World Agroforestry Centre

Fairly efficient or efficiently fair:
an evaluation of payment schemes for environmental services in Asia

photo: Arif Prasetyo

RUPES series

Key findings	Implications
• There are gaps between PES concept and practice to increase environmental service provision and in tandem improve livelihoods.	• Payment for Ecosystem Services should encompass shared responsibility among relevant stakeholders in providing and protecting ecosystem services, beyond financial transfer and contractual agreement between ES seller(s) and buyer(s).
• Shared responsibility between stakeholders is integral to provide and protect ecosystem services	• A successful PES scheme needs an honest and trusted intermediary . Multiple sets of knowledge and perspectives needs to be analysed to create a fair and efficient PES scheme
• Although PES schemes do not drastically change the livelihoods of participants, linking them with external stakeholders created opportunities for participants to diversify or capture greater value from their income sources	• Recognition from governments and external stakeholders can be considered as incentives to foster farmers' commitment to the scheme.
• Non-financial payments can be incentives for ecosystem service providers to participate in PES schemes.	• Provide non-financial incentives such as public social investments including education and health services, good road conditions, security of land tenure, recognition as environmental champion and trust of the government.

Introduction

Conserving the environment in tandem with alleviating poverty is a primary goal in the objective to improving the environment, particularly in Asia, and Payment for Ecosystem Services (PES) is recognised as a tool to help achieve these two goals.

Market-based instruments such as PES have been developed to capture at least some of the financial value of environmental services by monetising and commoditising environmental services in response to the fact that conventional markets fail to reflect the full or true value of free services such as pure water, which saves the need for artificial purification, or natural pollination, which enhances crop yields.

Conceptualising PES in Asian countries is, however, still limited, particularly in answering the question of how to achieve a balance of efficiency and fairness when changing land use, sociocultural values and the behavior of stakeholders. The dominant conceptual approach towards PES renders it primarily as a way to improve economic efficiency, a view derived from the British economist Ronald Coase.

Initially the PES concept was strictly defined as a market-based environmental policy instrument to achieve ecosystem protection in the most efficient manner. Efficiency is defined as producing the greatest social value (as determined subjectively by individuals, and as measured by economists either in markets or by using non-market methods) for the least social cost, resulting in positive net benefits.

The "efficiency" argument for PES is that a PES instrument should not be burdened by additional social equity goals in achieving its cost-effective goals of ecosystem services provision. However, Nicolas Kosoy and Esteve Corbera argued in their scientific article that commoditising ecosystem services was problematic because it stimulates efficiency over fairness. Case studies in Latin America showed that social values beyond financial payments induced participation in PES and PES recipients mostly rejected monetising ecosystem services.

A recent review by Sven Wunder from the Center for International Forestry Research focused on "The insistence on the importance of equity and the diversity of institutional contexts", which highlighted the potential for incorporating both equity and efficiency. Thus, there is a clear need to incorporate the context and perspective of local stakeholders in formulating an effective PES scheme, particularly when PES schemes are applied in developing countries with skewed wealth distribution, contested property rights, low law enforcement and weak institutions.

Empirical research in nine areas within Indonesia, the Philippines and Nepal into the potential for payment

Recognition from the government and external stakeholders as one incentive form to foster farmers commitment to the PES scheme (photo: RUPES team)

for watershed services and in the Philippines case, carbon sequestration, between 2002-2012, is being used to test the hypothesis that PES implementation needs to balance efficiency and fairness concepts to provide sustainable solutions that increase ecosystem services provision and enhance livelihoods.

Combinations of agro-ecological zones (ranging from tree-based landscapes, and intensive agriculture and urban land use systems) were distinguished in these sites for analysing potential establishment of a payment for ecosystem services scheme.

Most of the sites focus on rewards for watershed services under private and public schemes. Two pilot sites (Singkarak, Indonesia, and Kalahan, the Philippines,) are testing the voluntary carbon market and one of the sites (Bungo, Indonesia) is seeking opportunities for an eco-certification scheme of rubber agroforestry.

The stages of implementation are also varied between these sites, ranging from the initial development of PES, where the intermediary partners are conducting scoping studies, to mature schemes, where contractual agreements have been signed and schemes are ready to be scaled up.

