



THE FOUNDATION FOR DEVELOPMENT COOPERATION
COLLABORATION AND INNOVATION IN INTERNATIONAL DEVELOPMENT

FDC Discussion Paper

Linking Poverty Alleviation to Ecosystem Service Payments in Asia- Pacific: A Call to Action

FDC BRISBANE

137 Melbourne Street
South Brisbane
Brisbane QLD 4101
Australia

T: +61 7 3217 2924
F: +61 7 3846 0342
E: info@fdc.org.au
W: www.fdc.org.au

FDC FIJI

6 MacGregor Road
Suva
Fiji Islands

T: +679 3100 855
W: www.fdc.org.au

FDC SINGAPORE

20 Jalan Afifi
#04-09 Certis Cisco Centre II
Singapore 409179

T: +65 6438 4112
W: www.fdc.org.au

*Ryan Edwards¹, Shawn Hunter¹, Carly Stephan¹, Myan Phamtran¹, Chris Margules²
and Mike Nurse³.*

ABSTRACT

Ecosystem services (ES) are the direct and indirect benefits that people receive from ecosystems. Healthy ecosystems provide clean and reliable flows of water, productive soil, relatively predictable weather and many other services essential for human wellbeing. The total value of the world's ecosystem services is estimated at up to four times the global GDP: US\$16 – 54 trillion. This recent economic recognition of ES as valuable and scarce services for human wellbeing has led to creation of the Payments for Ecosystem Services (PES) approach to the conservation and management of natural landscapes. PES schemes have traditionally focussed on conservation, rather than improving the livelihoods of (often poor) ES providers. This paper argues that improving livelihoods and reducing poverty can be a core outcome of PES schemes. The many challenges faced by current PES programmes are equally met with new opportunities to innovate and provide new and creative avenues to improve both the livelihoods of the participants and the quality of their ecosystems. We term this modified PES approach PES+.

Asia has some of the most degraded ecosystems in the world and the Pacific has some of the richest. PES implementation in both regions, however, is still limited compared to other global regions and there is immense opportunity to integrate PES into development strategies and programming in the Asia-Pacific, resulting in a more holistic, multi-disciplinary, poverty-centred approach to policy and related programming. The paper concludes with a 'call to action', by outlining a model to

¹The Foundation for Development Cooperation.

² Adjunct Professor, James Cook University, School of Earth and Environmental Sciences, formerly Conservation International, Senior Scientist.

³ Author for correspondence [mikenurse@fdc.org.au].



FDC

THE FOUNDATION FOR DEVELOPMENT COOPERATION

COLLABORATION AND INNOVATION IN INTERNATIONAL DEVELOPMENT

effectively link socio-economic development outcomes with conservation, through PES+. The following specific actions are outlined: moving from conserving to enhancing ecosystems; addressing the knowledge gap; building resilience and sustainability in to PES design; partnering with community institutions; exploring the potential for microfinance institutions to engage in PES+; and trialling action-based, ex-ante, conditional (to human and ecosystem services) and performance-based payments.

The next step is to work with like-minded organisations, donors and communities to apply the insights of this paper in practice.

FDC BRISBANE ●

137 Melbourne Street
South Brisbane
Brisbane QLD 4101
Australia

T: +61 7 3217 2924

F: +61 7 3846 0342

E: info@fdc.org.au

W: www.fdc.org.au

FDC FIJI ●

6 MacGregor Road
Suva
Fiji Islands

T: +679 3100 855

W: www.fdc.org.au

FDC SINGAPORE ●

20 Jalan Afifi
#04-09 Certis Cisco Centre II
Singapore 409179

T: +65 6438 4112

W: www.fdc.org.au

1) Rationale: what is PES and how is it relevant for poverty alleviation?

Ecosystem services (ES) are the direct and indirect benefits that people receive from the dynamic interactions that occur within functioning ecosystems, between plant, animal, micro-organism communities and the non-living environment (ESCAP, 2009; FAO, 2011). They provide clean and reliable flows of water, productive soil, relatively predictable weather and many other services essential for human wellbeing. The 2005 Millennium Ecosystem Assessment concluded that 60% of the world's ecosystem services are being used unsustainably, and highlighted the need for innovative approaches to natural resource management that would deliver significant and tangible improvements to the conservation and management of natural landscapes.

Recognising that ES provide a wide range of direct and indirect benefits to human production and consumption has led to a more holistic perspective of natural resources. The total value of the world's ecosystem services is estimated at up to four times the global GDP: US\$16 – 54 trillion (Costanza, 1997). This recent economic recognition of ES as valuable and scarce services for human wellbeing led to creation of a Payments for Ecosystem Services (PES) approach.

Box 1. Key definitions as they are used in this paper

Payments for Ecosystem Services (PES) :

The generally accepted definition of PES is a payment scheme which is “*a voluntary transaction in which a well-defined environmental service, or form of land use likely to secure that service, is being bought by at least one buyer from a minimum of one ES provider, if and only if the provider continues to provide that service*” (Katoomba Group and UNEP, 2008). It is also important to note that the payment causes the benefit to occur where it would not have otherwise (i.e. the service is “additional”). There are a number of different types of markets and payments. Markets are broadly categorised as to whether they are public payment schemes (e.g. regulated cap and trade schemes such as the regulated carbon market) or self organised private deals (e.g. a private watershed management scheme that may reward forest based communities for providing clean water to downstream users). Payments can be made to purchase land, purchase rights of access and use, to encourage good management, to support environmentally sustainable businesses (e.g. eco-tourism) or to compensate for unavoidable degradation elsewhere (offsetting).

