1.4 million people. Quang Nam has 429 921 ha of natural forest with important primate populations distributed in all forest areas (Long *et al.* 2004).

Cu Lao Cham is an archipelago with one large island and seven smaller islands, lying about 12 km off the coast of the province of Quang Nam (see Figure 4.1). The topography of Cu Lao Cham is dominated by two peaks: a 517-m peak in the centre of the island and a 326-m peak at the western end. Tan Hiep is the only commune situated on Hon Lao, the only island in the archipelago with permanent fresh water. The commune comprises 602 households and (at the time of the study) a population of 2728 people. The majority of them make their living from fishing. Administratively, the commune is organised into four villages.

Cu Lao Cham has been proposed to become a marine protected area by 2010. It has a total land area of 1535 ha, of which 562 ha are special use forest, shrubs cover about 100 ha and the remaining area is bare hill and residential lands. The natural vegetation of the islands is lowland evergreen forest, although, at lower elevations, this forest has been heavily degraded or replaced by shrubs. Animals like macaques *Macaca* spp., monitor lizards *Varanus* spp. and pythons *Python* spp. have been reported. To date, 265 vascular plant species have been recorded (ADB 1999). Furthermore, a species of swiftlet *Collocalia* sp. is nesting on Hon Kho island within the nature reserve (Birdlife Indochina 2004). This was one reason why the forest of Cu Lao Cham was classified as special use forest, and came under the management of the Forest Inspection Station of the town of Hoi An; other reasons were that forest cover provides storm protection for the mainland, the importance of the forest for local water supply, and the convenience of a protected area for easier control of access to highly valuable natural resource—the birds' nesting caves (see below).



Figure 4.1. Map of Quang Nam Province

The main threat to the terrestrial biodiversity of Cu Lao Cham was reported by ADB (1999) to be the continued degradation of the forest. This degradation was largely a result of overexploitation of timber and fuelwood. Overexploitation is underpinned by the lack of effective management of the area, and limited awareness of conservation issues among local communities (ADB 1999). Typhoons are also believed to have negative impacts on the biodiversity of the nature reserve. Overexploitation of swiftlet nests is a potential threat to the population of these birds in the nature reserve. However, the harvesting of swiftlet nests is strictly managed by a management body under Hoi An's People's Committee—harvesting is limited to two periods per year, and the nesting caves are guarded all year.

Before 1994, the forest of Cu Lao Cham was overexploited both by people from the mainland and by those living on the island, mainly for timber harvesting. The forest resource was degraded and watershed quality was reduced. Since the forest on Hon Lao protects the catchments of the four permanent streams on the island, forest protection is essential if the conditions required for permanent habitation are to be maintained. Local people have suffered from the shortage of fresh water for domestic consumption. Since the implementation of the 327 Programme, the forest resources in Cu Lao Cham have been gradually restored. Because of their location close to Hoi An, the islands have a high potential for tourism development (ADB 1999). In fact, the first tourism infrastructure was constructed on the islands in 2003.

Between 1994 and 1998, Programme 327 funded a number of forestry activities in Cu Lao Cham, including forest protection contracts, allocation of

forestland to local households, establishment of forest plantations, and planting of scattered trees. Since 1999, Programme 327 has been replaced by Programme 661 as the main source of funding for forestry activities in Cu Lao Cham.

As part of the implementation of Programme 327 in Cu Lao Cham, the forest inspection station of Hoi An signed reforestation and protection contracts with individual households and organisations. The protection contract was annual and renewable. On average, each household involved was contracted to protect a forest area of about 5 ha at an annual payment rate of VND 50 000 per hectare. In these areas, contracted households were allowed to collect only broken and dead trees from contracted natural forests and to prune planted trees for firewood. The collection of other NTFPs and hunting were prohibited.

In our on-site interviews, we were informed that the past model of forests protection contracts to many individual households had not been very effective. Since the contracted area per household was small, and the payment rate low, the income from forest protection contracts was rather trivial. Consequently, contracted households were not economically motivated and did not put much work into forest protection. The forest inspection station terminated several forest protection contracts with households that failed to comply with the contract regulations. Illegal logging and hunting remained a problem.

To increase the economic incentive to contracted households, in 2000 the local forest protection contract system was changed to a new model with fewer households/guards, who were made responsible for surveying a larger forest area. This was done to ensure that a significant and stable income is provided to the forest guard's household, constituting a more weighty incentive for protection. It seems that the new system has been more effective and the problems of illegal logging and hunting have been stopped. At the time of our survey, 12 households were engaged in forest protection. Though each household had its own protection contract, they were organised in three groups, each comprising four households. Forest patrolling and surveying is done jointly by group members. The area under household protection contracts was about 930 ha, including 535 ha of medium-rich natural forest and 395 ha of degraded areas that are intended for regeneration. Income from forest protection contract per contracted household was about VND 300 000 per month, equivalent to 14–25% of the household's monetary income (own field interviews).

The payment for forest protection on Cu Lao Cham is actually not a payment for forest environmental services, but for the labour invested in forest protection. While this resembles performance-based protection contracts related to the use of the land, the contracted household cannot choose alternative land uses—neither prior to nor after the termination of the contract. The opportunity cost for that household is in terms of labour time, not returns to the use of the land. One can say that this is a command-and-control instrument 'spiced' with economic incentives. Though the contract, to some extent, indicates legitimate access rights



Fishery is currently the main economic activity in Cu Lao Cham, but the island also has good potential for tourism development, including because of its remarkable forest cover. A dozen of households allocated with forest-monitoring contracts are protecting the State forest efficiently, and improving their livelihoods (Photo by Enrique Ibarra)

of the household to the forest and the exclusion of others, it provides no authority over how to manage the land.

Who actually carries opportunity costs from effective forest protection in Cu Lao Cham and elsewhere, and are these losses somehow being compensated? The prime losers are typically loggers, who can be either external or locally based. In principle, hunting is also prohibited, but seems often to be tolerated—which seems understandable if the main overall purpose is watershed protection, not biodiversity protection. Note that all losers, from external loggers to local hunters, are illegal forest users in principle, although one could discuss the *de facto* legitimacy of each of their claims.

4.2. Thua Thien Hue Province

Thua Thien Hue is one of the provinces of the Central Coast (see Figure 4.2). The province is 127 km long and 60 km wide on average, with mountains and forests accounting for up to 70% of its territory. Thua Thien Hue Province has an area of 5009 km², and a population of 1.1 million, of whom about 52 000 are ethnic minorities living mainly in the mountain areas.

Thua Thien Hue is shaped like a bowl to the west with mountains rising abruptly to an altitude of 700–1500 m. Main rivers include Huong, Bo, Truoi and O Lau, running eastward across the province. The catchments draining to the sea have a length of only about 50 km. Therefore, during the monsoon season in October and November, when large amounts of rain falls in the mountains, hazardous flood conditions arise in the lowlands.

In Thua Thien Hue, we visited two districts, A Luoi and Phong Dien. A Luoi is a mountainous district, located in the north-west of Thua Thien Hue province at an elevation of about 580 m above sea level (m.a.s.l.). Its territory stretches along the Truong Son mountain range, on the border with Laos. The district lies in the watersheds of the Bo and Huu Trach rivers (Huu Trach is a tributary to the Huong River). Phong Dien has a diversified topography, stretching along the Truong Son mountain range to the sea, and lies within the catchments of the Bo and the O Lau rivers (see Figure 4.2). The implementation of the programmes 327 and 661 in A Luoi and Phong Dien is managed by the Management Board of the Bo River and the districts' SFEs.

A Luoi District

We interviewed staff of the field office of the Management Board (MB) of the Bo River Watershed Protection Forest Project, based in the commune of Hong Ha. The MB was established in 1991 and under the stewardship of the DARD of the province (Nguyen Huy Dung *et al.* 2001). The MB is implementing the project 'Watershed Protection, Re- and Afforestation of the Bo River, 1999–2010', with support from Programme 661. The project encompasses 29 943 ha, including 30 forest blocks in the three districts of A Luoi, Phong Dien and Huong Tra.