In rural areas of Asia, traditional land and resource management systems are failing due to population increase and subdividing land, which leads to overuse. Skewed land distribution often compels low-income people to survive by cultivating marginal land, which leads to erosion on sensitive slopes and other environmental problems.

Without tenure, often with only passing claims on the land they cultivate, low-income people are less likely to make investments to protect natural resources. Market imperfection and policy distortion that neglect the social and economic importance of ecosystems are claimed as the root causes of environmental problems in Asia. These socioeconomic conditions were apparent in the nine research areas analysed for this study that are part of the Rewarding Upland Poor for Environmental Services (RUPES) project of the World Agroforestry Centre (ICRAF) Southeast Asia Region.

Main findings

There could be coinvestment in environmental stewardship as opposed to a strict and prescriptive PES definition.

The prescriptive Coasean PES definition disregards equity issues on the belief that the aggregate gains and losses by different economic agents is more important than how they are distributed in society, and that a poverty alleviation goal might reduce the economic efficiency of the scheme. PES is mostly ruled out in developing countries if this definition is strictly applied.

The result of the ICRAF case studies aligned with the Heredia Declaration of Payments for Ecosystem Services introduced by Farley and Costanza, which concludes that ecosystem service provisions do not require commodification, however shared responsibility is needed to provide and protect ecosystem services.

The tangible benefits for the ecosystem service providers can be conditional on a) the actual enhanced delivery of environmental services (level I), b) maintenance of agro-ecosystems in a desirable state (level II), c) implementation of agreed actions to enhance environmental services (level III), or d) development and implementation of management plans to enhance them with respect for local sovereignty in conserving the environment for both local and external benefits (level IV).

Based on these levels of conditionality and recognition of PES practices in Asia, three distinct perspectives of PES can coexist: 1) Commoditising environmental services, 2) Compensation for opportunities skipped/forgone and 3) Coinvestment in environmental stewardship.

Commoditising ecosystem services operates at conditionality level I with no explicit poverty targets. Standardised units of environmental services are for trade.

Compensation for opportunities skipped/forgone is where land users are paid for accepting restrictions on their use of land and has conditionality at level II or III. This is mostly government-mediated payments to offset the opportunity of more financially beneficial land use.

Coinvestment in environmental stewardship is where PES contracts between ecosystem service providers and buyers are flexible with broad sanction and monitoring requirements. Mutual trust is strong.

Strict conditionality of PES at level I, which is not feasible for watershed services in our Asian case studies, may only be approximated globally for carbon sequestration in current schemes.

ICRAF's case studies show that coinvesting in ecosystem services, supported by human and social capital of the involved stakeholders, is appropriate as a start in the development of PES paradigms. It can take in a much broader range of values, including reconciling individual and group altruism.

Different stakeholder groups value different environmental services

It is important to have encompass an understanding of multiple sets of ecological knowledge in providing and managing ecosystem services to increase efficiency and fairness of a PES scheme.

The appreciation of the various quantitative ecosystem service indicators differs by stakeholder group. In natural resource management, different stakeholders may in fact have opposite interests in utilising a landscape.

However, to ensure an established PES scheme, it is essential to understand these ecosystem service indicators from the perspective of both upstream and downstream local communities, the general public, policymakers and ecological modellers or hydrologists, all of who are involved in a PES scheme. The multiple ecological knowledge approach applied in the pilot sites is to clarify expectations from all relevant actors, avoid unrealistic targets, help define conditionality of PES and offer appropriate monitoring procedures.

Our case studies also showed that the availability of information is only a prerequisite for increasing the quality and sustainability of PES schemes. Interviews with practitioners in this study found that the factors influencing the design and implementation of PES programmes are varied and beyond the availability of multi-perception knowledge and scientific data. Issues of strategic use of information, a discrepancy between scale in the provision of ecosystem services and its investment, and the vested interests of intermediaries and donors, deter the optimal use of such multiple knowledge analysis in designing and implementing rewards for watershed schemes.