Poverty Alleviation

Although poverty is usually measured exclusively in monetary terms, such as the World Bank benchmark of \$2 per day, we recognise the multi-dimensional aspects of poverty and use a more expansive definition of poverty: as a lack of capabilities and freedoms to be able to make the life choices that an individual values; and as a violation of human dignity (UN, 2007; Sen, 1999). A corresponding alleviation in poverty at an individual or community level is as a result of improvement in individual or community capabilities, the realisation of chosen development pathways and access to basic human services and social justice.

Local institutions and organisations

The term institution is sometimes used interchangeably with organisation. There are many types of institutions, some of which are also organisations (like banks, local governments or courts)



and others which are not (like markets, taxation or the law). An institution is an agreed set of norms and behaviours that persist over time by serving a collectively valued purpose. An organisation is a structure of recognised and accepted roles (Uphoff 1992). In common pool resource management (e.g. a community managed forest), it is quite feasible to have a strong functioning local institution (e.g. internally recognised rules of management) without the organisational elements (e.g. chairman, committee) in place. *Local* refers to systems of governance and management proximate to natural ecosystems.

As regulatory approaches in many developing countries have failed to adequately achieve conservation goals and proven to be very expensive, governments require more effective, equitable and efficient ways of achieving positive environmental outcomes. The PES method has been heralded as a viable option and the development of PES programmes is increasing globally. PES is essentially a market-based mechanism based on two core principles:

- Those who benefit from environmental services should pay for their provision; and
- Those who provide environmental services should be compensated for doing so (Pagiola, 2007).

PES provides an opportunity for ecosystem service beneficiaries to recognise the value of ecosystem services via payments and create the potential for sustainable financing to complement public funding (ESCAP 2009). A traditional regulatory approach to protected area management depends on government funding. PES schemes, however, can also incorporate private sector financing to help establish long-term financial support (both in establishment and implementation of schemes). Flexibility in the design of PES schemes allows for the possibility to integrate public and private participation to maximise service delivery and environmental outcomes.

The realisation that areas providing valuable ecosystem services also tend to be occupied by the most poverty affected communities has led to a widespread expectation that PES schemes can contribute to poverty alleviation (ESCAP 2009). Indeed, many PES schemes have been designed and piloted with poverty alleviation as a secondary or joint objective alongside conservation. These programmes demonstrate the *potential* to channel substantial amounts of money into the enhancement of the ecosystem-service-producing natural capital and concomitantly improve the livelihoods of the world's poorest.

The purpose of this discussion paper is to articulate a development approach that synergistically links poverty alleviation with PES in the Asia-Pacific region. We begin by reviewing the literature and case studies on PES with respect to its potential to contribute to, or even lead, sustainable eco-efficient poverty alleviation efforts in the Asia-Pacific region. After providing a brief introduction of the PES paradigm and its potential and applications in poverty alleviation strategies, we identify the critical constraints facing the PES designer – particularly in the Asia-Pacific region – and then suggest some opportunities to move this practice forward in a Call to Action.



2. Background : The experience so far with PES schemes

Since the first legally recognised PES programme in Costa Rica in 1996, there have been more than 280 PES programmes documented worldwide (Landell-Mills and Porras 2002, quoted in ESCAP 2009). Despite mixed results, the impact of climate change on natural ecosystems (particularly in terms of sustainability, increased volatility and increased frequency of extreme weather events) has brought improved ecosystem management sharply into focus. With an improved understanding and communication of both the expense and sometimes perverse social outcomes associated with conventional, regulated, command-and-control approaches to ecosystem management, PES has retained the interest of practitioners and policy makers as a potentially useful modality for conservation and development. The relatively recent development of international markets for carbon sequestration services (both regulated and voluntary) are also an emergent, well-financed and growing articulation of PES. For example, the Indonesian province of Aceh has emerged as an early adopter of a new commercial REDD¹ market place, to support its ban on commercial logging (ESCAP 2009).

Some countries have begun acknowledging the importance of nature in national legislation, creating an enabling legal environment for PES. In April 2011, Bolivia instated a law to recognise *Pachamama*, or Mother Earth, and has established 11 new rights for nature, which include:

- The right to life and to exist.
- The right to continue vital cycles and processes free from human alteration.
- The right to pure water and clean air.
- The right to balance.
- The right not to be polluted.
- The right to not be affected by development projects that affect the balance of ecosystems and the local inhabitant communities (Vidal, 2011).

Countries like Bolivia have recognised that if human development is to remain a priority for government, a simultaneous commitment to the value of natural capital must occur. This has been reaffirmed in the recent 2011 UNDP Human Development Report: Sustainability and Equity for All, which urges that 'urgent global challenges of sustainability and equity must be addressed together – and identifies policies on the national and global level that could spur mutually reinforcing progress towards these interlinked goals.'² Under such legal and policy imperatives, degrading finite resources and polluting fragile environments that support all forms of life is detrimental to the future of the human condition. In the Asia-Pacific region, China, Vietnam and Indonesia have recently introduced legislation to value biodiversity and support payments or compensation for provision of ecosystem services.