The commune of Hong Ha has a total area of about 14 500 km², of which one-third lies in the Phong Dien Nature Reserve and the rest in its buffer zone. At the time of the study, only 10 farmers of the commune of Hong Ha had forest protection contracts with the MB. The contracts were individual. However, they worked in a group (including the Board's staff) to protect the contracted forest area of about 1000 ha. The selection of forest areas for protection contract is based on several considerations. The forest should both have good quality and be truly at risk, i.e. be easily accessible and prone to illegal logging and fire hazards. The contracted forest areas are considered strategic access points, i.e. the 'entry gates' to the forest. Therefore, effective protection of these areas should also reduce the threats to other, more remote forest areas. On average, the group patrols the forest three times every month, and each field trip takes about 3 days. Patrolling is more frequent during the period of high risk of forest fires.

The forest protection contract is financed by Programme 661. On average, the monthly income from a forest protection contract is VND 300 000 (about USD 20) per contracted household, which is quite significant compared to the per-capita monthly average monetary income of the ethnic minorities (about

VND 80 000, equivalent to USD 5). However, it should be noted that the opportunities for obtaining a forest protection contract with the MB are very limited. Due to budgetary limitations, only about one-quarter of the Bo River's watershed protection forest is under protection contracts.

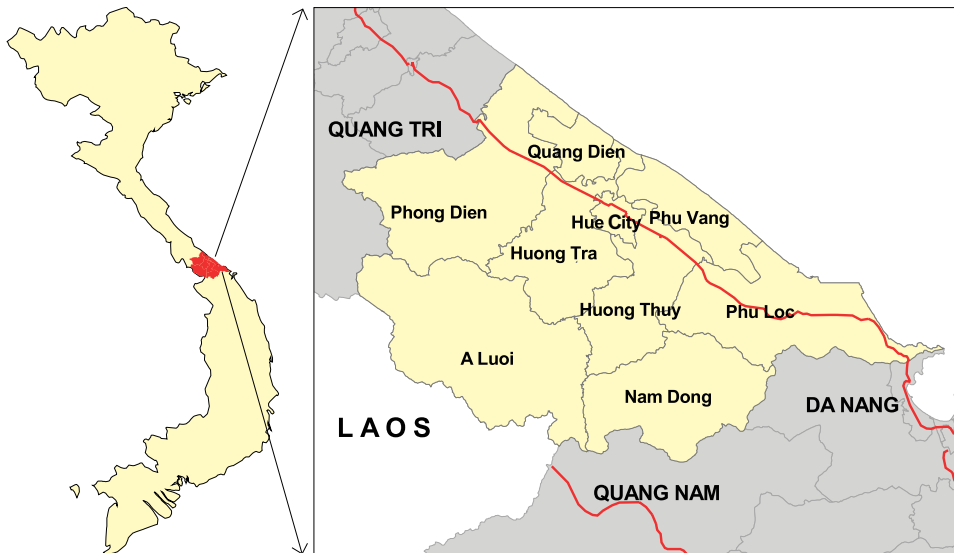


Figure 4.2. Map of Thua Thien Hue province

In A Luoi, we also visited a SFE, and interviewed its manager and the main departmental and section officers, as well as households members. The Enterprise manages protection and production forest and forestlands with a total area of 33 331 ha. The protection and reforestation cost is financed by the Government budget through Programme 661 and its predecessor, Programme 327. The Enterprise signs reforestation and protection contracts with individual households. The contracts are annual and renewable. Typically, the contracted annual reforestation area is 100–150 ha and the newly planted forest area under contract is about 400–450 ha. At the time of the study, the area of planted and natural forest under protection contracts was about 1000 ha (600 ha of planted forest and 400 ha of natural forest). This implies that only a small proportion of protection forest is under protection contract.

The forest area under protection contract per household ranges from 13 ha to 33 ha, with an average of about 25 ha. The payment for reforestation is VND 1.5 million per hectare (USD 97), and for tending the forest (distributed over the first 3 years after planting) it is about VND 2 million per hectare (USD 129). The main species for plantation establishment have been *Acacia auriculaeformis*, *A. mangium* and *Pinus kesiya*, provided by the SFE. The income from reforestation and protection contracts accounted for 50–75% of households'



Hilly terrain in the former demilitarized zone (DMZ) between North and South Vietnam. This area was allegedly deforested by Agent Orange, and its vegetation cover has still not recovered. A Luoi District, near the Lao border (Photo by Enrique Ibarra)

income, as reported by the interviewed households. In the households' perception, the payment is compensating for the labour cost, not for the environmental services that the contracted forestland generates.

How well is the contracted forest protected? It was reported that the forest under protection contract is doing well. The SFE has a monitoring team of 13 staff to supervise the contracted households and to protect the forest not contracted to households or other entities. As discussed above, reforestation and forest protection contracts prove to be a significant source of income. Given the limited availability of alternative income sources, the contracted households do their best to comply with the contract.

We observed that the forest wildlife is currently under pressure from illegal hunting. We noticed that many restaurants in A Luoi town serve bush meat. Hunting and trapping of wildlife have long been customary activities in this area. Hunting remains a common activity, and may now pose the most significant threat to a number of mammal and bird species critical for conservation purposes. However, this is not to suggest a strong causal relationship between poaching and the performance of protection contracts, since the area under forest protection contracts accounts for only a small proportion of the area managed by the SFE.

Phong Dien District

The district of Phong Dien is located approximately 40 km north-west of Hue city. Phong Dien has an area of 95 735 ha with a forest area estimated at 24 299 ha, a large part of which belongs to the 34 000 ha Phong Dien Nature Reserve. We visited Phong Son commune, which lies entirely in the buffer zone of the nature reserve. The commune has been targeted by the Thua Thien Hue Rural Development Programme (TTHRDP), financed by the Government of Finland, for a pilot participatory forestland allocation project.

The project has assisted local authorities in allocating 100 ha of bare land to 50 households, evenly distributed with 2 ha per household. The area is planned for production forest and it is not entitled to support under Programme 661. The allocation was done in a demand-driven manner. Villagers who wished to have forestland sent requests to the commune authority. Of 120 applicants, only 50 households received land. These favoured households were those living near the land to be allocated, with labour availability and experience in forestry activities. The district authority issued Red Book land use certificates to the households.

The TTHRDP offered training on tree planting and provided VND 900 000 per hectare for tree planting to each household. In addition, the TTHRDP also paid the cost of tending the newly planted forest at an annual rate of VND 230 000 per hectare for the first 3 years. The tree species planted is an exotic acacia with a rotation of about 8 years. The interviewed villagers expect to harvest the trees and sell the timber to a pulp factory. When asked why they did not grow agricultural crops on the allocated land, they answered that the land was poor and degraded. They plan to use the land for agricultural purposes later, when soil fertility is restored.

Given the more accentuated ownership status of the allocated land, the households would thus adopt a series of different land use alternatives in the future. The payments made by the TTHRDP are not intended to produce environmental services, but are rather to be seen as traditional reforestation subsidies stimulating timber supply. Furthermore, the intended benefit of the reforestation activities is in this case timber income. Forest environmental services are not the target, as also reflected by the fact that the allocated land is classified as production forest.

With the support of the TTHRDP, the local authorities have allocated 403 ha of natural production forest to a group of 51 households in two villages, Son Quang and Thanh Tan. Prior to the allocation, the forest area was, in principle, under the management of the commune authority and the local forest inspectorate. However, as reported by the interviewed villagers, the forest is actually an open-access resource. Since the allocated forest is a production forest, there is no protection fee for the group. The future production benefit that these households expect is timber. Given the contractual terms, the group sends a request to the provincial DARD to get permission to harvest the trees. The sharing of benefits between the village community and the State is based on the Prime Minister Decision No. 178/2001/QD-TTg.



In the district of Phong Dien (Thua Thien Hue Province), acacias are the most common tree species used for the establishment of plantations. In this picture, the farmer is holding an *Acacia Mangium* (Photo by Sven Wunder)

Concerning protection forests, our interviews indicated that the most important forest environmental service is watershed services. It is argued that that loss of forest cover, especially on the steeper, upper slopes of the catchments of major river systems in the area, is likely to increase the severity of floods (e.g. compared to 1999). The forests are believed to contribute to maintaining water flows during the dry season and are, therefore, likely to have a role in protecting water supplies for domestic and agricultural uses. Improved protection of forests on the steep slopes of the upper catchments is seen by local government officials as a cost-effective approach to improving flood and erosion control. Exploitation and degradation of forests has resulted in excessive soil erosion, and it seems likely that the resulting siltation has significantly decreased the life expectancy of irrigation reservoirs.