Different perceptions of what defines ecosystem services

One of the main problems in designing a PES scheme is that there are widely held assumptions about ecosystem services provision in regard to land cover change. The proposed solutions for environmental problems, including an increase of ecosystem services provisions, are mostly based on the relative merits of reforestation, which shows that ecosystem services are understood to be provided by natural forest but not by other land uses.

Furthermore, a standardised solution to natural resource management is usually the narrow concept of land-rehabilitation projects, for example, planting trees without considering other landscape management techniques and concerns such as constructing a simple sedimentation retainer along the riparian zone to maintain the watershed functions.

From a policy perspective, agroforestry-mosaic landscapes as found in many Asian countries can be a good opportunity to combine economic and environmental targets. In these landscapes, farmers combine elements of the natural forest that provide ecosystem services with trees for productive purposes and intensive food cropping systems.

Yet, potential ecosystem service buyers and policymakers do not always recognise how these agroforestry systems work. For example, agricultural landscapes may not meet the legal definitions of "forest" or be in conflict with the existing land-use regulation systems and policies – even though the land practices can provide environmental services at a similar level to forest ecosystems.

Pro-poor PES to design types, forms and expected rewards

The case studies of PES in Asia experienced shifting perspectives: From the valuing of legitimising cost-efficient and effective natural resource management to concerns about fairness in design and benefit distribution of the scheme. Monetising and commoditising ecosystem services through PES can create technical problems in addressing both efficiency and fairness outcomes. It also raises ethical arguments by obscuring cultural, political and social relationships in ecosystem service generation.

ICRAF analysed the contribution of actual cash to individual ecosystem service providers from beneficiaries and proved that such design has to attentively consider some key ratios of relative numbers of service providers and beneficiaries, and their income per capita. In this case, the analysis of income and spatial data on Indonesian agro-ecosystems indicated that a modest increased target of 5 percent of annual disposable income of upstream rural household may be difficult to achieve given the population and income structure of downstream and upstream areas in Asia.

Rewards that meet people's needs

Identifying rewards that match with people's needs and expectations is one particularly important aspect of pro-poor PES approaches. The findings from focus group discussions at the different sites suggest there is substantial variation among communities concerning poverty concepts and reward preferences. Hence, pro-low-income PES is heterogeneous and highly context-dependent.

This provides important insights into the various dimensions that well-targeted reward schemes need to address. Our analysis concluded that rewards in the form of human capital, social capital and physical capital – or what are often referred to as non-financial incentives – are very often the most preferred and possible types of rewards. In industrialised countries, public social investments, such as education and health services, good road conditions, security of land tenure, recognition as environmental champion and trust from government to maintain the environment, are part of governments' responsibility, however they are lacking in our case studies.

These aspects combined with high social cohesion that defies the concept of the free-rider (for example, the mindset of: "We don't mind our neighbor enjoying our rewards from maintaining good ecosystem services") support the preference of non-financial rewards.

Different actors may differently perceive ecosystem services provided by the same landscape (photo: Arif Prasetyo)

A multidimensional approach to poverty and livelihoods to enable broader analysis of local perspectives on PES

Poverty as simply income inadequacy is still fairly common in the literature about human deprivation. However, this view must also capture the understanding that income influences people's lifestyles and at the end contributes to the impoverishment of lives.

The perspectives about poverty inescapably surpass the notion of welfare utility and encompass a broader range of capabilities, including the capabilities of pursuing individual happiness. Therefore, increasing the evidence and theory of plural dimensions of human wellbeing support the perspective of multidimensional poverty in analysing local perspectives on PES outcomes.

When examining local perspectives on PES outcomes, our study showed that benefits were mostly non-financial, including expanded social networks with external stakeholders, knowledge and capacity of the community, and small-scale public infrastructure investments.

Direct financial benefits were limited. We presume the non-financial benefits combined with recognition from the governments and external stakeholders can be enough incentive to foster farmers' commitment to the scheme. When financial payment is given, adjusting the value of new contracts is important so the farmers can cover their true opportunity cost if funds from the buyer allow that. However, findings in other PES sites in Asia revealed that most of the schemes could not cover farmers' true opportunity cost because buyers had limited funds.