Experiences in implementation, however, have been mixed. An analysis of existing PES programmes has revealed a number of risks to be managed when designing PES, including:

¹United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries

² UNDP website, see: <http://hdr.undp.org/en/>



- Certain PES mechanisms (e.g. carbon sequestration) do not mandate indigenous species for restoration or protection work, leading to potential perverse outcomes for biodiversity.
- There are problems associated with accurate valuation of ES – existing methodologies are complex and subject to error, omission and change.
- The presence of multiple buyers and suppliers can lead to i) higher transaction costs, particularly where ES producers are in multiple, scattered locations; and ii) free-rider behaviours, particularly where local institutions are absent or weak.
- Success in creating schemes where ecosystem services are valued may cause genetic and species dimensions of biodiversity, as well as some attributes of ecosystems, to be lost (Redford and Adams 2009).

Recognising the risks associated with more traditional conservation focussed PES schemes, it is not surprising therefore, that although there is significant potential to alleviate poverty through PES schemes; this has yet to be successfully reflected in PES design and implementation.

3) Payments for Ecosystem Services for Poverty Alleviation (PES+)

1.1 Introduction

It is readily acknowledged that a significant number of communities in developing countries rely directly upon natural ecosystems for their livelihoods and wellbeing. Maintaining the health, vitality and biodiversity of these ecosystems is thus critically intermingled with their survival.

Many developing countries face the dual challenge of seeking to increase economic growth and decrease environmental degradation, when their most disadvantaged communities may be living within or proximate to natural ecosystems and dependant on them for their wellbeing. Leveraging the use of ecosystems as an additional asset (as natural capital) is possible and this is where PES can indeed play a role. The opportunity to leverage and build these assets (natural, together with existing social, human, financial and physical capital), while simultaneously maintaining or improving ecosystems, should be available to communities interested in participating in such schemes.

However, there is an ongoing debate, regarding the effectiveness of PES schemes to reduce poverty. Although there is significant interest in using Payments for Ecosystem Services for Poverty Alleviation it is generally agreed that PES has not been conceived as a mechanism to reduce poverty as a primary objective (Katoomba Group and UNEP, 2008 and Pagiola 2007). Part of the failure to demonstrate effectiveness, we believe, has been in the concept stage - on how poverty is defined and measured. Poverty is often thought to be synonymous with low or zero monetary income; however it can also be defined (and therefore intervened upon) in much more dynamic terms (see Box 1 above) such as: the absence of opportunities, lack of basic human services and access to education, lack of capabilities; emotional and social instability; and unhappiness (UN, 2007, Sen 1999).



Within this broader context for PES+, the inclusive social, economic, environmental and cultural development opportunities associated with PES highlight their potential to be designed as an effective multi-dimensional development and poverty alleviation practice. For example:

“one should not be trying to find those few and far between landscapes where the contexts are favourable enough to allow PES to benefit the poor, but instead one should be looking at how to strategically develop PES to ensure that its design and institutional framework always contributes to the sustainability of both rural livelihoods and ecosystem services.”[Kandel and Cuellar 2011: 4]

Furthermore, measurements of the success of PES schemes would also expand beyond solely monetary considerations (income generation) to broader attributes of poverty such as improvement in individual and community-level capabilities, improved access to human services and the realisation of chosen development pathways. PES+ schemes, therefore form a package of instruments for environmental conservation with pro-poor benefits.

1.2 Exploring the relevance of PES for poverty alleviation

Kandel and Cuellar (2011) analyse PES schemes and describe in a typology (described as “perspectives”) of PES schemes:

1. PES schemes designed with the key objective of conservation. Designers of schemes with this perspective regard a poverty reduction objective as ineligible, because it impedes efficient market functioning. Any poverty reduction outcomes would be bi-products of such a scheme.
2. PES schemes designed with poverty reduction as a secondary objective to conservation. Special efforts are made to help poor households and communities avoid potential negative effects of PES programmes. Efforts may include improving market access for poor producers (e.g. forest dependent communities) but they do not address other barriers to participation such as capacity and rights.
3. A third category of PES schemes have pro-poor objectives as an integral component of the conservation and sustainable use of ecosystem services and address market access barriers and pro-poor compensation in design. In this model PES is a tool for both poverty reduction and sustainable natural resource management, within the constraints of the market.
4. In the final PES model, the PES scheme takes a systems approach, strengthening financial, natural, social and human capital and is embedded in the local context.

In this final model, the poverty alleviation and development discipline is more or less united in the need to contextualise programmes to be inclusive and proactive in addressing harmful increases in inequality. This is echoed in the PES literature: For example, Kumar (2005) reaffirms this, surveying several PES programmes to find that no markets for ES have ever contributed substantially to poverty alleviation unless proactive efforts were made to shape the markets and provide equal access to low income producers of ES.

Despite the UNEP (2008) statement that “PES are not designed to reduce poverty”, they too support this position and argue that it is important to ensure the poor are not marginalised. They



must not see a decline in their overall wellbeing when ecosystem services are priced or marketed. In order to ensure this outcome, pro-poor objectives must be an integral component of conservation and sustainable use of ES.

Further to this, there is a consensus among development economists that development strategies must be adapted to individual circumstances (Rodrik, 2007), and robust empirical evidence that inequality and social exclusion are retarding for most (if not all) development outcomes, including traditional monetary measures such as economic growth (Carmigani, 2011).

The concept of PES is still young, with plenty of scope for further critique, improvement and refinement of the schemes. In terms of finding the optimal alignment of socio-economic development and conservation design elements, there is plenty of potential for innovation on small test sites, and scaling-up the concepts that succeed. We will now explore some of the key considerations for successful PES+ schemes.