4.3. Ha Giang Province

Ha Giang is located in the northernmost part of Vietnam. Its terrain is very mountainous with altitudes ranging from 200 to 2400 m.a.s.l. About 38% of the province has a slope gradient of 35° or more. The total land area of the province is 7884 km² and total population is 632 500 people of 22 ethnic groups. Administratively, Ha Giang is divided into 10 districts, including Ha Giang town. Based on geographical, climate and land characteristics, the province is divided into three distinctive zones: *Zone 1* is the northern high rocky mountain area consisting of four districts, Dong Van, Meo Vac, Quan Ba and Yen Minh; *Zone 2* is the western high hilly area consisting of two districts, Hoang Su Phi and Xin Man—natural topography is mixed lowland and highly sloped areas; *Zone 3* is the low mountainous area consisting of three districts (Bac Quang, Vi Xuyen, Bac Me) and Ha Giang Town.

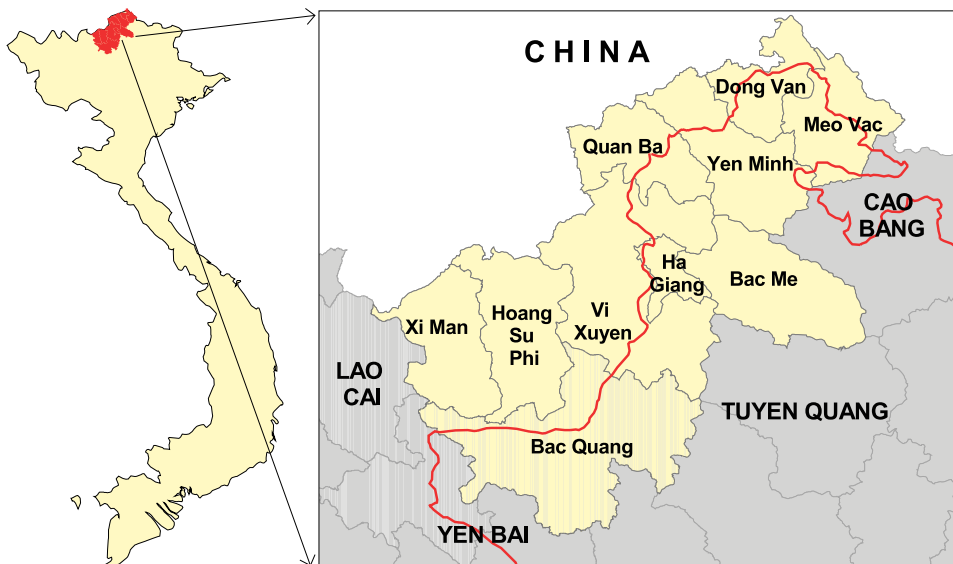


Figure 4.3. Map of Ha Giang province

In Ha Giang, we interviewed key officials of the provincial Department of Natural Resources and Environment (DONRE) and the DARD. About 80% of forestland in the province has been allocated with land use certificates to different organisations and individuals. At the time of the study, 42% of the province's area was covered with forest. During the last several years, the average annual reforestation was 16 000 ha, including 5500 ha of newly planted forest and 10 000 ha of assisted natural regeneration.

In the province, there are three SFEs, four provincial forest enterprises (formally under DARD), 11 management boards of protection forest and 4 management boards of special use forest. The Enterprises have been involved

mainly in reforestation activities through Programmes 327 and 661. In these Programmes, the Enterprises have had short-term contracts with households on forest plantation and protection. These Enterprises act as implementing units of forest projects. Programme 661 has set a target to increase the forest cover in the province to 50% by the end of 2010. This means that the land under forest should be increased from the present 215 300 ha to 394 200 ha, i.e. a total increase of 178 900 ha and a reforestation of 16 300 ha per year.

It is reported that the forestland allocation and the forest protection contracts have contributed to better management of the forest resources. The conversion of forest to agricultural uses through slash and burn has been stopped. With clearly defined land use rights, itinerant farming has become impossible. In addition, the local authorities have helped farmers to reclaim wasteland to establish rice terraces to ensure food security. Improved crop yields and food security have reduced pressure on the forest. However, illegal logging remains a problem. Forest inspection stations in the province report a remarkable number of cases of illegal logging and timber transport and its seizure.

Government forestry officials reported that the rehabilitation and protection of forests in the province is mainly intended to protect watersheds feeding the Thac Ba and Tuyen Quang hydroelectric dams. Biodiversity conservation is mainly associated with special use forests (protected areas and natural reserves). For communes in the districts of Quan Ba, Dong Van, Yen Minh and Meo Vac, the protection of forest is mainly justified by the conservation of drinking water sources for local users.

Vi Xuyen District

At the suggestion of the officials of DONRE and DARD in Ha Giang, we visited the district of Vi Xuyen (in *Zone 3*) and interviewed the manager of the Forest Management Board of Phong Quang–Vi Xuyen Natural Reserve. We also visited the commune of Minh Tan and interviewed the chair of the People’s Committee of the commune and several households involved in forest protection contract with the Management Board of the nature reserve.

The Management Board of the Phong Quang–Vi Xuyen Nature Reserve had currently contracted more than 4000 ha of protection forest to villages and individual households. The protection forest contracted to individual households is poor and close to the villages; the forest contracted to villages is of better quality and more remote. Depending on the local context, forest areas contracted to different villages ranged from 500 to 1500 ha. Before 2002, contract duration was 3 years; now it is 5 years. To certify the villages’ and households’ compliance with the contractual terms, the Management Board staff check the quality of the contracted forest monthly. The manager of the Phong Quang–Vi Xuyen Natural Reserve reported that about 85% of the protection contracts were within the contractual terms. There were also cases of non-compliance.

The commune of Minh Tan has a total area of 11 275 ha, of which 7140 ha is forest. The commune is organised into 13 villages, with a total population of 4906 inhabitants in 876 households, mainly from the H'Mong ethnic group. Its villages and individual households have forest protection contracts with the Management Board of the Phong Quang–Vi Xuyen Natural Reserve. In total, more than 540 households in the commune were involved in forest protection. The households in the villages take turns to patrol the contracted forest in groups of 4–5 people. The annual protection payment is VND 50 000 per hectare, made in two instalments. The payment to the village contributes to a village fund to cover communal activities or investments. In addition to the payments, villagers are allowed to collect NTFPs and to harvest timber for domestic construction.



In the commune of Minh Tan (Vi Xuyen District, Ha Giang Province), the payments for protection forests are pooled into a communal fund to undertake investments for collective use, like the cement path depicted in the picture (Photo by Enrique Ibarra)

Villagers interviewed at Minh Tan said that the forest area is increasing, and bare land is being re-greened. It was observed that some wildlife was coming back. However, the forest is much poorer than 30–40 years ago. Plants and animals are fewer than they used to be. Some forest animals that were abundant in the 1980s are hardly found nowadays.

Quan Ba District

In Quan Ba (*Zone 1*), we interviewed the manager of the Forest Management Board of the Bat Dai Son Nature Reserve, who is also chair of the People's Committee of the commune of Thanh Van, whose villages and villagers have protection contracts with the Management Board of the nature reserve. We also visited and interviewed several households involved in forest protection.

The Bat Dai Son Nature Reserve has an area of about 10 000 ha and is located amongst the communes of Thanh Van, Bat Dai Son and Can Ty. The nature reserve is above 1000 m.a.s.l.; its highest point is 1645 m.a.s.l. It is situated in the watershed of the Gam River, and it supports a high diversity of conifer species, including *Pseudotsuga brevifolia*, *Calocedrus macrolepis*, *Taxus chinensis* and *Podocarpus brevifolius* (Vu Van Can *et al.* 1999a). In addition, in 1999 a new species of conifer, *Thuja quanbaensis*, was discovered there—this species is thought to be endemic to the area (Vu Van Can *et al.* 1999b).