Although the PES schemes did not drastically change the livelihoods of participants, making links with external stakeholders created opportunities for participants to diversify or capture greater value from their income sources.

ICRAF's case studies showed that exposure to these partners also increased the participants' knowledge of conservation and their skills to manage the farmers' organisation. Exposure also helped build networks to improve their businesses and implementation of the PES scheme.

It also highlights the need for awareness of the social dynamics between participants and non-participants and design benefit packages to minimise conflict within communities. Literature on PES mentions that conditional monetary PES forming an extrinsic motivation might crowd out intrinsic motivation of people to do something right for societies.

Experiments showed that people might commit more efforts in exchange for no payment, such as in social markets where reciprocity is expected, rather than expend when they receive low payment, such as underpayment in a monetary market.

Conclusion

Six main conclusions emerged from this study.

First, the empirical observations of emerging PES-mechanisms in the case studies in Asia indicate that the ability to balance efficiency and fairness in a PES scheme is strongly influenced by complex behaviour and decision-making at the individual level of ecosystem service providers and beneficiaries, intermediaries, and supporters of PES (for example, governments and international agents). Stakeholders'

Role of trusted intermediaries is crucial to bridge the interest of ecosystem services providers and buyers in a PES scheme (photo: World Agroforestry Centre)

A pro-poor PES approach must be able to identify rewards that can meet people's need and expectation (photo: Noviana Khususiyah)

motivations, perceptions, power relations and political interest in PES can be used to further shape the design and implementation of PES.

Second, non-financial payments can be important incentives for ecosystem service providers. Such payments have weaknesses, such as giving indirect benefits to environmental service providers, which reduces the effectiveness of the payment and can trigger free riders and patronising effects.

Nevertheless, in-kind reward is often the most feasible transfer because of the often-small budget for PES from ecosystem service beneficiaries that cannot cover the full opportunity costs of the providers.

In-kind rewards avoid neglecting non-participants and examples social cohesiveness, which characterises rural communities in most developing countries.

Third, using multiple ecological knowledge, for example, local, public and scientific ecological knowledge, can be analysed to create efficient and fair PES schemes.

Clarifying on the problems in provisioning environmental services and recommending solutions at each spatial scale leads to more realistic expectations of all stakeholders in implementing PES schemes. The roles of each actor are well-recognised and solutions based on local contexts rather than standardised ones lead to mutual responsibility among PES actors.

Fourth, the ecosystem service providers' decision-making process in joining and implementing a PES contract is influenced by social and institutional factors beyond monetary values. However, rural communities are open to a market-based approach, harnessing competitiveness among its participants as long as the design of the market-based instrument is transparent and does not make them worse-off.

Fifth, evaluating an established PES scheme using a sustainable livelihood framework can provide insights into how a PES scheme can involve actors. A framework can be used to fairly evaluate project implementers because it enables a broader view of impacts.

ICRAF's case study in Indonesia suggests that the role of the intermediary is important and possibly dominant in establishing operational PES schemes. It implies that an honest and trusted intermediary is a key factor to establishing a successful PES scheme. The case study also highlights the need for awareness about the social dynamics between participants and non-participants and benefit packages to minimise community-level conflict.

Finally, ensuring interdependency between fairness and efficiency is the main consideration in designing and implementing a PES scheme in developing countries as the practical implementation of PES begins on the ground so that both the ecosystem and the ecosystem providers benefit.

Citation

Leimona B and van Noordwijk M. 2013. *Fairly efficient or efficiently fair: an evaluation of payment schemes for environmental services in Asia*. Brief No. 39: RUPES Series. Bogor, Indonesia. World Agroforestry Centre (ICRAF), Southeast Asia Regional Program.

World Agroforestry Centre

IFAD
Investing in rural people

For further information please contact::
Beria Leimona (l.beria@cgiar.org)

World Agroforestry Centre
ICRAF Southeast Asia Regional Program
Jl. CIFOR, Situ Gede, Sindang Barang, Bogor 16115
PO Box 161, Bogor 16001, Indonesia
Tel: +62 251 8625415; Fax: +62 251 8625416
www.worldagroforestry.org/regions/southeast_asia
blog.worldagroforestry.org

Layout: Sadewa