1.3 Key challenges and considerations in PES+

Cash or other payments

There are a wide range of PES payment types and mechanisms, ranging from cash to in-kind payments; one-off to regular payments. Intermediaries and administrators play key roles facilitating the process of linking buyers and sellers. Cash payments to ES providers are the most common form of PES and these can be made at the individual or group level. Cash payments offer flexibility and freedom. Cash more readily replaces (temporary or permanent) lost income as a result of observing newly introduced land use changes and is less prone to being seen as paternalistic (FAO, 2011). One-off cash payments can also help farmers transition from one technology to another (Kumar, 2005). Differentiated payments within a scheme can also be effective. For example, a PES watershed scheme in Costa Rica differentiated between land uses, with different rates being paid for forest conservation, reforestation and agro-forestry.

By making payments at the community-level, PES+ schemes have the potential to be designed to maximise their development multiplier effects. For example, community funds may be an option for lowering costs and spreading benefits to landless members of the community. Financial support may be provided for specific community goals, such as building of a school or clinic to remunerate for ES. PES with communally-managed resources have the potential to be longer-lasting if they are managed transparently and in a way that is appropriate to the local context, where local people affected are satisfied with the outcomes over time (UNEP 2010).

Notably, channelling payments directly to women in communities with gender disparities has also been effective in increasing spending on education, health and nutrition. Similarly, when women participate in governance activities, there is an increased likelihood that policies will reflect the needs of all of society, as they bring different perspectives into the decision-making process. Furthermore, it is understood that a lack of female representation severely limits policy effectiveness (OECD, 2008; World Bank, 2001 and 2011).

In some communities in-kind compensations are more welcome and even considered more valuable. For example, a PES scheme in Indonesia offered farmers the possibility to legalise their



land tenure situation (Lemonia and Laxman, 2009). This had valuable multiplier effects in easing fears of eviction and allowing communities access to government social services, such as health and education (FAO, 2011). When the scheme involves reforestation or agro-forestry, seedlings or other materials may be provided to replace forgone production such as grain in the Chinese National Sloping Land Conversion Programme (SLCP), or conditional investments in activities that can compensate farmers for restriction of resource use. For example in Pimampiro, Ecuador, in return for conservation of cloud forest, support was provided for the development of orchid nurseries (FAO, 2010).

Selecting the appropriate payment types helps to ensure reliable transactions between buyers and sellers, thereby building mutual trust. A combination of payment types may be most appropriate for PES+ schemes. Regardless of the payment mechanism selected, the key is that all stakeholders must agree in the early stages of the project design.

Targeting

Targeting using exclusively environmental factors in classical PES schemes is the norm, based on ecosystems service factors (biodiversity, clean water) and justified in order to reduce market externalities (Pagiola 2007). There is much more limited experience of targeting using poverty factors.

The payment system must be explicitly designed to not exclude the poor, through low transaction costs and creative land tenure requirements. Many advocate that PES should not 'target' the poor, but within the PES the poor can be provided with the resources to adopt the desired practices (Pagiola et al, 2005). However, targeting the poor within a PES programme will inherently increase the likelihood that the poor are included in activities and therefore potentially able to be lifted from poverty (Gauvin et al, 2010). Addressing poverty also proves critical to sustaining any environmental benefits (ibid).

Conditional Cash Transfers are a mechanism used in government programs for the targeted delivery of human services to poor families. CCTs are defined as *"programmes that transfer cash, generally to poor households, on the condition that those households make pre-specified investments in the human capital of their children"* (World Bank, 2011). Payments are contingent on investments in the human capital (e.g. the children of poor families) and have some conceptual similarities to PES (payment for a service) and could potentially be applied in a PES+ program.

With regards to environmental and efficiency performance, several papers suggest that 'optimal targeting' is a key determinant of PES performance. Chen et al (2010) evaluated household participants in a Chinese PES and found that the efficiency of investment in discriminative/tiered payments schemes – where they differed according to the opportunity costs faced by participants – was significantly higher than flat payment schemes.

The key factors that influence pro-poor participation rates include linking the initiatives with climate adaptation and the Millennium Development Goals (MDGs), flexibility to ensure scaling, and the tenure rights of the poor in relation to the markets (Milder et al, 2010). Participants



must also meet four sequential criteria: eligibility to participate; desire to participate; ability to participate; and competitiveness relative to non-poor sellers of ecosystem services.

Implementation

Firstly, it must be decided whether to disburse the payments before or after the service is provided. Typically payment is made conditional on the successful delivery of the service. However, there is a strong case to explore ex ante, potentially combined with ex-post payments. There are high adaptation costs and initial capital constraints faced by PES sellers and initial cash payment may help to alleviate such credit constraints. There is also commonly a lack of trust between the participants and initial payments may help to build social capital, strengthen the relationship and sustain the PES system. Therefore, ex-post payments based on performance appear more appropriate (pro poor) if combined with ex-ante payments and if they reflect a range of performance criteria, both socio-economic and environmental.

Finally, given that ES are often contingent on environmental factors, which are highly volatile, we argue that a pro-poor PES scheme must have built in mechanisms to protect the poor against external shocks that their actions cannot determine. In the least, partial payments in advance, or with a built in buffer to allow for a period of lower quantities due to seasonal variations, would be a crucial consideration in implementing a PES that genuinely protects the most vulnerable people and their livelihoods.