The Management Board of the Bat Dai Son Nature Reserve signed forest protection contracts with villages and households in four communes. The total forest area under the contracts was estimated at around 9000 ha, comprising 6600 ha under protection contract and 2400 ha under assisted natural regeneration. The contracted villages established groups (4–8 people per group) to patrol the contracted forest. The annual protection payment is VND 50 000 per hectare (USD 3.3). The annual payment is made in two equal instalments, the first after 6 months and the second at the end of the year. In addition, the nature reserve's Management Board also signed a forest protection contract with a border army



In the district of Quan Ba (Ha Giang Province) protection forests are concentrated in areas unsuitable to agriculture. Sometimes, due to the closeness of the protection forest to the agricultural land, farmers are able to monitor the forest while attending their agricultural chores (Photo by Enrique Ibarra)

unit for an area of 299 ha at the higher payment rate of VND 85 000 per hectare per year (USD 5.5). The payment was said to be higher because of the complicated topography of the border area, which makes patrolling more difficult.

In 2003, the monitoring team of the Management Board identified eight households violating the contract, in terms of being caught in the act of logging timber to sell. The underlying motive was reported to be food shortages stemming from a lack of suitable agricultural land. This raises some doubts about the effectiveness of the forest protection contractual arrangements.

In 1994, the local authority allocated 376 ha of forest (with Red Book, i.e. land use certificate) to households in the Thanh Van commune. The allocation was on average 0.2–0.5 ha per household. At that time, the forest was classified as production forest. In 2001, the allocated forestland was re-classified as protection and special use forest that should remain under forest cover without logging. Since then, an annual payment of VND 40 000 per hectare (USD 2.6) has been paid for forest protection. In this case, a quasi-PES case emerges because farmers with more substantial land rights (as implied by the Red Book) are paid to undertake—and maintain—a different land use than the one they originally planned. Still, the households' land-use decision after the protection declaration must be in accordance with Government regulations with respect to protection forest, even though they have land use certificate. In this regard, the property rights given to farmers in the first place remained incomplete.

Six villages of Thanh Van commune have forest protection contracts with the Management Board of the Bat Dai Son Nature Reserve for a total forest area of 1115 ha. The forest contracted to the villages is natural forest of good quality. The village of Lung Lang is one of the villages with forest protection contracts. The village head reported that four groups, each of three people, had been established to patrol the contracted forest. Each group was assigned to protect a certain area. It should be noted that not only the four patrol teams, but all villagers carry out forest protection. Each villager has to watch over the forest whenever possible, for example while doing agricultural activities in the areas near to the contracted forest. The forest was said to be well protected, and apparently illegal logging no longer occurs.

4.4. Yen Bai Province

Yen Bai is located in the upland region of the Red River basin, approximately 200 km north-west of Hanoi and is one of the poorest provinces in the northern mountainous area of Vietnam. It is administratively divided into seven districts. The province has a total area of 6882.9 km², of which 80% is classified as forestland. At the time of the study, 45% of the province was covered by forest. The province is inhabited by several ethnic minorities including the H'mong, Dao, Tay, Thai, Nung, San Chay, Phu La and Kinh.

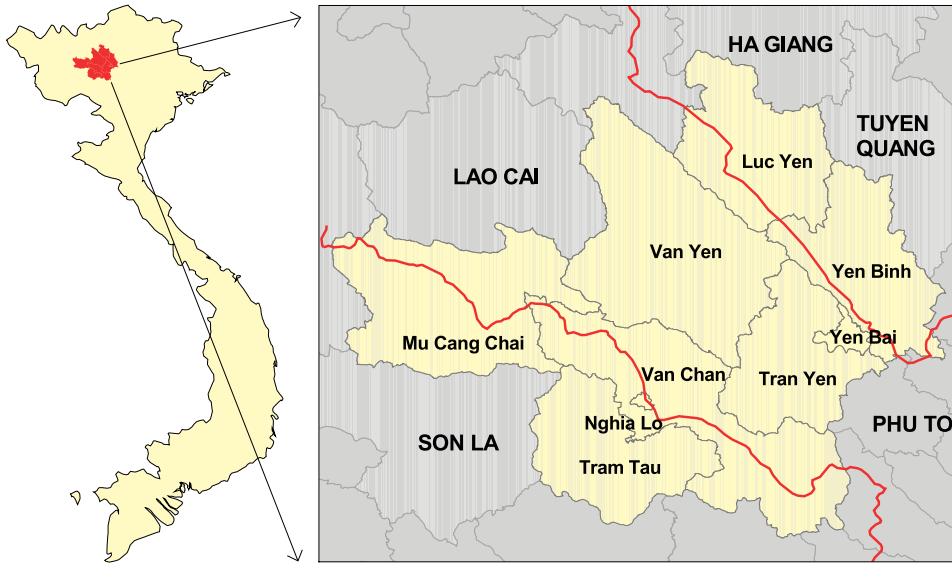


Figure 4.4. Map of Yen Bai province

In the 1960s, about 60% of the province was forested. During the 1970s and 1980s, the forest cover of the province declined; about half of the forest disappeared during that period, to 30% by the early 1990s. Programme 327 has halted the downward trend and forest area is now increasing. Programme 661 has set a target to increase forest cover in the province back to 60% by the end of 2010. This means that a reforestation average of about 12 000 hectares per year has to be achieved. There are nine SFEs in the province. Like in other parts of the country, these Enterprises act, among other things, as implementing units of forest projects under the Programmes 327 and 661. Within these Programmes, the Enterprises have had short-term contracts with households for forest plantation and protection. The vice director of the province's forest development branch reported that the forest protection payment is VND 30 000 per hectare per year (USD 1.9) instead of the VND 50 000 per hectare per year (USD 3.3) found elsewhere. He explained that the payment had been reduced in order to enable more forest to be enrolled under protection contracts, as well as to prolong the contract period beyond the usual 5 years. This reflects a certain flexibility built into the local implementation of Programme 661.

We visited the Tan Huong commune (Yen Binh district) and the Minh Quan commune (Tran Yen district). Interviews with representatives of the Commune People's Committees and households involved in reforestation and forest protection were also undertaken. Most households in the two communes engaged in reforestation for either protection or production purposes.



The protection of hydroelectrical dams from sedimentation caused by upland agriculture on degraded lands is the main reason stated by government officials for large-scale hillside reforestation efforts. The Thac Ba dam, Yen Bai Province, is one of the alleged beneficiaries (Photo by Enrique Ibarra)

Yen Binh District

Households in Tan Huong commune signed reforestation and forest protection contracts with Yen Binh's SFE. Interviewed farmers reported that the payment for reforestation is VND 2.4 million per hectare (USD 155), which includes VND 1.8 million (USD 116) for tree planting and VND 600 000 (USD 39) for tending the forest for the first 3 years after planting. Hence, the income from reforestation contracts is quite significant to households. Households also receive financial and technical support for reforestation for production purposes. The support could be from Programme 327 or from specific projects. For protection contracts, the payment that contracted households receive is only VND 25 000 per hectare per year (USD 1.6), rather than the VND 30 000 (USD 1.9) reported by the vice director of the province's forest development branch. The explanation of the reduction by VND 5000 (USD 0.33) is an administrative cover cost associated with forest plot delineation.

The number of households with forest protection contracts depends on the forest area that needs to be protected. In the case of the commune of Tan Huong, only 100 households (less than 15% of total number of households in the commune) had forest protection contracts. Contracted forest per household



In Yen Bai Province, reforestation contracts can be highly remunerative for rural households, due to a combination of state subsidies and rewarding timber prices. In the back of the picture, a small tree plantation has been created (Photo by Enrique Ibarra)

ranged from 1 to 7 ha, with an average of 2.5 ha. On average, the income from forest protection contracts is trivial, as compared with other household income.