Buyers of ES often pool resources to continuously pay landowners for actions that promote joint delivery of services from the same plot. This 'layering' involves multiple services to different buyers, and is well demonstrated in the Noel Kempff Mercado Climate Action Project in Bolivia³ (Wunder et al 2009). Similarly, 'piggybacking' involves integrating biodiversity into PES schemes that provide other services without explicitly or continuously paying for the biodiversity component. An example of this is when a premium is charged based on the pristine nature of the site, such as in Bolivian community-based ecotourism. This type of packaging and bundling with other more marketable ES allows for access to more diverse funding sources. Some buyers are willing to pay and conserve beyond the bundle, but the majority are disinterested in buying more than one service (ibid). This makes bundling, piggybacking and layering more difficult in practice as the demand for individual services in isolation is then distorted, further affecting both the cost to provide and the willingness to pay (Wunder et al 2008).

To effectively bundle ES we need to better understand how multiple ES interact with one another over time. This must include the interconnectivity of the social, economic and ecological processes, as well as trade-offs and synergies between multiple ES. Investment in particular ES may result in reducing other services; it must be ensured that the losses do not outweigh the benefits in these cases and that the increases correspond to increased human development.

³ The Noel Kempff Climate Action Project is establishing credible and verifiable methods to quantify greenhouse gas benefits of land-use change and forestry projects. Developed under the United Nations Framework Convention Climate Change, the project conserves natural forests that would otherwise have been subjected to continued logging and future agricultural conversion.



Valuation

Monetary estimates of ES are challenging due to a lack of information regarding local ES conditions that influence the pricing and results of the system (Chiabai, 2011). As a result, there is imperfect information to both the buyer and the seller, so PES faces inherent difficulties in setting the price and allocating quantities. This can lead to adverse selection, which is when different quantities [and in the case of the immeasurable, such as certain environmental indicators, qualities too] are sold at a single price, so that too much of a low quality product and too little of a high quality product are traded. These asymmetries are exacerbated when power dynamics come into play. For example, if a large firm is dealing with a small landholder, negotiating power and a lack of information may lead to the smallholder receiving below market price, particularly given our limited knowledge of valuing ES.

The key channel through which these inefficiencies and asymmetries affect the ability of a PES market to function is transaction costs. The higher the transaction costs of each contract, the less attractive each contract will be for a small land holder, as the costs are spread over a small area. These scale effects will lead to a system being dominated by large firms and big landholders as their marginal costs are much lower. Smaller players also tend to lack technical capacity and face significant barriers to entry, including initial capital and ongoing transaction cost constraints (Porras, 2010). This presents three options:

Firstly, directly targeting and supporting smallholders and the poor (Porras, 2010). Several obstacles may impede the ability of poor to participate in PES schemes, including a lack of technical capacity to implement the required environmental/land use practices, lack of finance to bear the up-front costs of changed land use practices, or simply not having the necessary inputs. While evidence suggests that these are not binding constraints, they have been significant enough in many cases to warrant targeted assistance to overcome these problems, for example, in direct technical assistance or targeted credit programmes, subsidies and capital dispersal (Pagiola, 2007).

Secondly, transaction costs have been found to be a key determinant of programme efficacy and efficiency, so it is important to keep transaction costs low. Specific mechanisms must be devised to counter high transaction costs. A common way around the inherently high costs to smallholders is collective contracting or community-based programming. Nelson et al (2009) studied PES as a framework for community-based conservation in Tanzania and found that the main factors in establishing a PES were:

- Creating an enabling institutional framework with respect to village governance institutions and land tenure.
- Low opportunity costs as a result of the compatibility of local livestock management practices and the maintenance of habitat.
- Low transaction costs as a result of prior experiences with establishing private community tourism ventures in the area.

In this case it is important to ensure access to all across the community and fairness in the decision-making and local governance; the outcomes in this case, as always, are determined by the institutions in place.



Tacconi (2009) also conducted a comparative case study across Africa, Asia and Latin America, finding that involving communities in a PES scheme's implementation of REDD can be more beneficial than targeting individuals. This was due to reduced transaction costs, building on local community institutions, strengthening social capital and establishing long-term foundations for improvements of local livelihoods. For example, Filipino communities participated without transfer of rights; instead the local government receives money then improves local community and infrastructure. Note that this could be contentious because it is largely dependent on the governance in place, and also the fact that many services offered, such as security, health, education etc are universally recognised as basic human rights.

Thirdly and finally, cost disparities facing the poorer and marginalised participants could be subsidised by donors to ensure that all participants pay the same marginal cost. That is, equity and social inclusion could be treated as a public good and accounted for externally, or removed from the system altogether. These direct donor subsidies could effectively level the playing field and not only ensure the market/system remains efficient, but also fairer and more conducive to long term positive social outcomes.

Institutional considerations

Bad institutions and weak governance negatively impact economic growth and human development outcomes like health and education, whilst also adversely affecting distributional outcomes. Institutions' most important affect in the PES context though, is perhaps the fact that they have indirect effects on policy outcomes, termed conditionality effects. Weak institutions undermine system efficiency and effectiveness, particularly with respect to public policy, the public sector, and public good investment. Innovative and effective institutions are an absolute necessity for the functioning of the market and for a PES scheme. Robust formal and informal institutions, supported by an enabling legal framework, are needed because they substantially reduce transaction costs and other risks (Kumar, 2005). For brevity, we only explore issues around the property rights and broader governance dimensions of institutions.

It is important that land tenure issues and property rights are well-defined and, ideally, secure. This is particularly important for the poor and while PES does not necessarily require land titles, there must be reasonably secure land tenure to implement a PES programme. Tenure can be *de jure* (enabled in law) or *de facto* (informally recognised under indigenous institutions as common pool resource management). Under ideal conditions for PES, these tenure situations co-exist and are mutually reinforcing, though in practice they rarely exist in this way. Areas with existing conflicts over land tenure should be avoided as tenure insecurity will make a PES programme counter-productive; settlers may flock to the areas after payments, or power disparities will lead to the dominant displacing the poorer, more vulnerable populations (Pagiola, 2007).

Studies have shown that the acceptance of PES depends on stakeholders' perceptions of land rights irrespective of actual rights (George et al 2009). There is often a chaotic assignment of property rights to ES, and this can erode the desired ecological or social outcomes through conflict and tension, even undermining the resilience of any PES strategy by weakening the underlying institutions. A particular institutional challenge is the fact that ES consumption,



production and management occur on different scales, meaning that there must be alignment between the local, national and international institutional frameworks that the PES is set in.

“To date, national and international institutions that govern PES are often designed in ways that exclude, instead of include, individual small holders and communities. Institutional design must strengthen rural communities’ negotiating platforms in relation to other national and international actors, which have far greater political and financial power. This essentially means that the rules of the game need to explicitly take a pro-equity position in the promotion of PES schemes.” [Kandel and Cuellar 2011: 7]

This argument is consistent with the broader institutional economics literature: inequality erodes and undermines institutions (Savioa et al, 2010) and therefore programme and policy effectiveness and poverty alleviation efforts (Abed and Gupta, 2002; Gyimah-Brempong, 2002).

In summary, in order to overcome the challenges identified a ‘successful’ approach on a test site would need to satisfy the following criteria:

1. An improvement in recognised human development indicators; and
2. An improvement in the health of the ecosystem, or at the very least, maintaining the health and integrity of the ecosystem as taken at baseline measurements.

Part of the solution may lie in a paradigm shift in those designing the more classical schemes to PES+.

“One of the greatest benefits of environmental service reward systems may lie not so much in the payments themselves, but in stimulating a change in attitude toward poor smallholders in environmentally sensitive areas: a shift from the state as protector to the smallholder as steward” [Swallow et al 2005: 33].

4) Regional perspectives

In the developing world, Latin American countries have had the most experience with PES programmes to date; however, the Asia-Pacific region is now seeing greater investment and development of PES programmes. This will continue to grow as further exploration and the implementation of pilot programmes demonstrate the value PES has to offer. While experiencing some of the worst environmental degradation issues in the world, the Asia-Pacific region has a great need to utilise effective conservation programmes in which PES could play a major role.

Any Asia-Pacific regional PES+ framework will explicitly need to also consider a number of factors which would influence PES+ programmes, such as: the variety of cultures, particularly how these relate to natural resource management and social structures; varying demographics, including gender participation; the levels of community ownership; funding and cooperation levels; and the role of local institutions.

As discussed earlier in this paper, PES programmes globally face several general challenges.



While these general challenges are evident to some extent in all PES schemes, PES in Asia faces greater challenges from:

- The difficulties of finding potential buyers of ES.
- The varying natural resource governance structures between nations.
- Comparatively high population densities and low land holdings per household which potentially increase PES transaction costs.
- High opportunity costs, poor coordination and limited knowledge of success factors for PES (Hawkins, 2011).
- Much of the forest and agricultural land is state-owned, resulting in weaker *de jure* land rights amongst individuals and communities.
- Lack of scientific data available to assess land use patterns and the environment (Huang and Upadhyaya, 2007).

Similarly, specific Pacific challenges include:

- The issue of 'Big Man politics' can result in highly skewed redistribution of wealth from the PES+ schemes - leaders of tribes/communities may not allow lower level villagers to benefit equitably.
- Pervasive gender inequality. Female participation rates are the lowest in the world and there is a risk that the 'men who make decisions' will not do so in a gender-sensitive manner.
- Generally weak governance and institutional frameworks. 'Wantokism', corruption and lack of transparency can provide a challenging operating environment.
- The region is extremely heterogeneous. For example, there are gross population, economic and human development disparities between resource rich and populous Papua New Guinea and the rest of the Pacific, which mostly consists of small-island states.
- Exposure to significant weather events and natural disasters throughout the region.
- The increasing influence of climate change over Pacific countries, particularly in low-lying regions.

5) Payments for Ecosystem Services Plus (PES+) – A Call to Action

We seek approaches to PES systems that are increasingly designed across development and conservation domains, bridging efficiency and equity priorities, and being specially tailored to individual contexts.

In recognition of the multi-dimensional view of poverty and of ecosystems, we advocate both a programme and a systems approach to the design and implementation of PES+.