Tran Yen District

Our findings from Minh Quan commune (Tran Yen district) are similar to our findings from Tan Huong commune (Yen Binh district, discussed above). A number of households in the commune had forest protection contracts. As in Yen Binh, the protection payment is VND 25 000 per hectare per year (USD 1.6). The households in the commune of Minh Quan also received support from Programme 327 and other projects for tree planting for production purposes. For example, in 1995 and 1996 about 90 households in the commune were paid VND 1 million per hectare (USD 64.5) to plant cinnamon. One farmer in Minh Quan was contracted to protect 40 ha of forest in 1996. He received protection payments of VND 30 000 per hectare per year (USD 1.9), but only for the year 1997. Since then he has not received any further payments, and does not know why the payment has stopped, but he continues protecting the forest even without payment.

5. Comparative assessment

5.1. Vietnamese Experiences under the PES Framework

5.1.1. Service Buyers and Providers

The answer to the question “who are the environmental service buyers and sellers?” is associated with who has control over the resources generating the services. What production factors create environmental services, and should thus be compensated for their provision? Labour efforts and capital investments can certainly contribute to the production of environmental services, but in most cases environmental-service provision is tied to land use: whoever controls the land also has a large degree of power over the provision of the environmental service. In Vietnam, land is not privately owned. By constitution, all lands (including forestlands) belong to the Government. Although forest and forestland can be contracted or allocated to farmer households and village communities for a period of 50 years, the overall use of the lands have been predetermined by the Government. Especially in the case of protective and special use forests, households and villages cannot make their own land use decisions. In this context, the provision of environmental services is dictated by the Government. Contracted households and village communities are paid to manage or guard the State’s forest in a prescribed way to generate more services to society.

Though farmers or communities are provided with long-term ownership (Red Book) or temporary ownership (contract) of the natural resources, forest and forestland, their rights to make decisions on forest management, protection and utilisation in conformity with their own benefits are limited. The communities are actually protecting the Government’s forests, rather than their own forests.

Despite the revised Land Law (1998), forestland allocation has been implemented slowly and many farmers have still not received their land use certificates. In many areas, the forestland is either under the responsibility of

timber companies or the local authorities. Regarding land use certificates, of those involved in forestry or logging activities, 62% have a Red Book and 17 % have a Green Book. Of the one-fifth of farmers who hold neither, half of them have asked for one and have been waiting for about a year, the other half do not think they need one (MARD 2003). The process of forestland allocation is a prerequisite for the implementation of PES or PES-like schemes, but progress varies considerably across provinces.⁵

It should be noted that secure land tenure is a necessary but not a sufficient condition for more efficient and sustainable use of natural resources. Upland farmers in Bac Can provinces adopt soil conservation practices mainly to obtain long-term land use certificates under the new Land Law. In contrast, intensive land use under monocropping without soil conservation practices is found in Son La province, where land use rights are relatively secure due to recent land reforms. Improved land tenure security does not automatically lead to higher long-term investment or to a more sustainable land use (Neef *et al.* 2000). In most cases, forests contracted or allocated for protection (critical and less critical) have low or medium regeneration capacity. Land allocated to households tends to be treeless land or bushy land with few trees. Land allocated to communities, however, is normally either forestland or land that can be rehabilitated.

The payment level is determined by governmental organisations at different levels. For forest protection, payment rates of VND 50 000 per hectare per year (USD 3.3) or lower were found. The rates were perceived by most recipients as too low to have significant livelihood impacts—and thus also too low to trigger changes in resource-use behaviour. The exception from this pattern were cases where larger forest areas were being allocated to households which became more specialised in forest protection, as in the Cu Lao Cham and A Luoi cases. It is likely that these higher rates were estimated on the basis of the opportunity cost of labour to patrol the forest.

For reforestation and tending the newly planted forest for the first 3 years in critical and very critical watersheds, the payment is up to VND 2.5 million per hectare (USD 160). In the sites we visited, these incentives seemed to be working well, for several reasons. Since they also provide a significant livelihood contribution, they tend to make a real difference for household welfare and are thus being taken into account. They are coupled with technical assistance that does seem to get out to rural households. However, reforestation and afforestation

⁵ By early 2001, Lao Cai province had allocated 49% of its total forest land (267 505 ha) and issued land use certificates to households and organisations. Ha Giang had allocated 32% of its total forest land (165 345 ha) and issued land use certificates to different types of owner. By that time, Tuyen Quang province had only carried out forestland allocation with Red Book on a pilot scale; only 1% of the province's total forestland (4823 ha) had been allocated. Compared with the other provinces, Phu Tho was quite advanced, as 54% of the province's forestland (108 787 ha) had been allocated (Gilliusson and Natura 2001).



For many farmers in Yen Bai Province (like this one in the district of Tran Yen), forest protection contributes little to household income, compared to production forestry and agriculture. In this case, land allocated for agricultural production was being prepared to plant cassava (Photo by Sven Wunder)

are in all cases done on State land; hence, one should interpret the payments as a case of forestry employment rather than payments for environmental services. The individual who plants and tends the trees has no influence over the choice of land use: he or she is rewarded for the opportunity costs of labour, not of land. Also, the contracted farmers and village communities, clearly perceive that the payments are made to compensate for their labour devoted to forest protection and reforestation.

In the Vietnamese context, under State ownership of lands, the Government is thus the most important provider of environmental services. SFEs, national parks and management boards of special use forest and protection forests are key players undertaking the provision of environmental services on behalf of the Government. Given the incipient policy trend towards social forestry, rural villages and rural households are beginning to play a more important role in securing the provision of environmental services to society on State-owned lands.

If the Government is indeed the main actor providing environmental services, who are the buyers? In principle, the buyers should be those who benefit from the environmental services. This covers a wide range of beneficiaries—both domestic and international. In the Vietnamese context, given Programmes 327 and 661, the buyers have been the tax payers (and external donors who have co-

financed payment programmes), not necessarily those who benefit most from the environmental services. On the service demand side, the Vietnamese version of PES is thus not consistently built on a ‘beneficiary pays’ principle.

5.1.2. Conditionality

Given the definition discussed earlier, PES are to be made if, and only if, the service provider secures the provision of that service continuously over time (conditionality). To what extent have the protection payments in the two programmes described above been conditional? Let us look at this question for the three types of contracts found in our field survey: individual, group and village contracts.

In an individual or household contract, one household or farmer is held liable for protection of 1–30 ha of forest—on average about 5 ha per contract. We found that in most cases, from the farmers’ viewpoint, conditionality is much less associated with the protection payments than with governmental regulations prescribing land use conditions. This finding is supported by several observations. Sanctions due to contract infractions, such as non-payment, payment reduction or cancellation of the contracts, were extremely rare in the history of almost all the schemes we visited—even when their had been clear cases of non-compliance. Temporal comparisons reinforced this impression: payments for forest protection are made annually over a 5-year period, but a number of farmers we interviewed had conducted forest protection for 5 years already, in which case they were no longer receiving protection payments. Yet, they continued protecting the forest, although perhaps somewhat more passively than they had done before. When asked why they did so without payments, their answer was that forest protection was mandatory. When questioned whether that was not unfair without payments, some households responded they would still gain from access to some NTFPs and timber benefits, as stipulated by the benefit sharing policy.

The comparative role of payments and command-and-control measures can be suitably illustrated by a story from the field, using hypothetical questions. We interviewed a farmer in a H’Mong village near the Chinese border (Thanh Van commune, Quan Ba district, Ha Giang province). He had 1 ha of forest enrolled in a protection contract, being paid VND 40 000 per year (USD 2.6), which corresponded to less than 1% of his household’s monetary spending. The land had originally been allocated to the household for production purposes, but the State had later declared it a protected watershed that should remain under forest cover without logging (a case of ‘quasi PES by chance’). Our question: If, hypothetically speaking, there was no forest protection contract, would he manage the land differently? His answer: He would devote the time now spent on forest monitoring to agriculture. Question: Would he cut the timber if there was no longer any payment for protection? Answer: Not as long as the Government laws still prohibited timber cutting—he would just leave the forest alone. Question:

But what if there was not only no contract but also no law prohibiting timber extraction? Answer: Then he would harvest the largest trees, but still keep the other trees on the land to avoid the degradation of his agricultural land, which the forest management board had said would happen if he deforested the hillside.