Specifically we seek to design and deliver a program that will:

- 1) Develop a suite of site based projects in a range of Asia-Pacific contexts to develop and test locally appropriate PES+ models;



- 2) Employ participatory action research as a *modus operandi* to resolve the complex problems encountered across the range of conventional development dimensions (social, environmental, economic and institutional), and
- 3) Deliver positive local development outcomes for pilot site communities and partners, and develop and share a robust replicable PES+ framework of tools and processes for larger scale application

In taking the concept of PES+ forward, the key attributes of the proposed approach are:

Move from conserving to restoring and enhancing ecosystems

This approach involves increasing current ecosystem quality by employing community members as stewards, with a view to create employment opportunities, develop natural capital and allow service providers to then capture financial returns on natural capital through PES+. Rather than just preventing the erosion of ES, a PES+ scheme should enhance the supply of ES, especially in Asia where ecosystems are amongst the most degraded in the world (UNESCAP, 2008). While most environmental research assumes negative effects from humans and development; social, ecological and technological processes can actually improve ES if a systems approach is taken in implementation. Strengthening natural capital will provide opportunities for indigenous knowledge to be cultivated and applied to managing ecosystems. Testament to the opportunity presented, Milder et al (2010) estimated that the number of low income land stewards that could participate in different types of PES systems by 2030 are as follows:

- Biodiversity conservation: 10 – 15 million
- Carbon sequestration: 20 – 25 million
- Watershed protection: 80 – 100 million
- Landscape beauty and recreation: 5 – 8 million

Address the knowledge gap

We still know relatively little about the interconnectedness of ES and human activity, or how much benefit people receive from different ES (even though we know they do depend on them). Benefits of the environment are often thought of with respect to food production or tourism potential, but we know little about how ES regulate and contribute to human well-being. Understanding this is fundamental to further developing the connection between ES and poverty alleviation, for example, how to get the balance right between different ES which provide the most benefit to well-being. An accurate valuation of ES and a true market price should ideally account for the value that ES bring to health, security, economic and social relations of humans; a more nuanced understanding of this connection is therefore vital.

Peterson (2011) identifies several promising areas for further ES and poverty alleviation research, including: social and natural interactions and dynamics; effective ES assessment and measurement; enhancing ES in degraded areas; governance of ES; and human development in ES. Robust studies based on current case studies or small pilots, perhaps experimental methods, would be valuable in filling this knowledge gap.

Build resilience and sustainability into PES

Ecosystem services analysis has often been static, but it is important to better understand the dynamics if programmes are to be designed to be sustainable over the long-term. To date, not



enough focus has been placed on understanding the social and spatial processes that determine the supply of ES (Peterson, 2011). It is important to understand how multiple ES vary and change over time and what the key social, ecological and geographical factors driving these changes are. Of particular concern is the volatility dimension; building social, economic and ecological resilience into the PES systems to address any abrupt changes in ES is crucial, particularly for the system to possess the pro-poor properties of volatility smoothing and vulnerability mitigation.

Partner with community institutions and facilitate nested governance

Good institutions are typically attained with increased income and development. Attempting to apply PES in developing communities or countries is likely to require working within weak or suboptimal institutional settings. Aside from the transaction costs of PES being high, there are high costs and technical skills required to design, implement and institutionalise a PES scheme, particularly in resource-stretched developing countries and poorer areas. To manage risks and costs, it is recommended to 'piggyback' with (and/or integrate into) other already established pro-poor environment conservation institutions trans-nationally (e.g. REDD, RUPES⁴). This would effectively remove or at least minimise the high establishment costs associated with setting up the PES as well as significantly curb the ongoing transaction costs by utilising the scale advantages of the already established network. For example, old growth or regenerated forests/carbon sinks in Melanesia could be connected to carbon credit trading schemes in Europe, through networks of community institutions.

Similarly, it is worth exploring a transition PES model, where a community-based approach is used in the beginning, to strengthen social capital, institutions and local knowledge on the ES, but then as this community approach and related institutions mature it can transition to a more efficient individual buyer and seller based system. This seems suitable in the Pacific because there is a great deal of tribe and community owned land. This community ownership approach is also a powerful safety net in the informal economy, meaning that strengthening it will help alleviate poverty and increase livelihood resilience. The caveat would of course be to avoid 'wantokism', so oversight might be necessary to ensure full inclusion, participation and empowerment in decision-making and distribution of the benefits, particularly with respect to marginalised groups such as women, youth, the ultra-poor and the disabled.

The role of government will also be critical to enable policy reforms that bring closer alignment of informal and formal systems of land tenure, that devolve authority to local institutions and that facilitate a robust, efficient and equitable market system.

Explore the potential for Microfinance Institutions to engage in PES+

The International Policy Centre for Inclusive Growth (IPCIG) states that for monetary transfers to occur there must at least be some degree of financial development and inclusion in the target community (IPCIG, 2009). This makes partnership with the micro-finance sector a key consideration to ensure the logistics of the system are feasible. Also, the initial capital and transition constraints experienced by small holders and the poor make the involvement of financial service providers important if the system is not to be dependent on external support. Microfinance institutions (MFIs) have been investigated as potential partners in the past, and



⁴ Rewarding Upland Poor for Environmental Services, a program of the World Agroforestry Center.

this is appealing because the inherent conditionality of their activities, their community-based approach, and already established networks and trust.

Rodriguez (2009) provides an interesting case study linking microfinance and PES in which a community-based trust provides the capital to an MFI, which then administers loans to targeted households. The loans are released subject to a contract that defines an environmental concession, such as establishing no take zones in fishing grounds that the household controls. The future access to capital is then determined by the maintenance of these agreed environmental assets; deviations result in a decrease in funds available to the community. This type of system has been used in conjunction with local development institutions (such as Samoa's Women in Business) and achieved very high repayment rates, as well as quickly achieving self-sufficiency.