This dialogue demonstrates the overwhelming importance of the command-and-control regime in land-use decision making. It also illustrates that the farmer clearly sees the PES-like payment as a reward for his labour efforts, which he would direct elsewhere if there was no payment. The contingency of the arrangement is also related more to his efforts to protect the forest against potential threats from outsiders, not so much compensating his own opportunity costs in the exploitation of the land for private benefits. The latter would be conditioned by the pre-existing rules, rather than the payment.

We found that the incentive structure for household land-use decision making is mostly driven by command-and-control measures, much less so by economic incentives. In this regard, land use decisions are part of a top-down decision-making system. Payments are seldom truly conditional, in the way that compliance would be monitored and payments stopped or diminished in the case of non-compliance. Most individual contracts thus also had probably very little additional effect, in the sense that little extra of the environmental services was produced than would have been the case if there were no individual contracts.

In a group contract, several households jointly sign a forest protection contract. The number of people and the forest area per contracted group varied much across localities, from five households and 250 ha per group in Cu Lao Cham to 12 individuals and about 1000 ha per group in A Luoi. Group contracts seemed to have slightly more conditionality, and were also somewhat more effective in terms of forest protection. We learned from the field survey that the performance of contracted groups was often more satisfactory. Our sample of observations is extremely small, but if this trend was really more widespread, what could be the explanation?

There are several possibilities here. First and foremost, the group model was combined with larger forest area per household than the individual contracts, thus the income from a forest protection contract is also more significant, so the households within the group are economically more motivated. Second, only those who have appropriate skills and have the government officials' trust are allocated the more specialised group contracts in the first place. Third, it is also likely that the group dynamics make 'cheating' more difficult than for individuals, especially if command-and-control sanctions exist and at least one of the households in the group is markedly loyal to the public forest administration entities. In Cu Lao Cham, for instance, the move from individual to organised collective monitoring by the group was clearly associated with an improved protection performance, although the contracts themselves remained individual.

The conditionality of village community contracts is clearly the weakest of the three contract types under analysis. We found no historical examples where entire villages had had their contract cancelled or payments denied as a result of poor compliance with the protection requirements. There is often a considerable ‘margin of error’ (e.g. degradation of up to 15% of forest area) that the authorities will tolerate, yet these administrative rules are not explicitly communicated to households—and often they appear to be unclear, and subject to variable administrative interpretation. There are several explanations for this. First, it may be hard or impossible to cancel the contract with one village and give it instead to another (e.g. the neighbouring village), because usually the contracted village was chosen because of its strategic location or its particularly articulated claim vis-à-vis a specific forest—there is little substitutability. Second, even when another equally qualified village can be identified for a protection contract, the cancellation of the contract with the original village could create conflict between the villages. Moreover, in the cases involving minority groups, contract cancellation or reduced payments due to violation is not implemented because of political sensitivity.

5.1.3. Income Effect

For reforestation activities on protected lands, subsidies have typically been VND 1.5 million (USD 95) per hectare. Depending on the area under contract, these payments can constitute an important livelihood contribution, especially in the poorer regions. Yet, in the vast majority of cases, the individual who plants and tends the trees has no influence on land use, i.e. he or she is rewarded for the opportunity costs of labour, not of land. Note that tree planting for timber production also occurs ‘spontaneously’ and without subsidies on non-protected lands, which are more likely to be allocated to households.

The second type of payments—the forest protection contracts—are thought of as payments for monitoring by households that patrol these forests on a regular (e.g. daily or weekly) basis and report irregularities to the forest authorities or the SFEs. One can think of them as a performance-based forest-ranger salaries. In most cases of individual and village community contracts, the livelihood importance of protection payments is minimal: according to our rough assessment, VND 50 000 (USD 3.3) per hectare per year typically represents around 2% of a household’s cash income and maybe 1% of total income (i.e. taking into account subsistence income). In addition, there can be minor gains from access to shared benefits from NTFPs, such as firewood. Why are livelihood benefits so restricted? First, this results from the low payment rate. Second, the contract’s time horizon is normally only 5 years; after that, the previously degraded protection forest is supposed to have increased its quality, so that other forest areas can be targeted. In one case (Yen Bai Province), forest protection payments were being prolonged from 5 to 10 years, but with a fixed budget, the rate paid was then correspondingly lower (VND 30 000 per hectare per year). Third, the area contracted to each

household (or the village average) is normally limited to 1–5 ha—in some cases just fractions of one hectare.

On the other hand, the households' income effect of group protection contracts was significant in two cases we visited (Cu Lao Cham, Quang Nam province and the Bo River watershed, A Luoi district, Thua Thien Hue province). Income from forest protection contracts here made up more than one-third of the contracted households' income. In the case of Cu Lao Cham, since 2000, the allocation of larger areas of protection forests (50 ha per household) had been made to just a dozen households, because of the low efficiency of the previous multi-household, fragmented scheme. The new modality seems to achieve better forest protection and more significant livelihood benefits. Obviously, the downside of this specialisation is that payments are also less equitable than before. However, also in this case, the households were being remunerated for labour and 'effort', not for the opportunity costs of forestlands, since they had no authority over, and very limited influence on, the use of either land or trees.

Who actually loses out from effective forest protection in Cu Lao Cham and elsewhere, and are their losses somehow being compensated? The prime losers are typically loggers, which can be either external or locally based extractors. If shifting cultivation or other agricultural activity were being undertaken prior to land protection, then farmers would carry opportunity costs. In principle, hunting can also be prohibited but seems in most cases to be tolerated—which is understandable if the overall purpose is watershed protection.

Are the local communities better or worse off from forest protection? Obviously this depends on the circumstances. In the case of Cu Lao Cham, for instance, there clearly seemed to be uncompensated net losses from forest protection at the village level, although it was perceived that some additional public infrastructural investments on the island had been made by the State in recent years, possibly in part to compensate residents. The reaction of local economic agents to lost forest income was, in this case, to shift extraction pressures from the forest to the sea—fisheries had expanded simultaneously with the decline of forest-based activities.

Besides payments for planting protection forests and for the protection of standing forests, there is a third category. These are cases where the State had changed land-use classification, i.e. where land that had already been allocated to households for production purposes was later changed by a protection declaration. We witnessed this situation in Quan Ba district, Ha Giang province, and in Yen Binh district, Yen Bai province. In these cases, it was felt necessary to offer households more favourable conditions in making the *ex post* situation more palatable, since they already had a right to the land and would likely forgo revenues by protecting it. In a kind of sharecropping arrangement, some trees were planted as property of the State, while others would belong to the household and could be harvested for private benefits, along with reforestation subsidies from Programme 661. Harvesting still had to be authorised by the local commune and

by the forest management board, that also technically assists the different stages of forestry production. Moreover, the land would have to be reforested after tree cutting.

These latter types of arrangements are probably the ones that come closest to the principle of PES in Vietnam. While normally areas critical for environmental-service provision are not allocated to households, these areas had already been allocated ‘by accident’. This meant that the compensation given to households to set these areas aside also needed to be somewhat more generous, given that they were intended for production purposes, typically agriculture. One could say that these examples constitute cases of ‘quasi-PES by chance’—in the sense that, without the land reclassification, the same benefit package would never have been offered to households. Yet, even in this case, land use remains legally fixed; households are not free to choose *not to protect* the land or not to keep it under forest cover.

5.2. Service-specific Remarks

5.2.1. Watershed Protection

Watershed protection is clearly the predominant concern among forest environmental services in Vietnam. In 2002, some 6 million hectares (more than 95% of the total protection forest area) corresponded to upland areas described as watershed protection forests (FSIV and IIED 2002: p.4). This illustrates that prevailing watershed protection is among the environmental services that forests are expected to produce in Vietnam. But what more specific hydrological services are these natural or planted forests supposed to produce?

Our interviews revealed a widespread belief that the protection or regeneration of *any type of* forest cover was thought to be conducive to *any type of* watershed protection. Increased water availability, reduction of soil erosion and sedimentation, control of landslides and floods, and improvement of local microclimate were mentioned most frequently as motives for specific protection or establishment of (planted or regenerated) forests. The provision of clean drinking water—the scientifically most solidly grounded of the forest–water benefit linkages—was slightly less emphasised. This finding may or may not be biased by our limited sample of cases.

Among the various watershed functions, hydroelectric power plants clearly have top priority (at least for the Government from an economic point of view). The Hoa Binh dam, about 80 km from Hanoi, fed by the Song Da River, produces almost half of the country’s electricity. The aim of conserving, planting and regenerating forests in the upper watersheds of streams feeding hydropower dams is to reduce erosion and reservoir sedimentation compared, in particular, to hillside cropping as the predominant land-use alternative. Much effort is aimed at

replacing former cultivation areas with forest plantations and protected regrowth. The Hoa Binh dam has been paying two provinces in the watershed of the Song Da River for securing forest protection and reforestation under Programme 327. Various other dams are being planned or built, justifying an increased emphasis on protection forests in Vietnam.

How likely is it that PES have achieved the desired land use change? Although we did not visit the Hoa Binh area, our interviews of key stakeholders indicated that these payments *per se* probably had been little cost-effective in achieving the targeted land use changes. The receiving provinces used a large share of them for general infrastructural and development projects, rather than allocating payments directly to achieve land use targets. Elsewhere, the impact of forest-protection payments under Programmes 327 and 661 depended much on the organisation and modality of the protection groups. Yet, it seems clear that much of the impressive reforestation that has been achieved is to be attributed more to traditional management and governance tools than to the efficient use of innovative economic incentives.

Nevertheless, another core question is to what extent the targeted land use changes (reforestation, afforestation, forest regeneration, forest protection), once they have been achieved, actually live up to the high expectations in terms of all the environmental services they are supposed to produce. As indicated in Section 2, a number of ‘myths’ regarding the generalised hydrological benefits of forests exist. In particular regarding the assumed hydrological benefits of upstream reforestation for protecting hydroelectric dams from siltation, further research is needed to determine if or when this is the optimal land-use strategy; results from elsewhere seem to indicate otherwise. For instance, a frequently cited in-depth study from a Central American watershed showed that well-managed pasture can be almost equally effective as forests in controlling erosion, consumes less water than tree cover, and provides higher incomes to land users (Aylward *et al.* 1999). In terms of reducing flood risks, the massive Vietnamese reforestation efforts are unlikely to have any mitigating impact on large-scale catastrophic flood events, but they may reduce the severity of more localised floods in smaller watersheds (Chomitz and Kumari 1998; FAO and CIFOR 2005).

More generally, as summarised in FSIV and IIED (2002), the in-country evidence on the alleged watershed benefits from forests is either contrary to common belief (e.g. the ‘forests increase runoff’ myth), indeterminate (‘forests increase dry-season flow’) or, in the case of the ‘forests reduce erosion’ and ‘forests reduce flooding’ beliefs, the environmental service is much more dependent on general vegetation cover and its management than on forest cover itself. This indicates that massive efforts of ‘reforestation for watershed protection’ may either be slightly misguided, or be more of a discourse justifying higher timber production on protected lands. Other well-managed vegetation types could probably often achieve similar results in terms of service provision.

5.2.2. Biodiversity

Biodiversity protection outside protected areas ('special use forests') seems basically of no concern to policy makers. In all our interviews, asking forestry officials at different decision-making levels about priority areas for biodiversity conservation, we were always exclusively referred to special use forests. This indicates that organisations aiming to take a more integrated, landscape-level approach to conservation are probably facing an uphill struggle in influencing decision making.

5.2.3. Carbon

Markets or initiatives for forest carbon sequestration and storage have not been developed in Vietnam so far. The FSIV has received a mandate from the Government to bring forward the topic of environmental services, and carbon sequestration in particular. A Japanese project has looked into forest carbon measurement, but has not made much progress so far. A German carbon-sequestration project seemed to be under preparation. On another front, the Vietnam Coal and Mining General Company sets aside 1% of its revenue to offset environmental damages, which is also being used for reforestation—both to regenerate areas damaged by open-pit coal mining and (allegedly) to compensate for air quality deterioration. Nevertheless, all these initiatives are incipient.

The two examples mentioned above describe 'buyers' of environmental services, therefore it is possible that the potential to establish a carbon-based PES mechanism in Vietnam exists. Nonetheless, we see the link between providers and suppliers of environmental services hampered by the Government's institutional framework, in particular land property rights.

One might suspect that carbon forestry could have a large potential to finance reforestation in Vietnam. With the current CDM's carbon credit rules for forests focusing entirely on reforestation and afforestation (thus classifying only increases in forest cover as 'additional'), a country aiming to further increase its forest cover substantially could gain a lot from participating in carbon markets. A CDM office has been set up, but apparently it is not yet implementing projects. However, one might fear that promotion of carbon forestry could reinforce the existing bias towards monoculture forestry with fast-growing species, marginalising further biodiversity goals in particular.

5.2.4. Tourism

PES arrangements for forest natural beauty (forest-based recreation and ecotourism) have also not been developed so far, mainly because there is no framework for community-based tourism. There are some incipient efforts, but we did not visit any of them ourselves. A newspaper article describes how ecotourism in and around Phong Nha Cave, a 275 000-ha World Heritage Site in Quang Binh province, "has given the villagers a stake in the beauty of the forest" and allegedly

turned them from being illegal loggers to boatmen and photographers that live mainly off tourism (*Viet Nam News*, Wednesday 15 September 2004, p.5).

Although this does not seem to be a 'pure' PES scheme, and we did not have the possibility of verifying the information, it would appear to be an example of natural beauty functioning as a central incentive for changed local resource use in favour of conservation. There are a number of similar embryonic efforts around other protected areas. In each of these cases, the focus of the business operation is more on national than on foreign tourists.

Direct tourism-related payments have also been made, at least in one case. The Swiss NGO Caritas started a pilot project in 2004 where Swiss tourists pay an additional USD 500 per-capita for visiting villages for a week. This 'responsible tourism' premium goes to a village development fund. The project is implemented in three communes in Quan Ba district in the northern province of Ha Giang. However, although this tourism to a certain extent draws on natural beauty and environmental quality, the payment has 'no environmental strings attached'—it is not conditional upon local people's land or resource use. It is thus not a PES initiative, but an example that direct, tourism-motivated payments to communities can be implemented in Vietnam.

6. Conclusions and implications

6.1. Conclusions

When the UK-based IIED screened the situation in Vietnam with regard to future work on PES (in the early 2000s), they came to the conclusion that PES was at this stage a non-starter in Vietnam, since the fundamental preconditions for PES were not met (J. Hardcastle, personal communication). Our assessment basically confirms this view. We encountered several conditions that explain why PES are not implemented in Vietnam so far. These are:

1. **Few of the environmental services provided are paid for:** The focus of forest environmental service rewards has been exclusively on watershed protection; other services from forests outside of protected areas (biodiversity, landscape beauty, carbon storage) are not being paid for, and have been largely ignored;
2. **Few environmental-service users are paying:** In general, no direct user payments are in place. Even for watershed protection benefits, except for the Hoa Binh hydroelectric power dam, there is no application of the beneficiary pays' principle. The few payments that do take place are financed through the State budget or through donor projects, rather than service users paying directly;
3. **No private ownership and use rights to protection lands:** Since all land is State-owned and land with (watershed) protection values is normally not allocated to households, households have no legal rights to make voluntary decisions regarding their own land or forest use. This is at odds with a PES concept that is designed as a voluntary mechanism to influence local land and resource users' independent choices;
4. **Command and control works:** Potentially, there could be private resource uses on public land that are not strictly legal yet tolerated by

the State—e.g. as is the case in Indonesia or in much of Latin America. The restriction of these semi-legal uses does then create opportunity costs for users, which one might need to compensate if one wants to induce them to other activities. But in Vietnam, the State is much stronger than, for instance, in Indonesia. If ‘command and control’ is working relatively well in most places, what then would be the State’s motivation for experimenting with PES?

5. **Payments are non-contingent and too low to matter:** The existing forest protection contracts are normally not really contingent, the fees are too low to make a difference for farmers (in most cases), and fees are normally not being targeted to those facing genuine opportunity costs from protection. Thus, they are probably not a decision parameter that makes a real difference—protection fees do not ‘buy’ additional forest environmental services by changing local people’s incentives. They might be interesting in terms of setting a general precedence principle of payments for protection, but most likely they play the role of ‘oiling the command-and-control wheels’, i.e. they legitimise the State’s monitoring of local-level compliance with top-down rules, and can sometimes make these rules more palatable to the local population. In other words, ‘payment is good’ as an auxiliary instrument facilitating policy implementation, but ‘control is better’—it is the backbone of land-use policies.

6.2. A Future for PES in Vietnam?

Adherence to the theoretical PES principle, as described in Section 2, is not necessarily ‘desirable’ in itself; it could well be that some hybrids between PES and more traditional command-and-control tools provide the best answers to the Vietnamese environmental-service context. Avoiding a one-size-fits-all approach by tailoring tools to specific contexts is rarely a bad idea. However, the fact that no ‘purist’ PES scheme has been carried out in Vietnam, and that many of the existing schemes are only marginally related to the PES concept, reflects a general Vietnamese scepticism towards market-oriented tools for environmental management.

There is no sense in stubbornly trying to implement a PES system in Vietnam, just for the sake of applying the PES concept. A PES system would need to ‘add value’ to environmental protection or local livelihood benefits. One can say that if the State is a good representative of external agents’ environmental-service interests, then these interests are more likely to be taken into account than in many market-oriented tropical countries with a weak State. At the current state of affairs, it would seem unlikely that the Vietnamese State would deliberately loosen its grip on the use of protection forests by allocating these lands to households. This is simply because, in a country with a substantial planning tradition and

only an incipient market orientation, the established command-and-control measures provide a much greater likelihood of securing the desired land use. Why complicate things by allocating critical land to households, if you can keep it directly under a well-organised system of State control? Two different drivers of change could potentially in the future gain importance here.

First, to the extent that new environmental-service needs (carbon, tourism, biodiversity protection outside of protected areas) develop and receive greater official recognition, both the required amount of forest protection and the degree of required differentiation would increase: *what* forest is needed *where*, *how much* of it (compared to other land cover) and under *what management* should it be? Increased differentiation in needs and land-use objectives could also open up a greater willingness to experiment with new and more flexible tools. Even for the current prime environmental service, watershed protection, the situation could prove to be much more multifaceted. In many cases, the current practice of maximal reforestation with fast-growing species is probably not the best response to complex land-use–water service linkages. There might be space for more participatory and economic-incentive types of tools. But in the Vietnamese context, it is the perception of the State, as the *de facto* representative of the service users, which ultimately matters.

A second potential driver of change would be if, under the simultaneous processes of local peoples' empowerment and society's increasing demand for forest, local villages and households started to resist the command-and-control measures, for instance because the opportunity costs for putting more land under forest cover became too high. This could raise more powerful demands for higher financial compensations. Such higher compensations are unlikely to come out of the State budget or donor pockets, so environmental-service users would need to pay a higher share. Yet, users are only likely to be persuaded to start paying if payments are conditional upon genuine changes in natural-resource management.

Both of these drivers could become important in the medium term, but from the field reality we experienced we do not see indications that any of this would happen in the short term. This assessment is also reflected in the relatively low interest that the PES concept receives among potential Vietnamese partners. There is very limited knowledge about what PES are and, among those who know the concept, there is seldom recognition of what it could do for them. Substantial current interest in PES is basically concentrated among a few foreign representatives (donors, conservation agencies, etc.).

The question is then whether there are scenarios where command and control at present does not work well because State control over land use is deficient. If such scenarios can be identified, would this give the Government an incentive to experiment with new tools? For instance, there are still open deforestation fronts in areas in the Central Highlands where land occupation by migrants happens outside of the control of the State. We did not visit these areas, so our opinion

may be premature. However, one might suspect that under such scenarios of low governance and rapid land-use change, the establishment of PES contracts that generally require trust between service providers and users and effective control over natural resources might also be extremely challenging.

What potential role could PES-related research have in Vietnam? It could well be that such research would not be much about PES as developed in the literature, but more about how to introduce effective economic incentives at the margin of a State-run land-use planning system. While the relevance of that effort to the current global debate about PES would be limited, research in this area could potentially have positive impacts on conservation and livelihoods in Vietnam. In addition, the lessons could be relevant to other socialist systems opening themselves to market forces—notably to the large northern neighbour, China.

One such area of experimenting with changes at the margin of the existing system is to differentiate payment rates for protection. Our results showed that payments in the name of equity are typically being distributed to a large number of rural households, but the per-household amounts thus become so small that they are insignificant for most recipients' livelihoods. In addition, while a system of flat per-hectare rates may be equitable, it is not necessarily fair: depending on the distance and accessibility of the forest, labour time of patrolling the contracted forest area will be quite variable. It would likely be more efficient to reduce the number of contracts, and instead pay a higher rate in those contracts where patrolling costs are high, and where the degradation risks and the benefits are highest, i.e. favour those forest areas that are most strategic. Our results also indicate that a model with (groups of) households specialising in forest protection proved to be more efficient than the fully egalitarian model, either on a household or village basis.

Both CIFOR and the RUPES programme ('Rewarding the Upland Poor for Environmental Services') of the World Agroforestry Centre (ICRAF) have tried to assist efforts to establish PES trials in Vietnam. So, what type of sites should one look for regarding prospective future work on PES in Vietnam? As a caution, it is not certain whether one can find any suitable site at all to carry out a full-fledged PES experiment. But from this report, three suggested site-selection criteria emerge, in order of priority:

1. **Payments are feasible:** First priority should be to choose a site where there is a well-defined demand for environmental services that can be transformed into a clear willingness and ability to pay. This is much easier to accomplish if there is a single service buyer with an established revenue flow, e.g. a hydroelectric dam depending on low sedimentation and upstream land-use controls. Conversely, this is a much harder task if potential buyers are multiple and poor agents that need to first be persuaded about the validity of land-use linkages, e.g. coastal fishermen potentially harmed by the same uncontrolled upstream sedimentation.

2. **Command and control does not work:** If there are sites where command-and-control measures either have failed already, or are unlikely to (continue to) succeed, it would probably be much easier to get official buy-in from the Vietnamese authorities to an experimental scheme than in sites where the State's administrative system is already well-established and relatively successful.
3. **Small scale, clear land-use linkage:** A pioneer PES scheme is more likely to be established and to succeed in an area where there are few service buyers, few providers, and where the land-use–service provision linkage is solid. Once such a pilot scheme has been established, it could possibly serve as a demonstration site showing that PES can work in Vietnam, with a potential for replication and for eventually influencing policy and land-use decision making.

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Payment is good, control is better

Why payments for forest environmental services in Vietnam have so far remained incipient

Payments for environmental services (PES) are globally a highly promising tool for the conservation and restoration of forests and other environmental assets. In developing countries, a series of experiments with this emerging instrument are underway. Is Vietnam one of the countries where important PES experiences have been made?

This report clearly answers this question with “no”. Based on field work in four provinces of Northern and Central Vietnam and interviews in Hanoi, the authors found important domestic concerns for environmental services in Vietnam, in particular the protection of watersheds. But there are a number of major obstacles to the use of PES. First and foremost, the State has so far allocated little forestland to households - much less areas that are critical in terms of environmental services. There is thus no real land-use choice whether or not to ‘provide’ environmental services, since protection is ensured by quite effective command-and-control policies, thus conflicting with the voluntary nature of PES agreements. Second, those conservation-oriented payments that do exist, notably Programme 327 and its successor Programme 661, are designed to cover the opportunity costs of labour in the protection of State forests; they are basically forest-guard salary payments. But they typically make up only 1-2% of rural households’ income and are often not fully conditional, and thus in most cases end up being inefficient as independent conservation incentives. Reforestation subsidies provide a more significant contribution to household incomes, but are probably in most cases predominantly motivated by concerns for increasing timber production, rather than environmental services.

Even though PES thus currently does not exist in Vietnam, it could potentially play a role in a number of future scenarios. It could be used in places where command-and-control measures do not work well, in circumstances where the State decides to extend household control to environmentally critical lands, or if new environmental service markets receive a boost, such as carbon sequestration, nature-based tourism and biodiversity protection on privately allocated lands. However, that would require a regulatory model where the State *de facto* delegates much more land-use responsibility to rural households.

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