Develop schemes with action-based payments, sequencing and conditionality that are tailored to assure pro poor inclusion

This discussion paper has alluded to fundamental alterations to payments that could have a powerful effect in realising pro-poor dimensions of PES. Payments have traditionally been conditioned on delivery of ES. Ecosystem Services are not only difficult to measure, but also difficult and expensive to monitor on an ongoing basis. In PES+, payments will be trialled conditioned on both actions and performance by the service providers; i.e., if the actions and performance can be demonstrated, the payment is made. Performance measures will include Human Development Index (HDI) components, the increase in quantity and quality of Ecosystem Services, and indicators related to institutional performance.

Secondly, ex-ante payments will remove a great deal of the uncertainty and volatility from the economic lives of the poor and these supplementary or sole income streams can then be better planned out and used for forward-looking investment and livelihood planning. Climate volatility is a key source of vulnerability for low income groups, particularly those dependent on the land and natural capital. A fundamental pro-poor aspect of a PES scheme is building in mechanisms to smooth this volatility component. Moreover, trust has commonly been identified as a fault-line between the buyers and sellers of these often difficult-to-measure services. By adjusting the payment schedule to before the service is provided, this would not only send a positive signal and build trust between the two or more parties involved in the transaction, but it would also enable more transactions to take place. In addition to the incentive of the up-front payment, low-income participants who previously faced the high establishment costs of joining the PES and changing their land use would have the support of the upfront payment to ease the transition. This is appealing because it would have the pro-poor support built into the system, rather than requiring direct subsidies and donor support for the fiscal constraints faced by the poor.

Thirdly, Conditional Cash Transfers (CCTs) will be explored. Both CCTs and PES offer positive incentives (cash or in-kind payment) conditioned on investments in social or environmental capital. While CCTs typically support poor families, often contingent on investments in the human capital of their children, PES compensates natural resource managers, or land-owners, conditional on environmental services or land-use practices that secure a particular service. Both approaches have been argued to have significant advantages over previous weak-performing



efforts in poverty reduction and ecosystem conservation (Rawlings and Rubio, 2006; Pattanayak et al 2010; Persson and Alpizar, 2011).

There must be an ability to implement and manage sound and transparent beneficiary information and payment system, as weak statistical capacity and fragile banking systems can be a major threat to the whole payments programme. So, community institutions will be sought as partners to assess the local feasibility of CCTs and trial implementation of payments. Where there is widespread poverty, geographical or categorical targeting for poverty reduction programmes may be sufficient, but second-level targeting based on means tests leads to social exclusion of potential beneficiaries, tensions, and discrimination. Similarly, IPCIG (2009) states that conditional transfer payments on school attendance or health check-ups is simply inappropriate in areas where these services are absent or of dismal quality, and also to impose conditionality when the proper information systems are lacking.

In Janvry and Sadoulet's (2006) analysis of a large randomised experiment on CCTs in Mexico, it is found that large efficiency gains can be made by taking into account how behavioural probabilities are altered by the conditional transfers. Rules for targeting and calibrating the system can then be made easy to implement by selecting indicators that are simple, observable and verifiable and cannot be manipulated by the participants and beneficiaries. This case also shows that increasing efficiency can easily be achieved without reducing inequality – this principle will be fundamental to developing the conceptual framework for an efficient and equitable pro-poor PES system in the Asia-Pacific region.

6) Final Remarks

Although PES is rapidly growing in popularity, there is still limited information and technical expertise on pricing ES and scarce PES institutions. Recognising the interconnectivity of environmental and socioeconomic systems, this paper argues that improving livelihoods and reducing poverty can indeed be a core outcome of PES and the challenges faced by current PES systems and projects are equally met with opportunities to innovate and provide new and creative avenues to improve both the participants' lives and their ecosystems.

We find that the often polarising debate in the PES literature need not take a stance of opposition, as many arguments are complementary; recognising the value of natural capital and thinking outside the realm of pure monetary poverty casts doubt on the notion that PES cannot be used as a poverty alleviation mechanism.

Asia has some of the most degraded ecosystems in the world and the Pacific has some of the richest. PES implementation in both regions is still limited compared to other regions around the world and there is immense opportunity to integrate PES into development strategies and programming. This would effectively mainstream the sustainability and environmental-vulnerability challenges faced by the region and amount to a more holistic and multi-disciplinary approach to policy on the environment-development nexus.

Several gaps and weaknesses were identified in current practice in this review, presenting a number of opportunities: moving from conserving to enhancing ecosystems; addressing the



knowledge gap; building resilience and sustainability in to PES design; partnering with community institutions; exploring the potential for MFIs to engage in PES+; and trialling action-based, ex-ante, conditional (to human and ecosystem services) and performance-based payments.

The next step is to work with like-minded organisations, donors and communities to apply the insights of this paper in practice.

7) References

- [1] Abed, G. and Gupta, S., 2002, *Governance, corruption and economic performance*, International Monetary Fund, Washington, D.C.
- [2] Carmigani, F., and Chowdhury, A., 2011, *The Making of Pro-Poor Growth. Four Scenarios of Development and the Role of Economic Policy (with)*. *Scottish Journal of Political Economy*, forthcoming.
- [3] Chen, X., Lupi, F., Vina, A., Guangming, H., and Jiangou, L., 2010, 'Using Cost-Effective Targeting to Enhance the Efficiency of Conservation Investments in Payments for Ecosystem Services', *Conservation Biology*, 24:6, pp/ 1469 – 1478.
- [4] Chiabai, A., Travisi, C.M., Markandya, A., Ding, H., and Nunes, P., 2011, 'Economic Assessment of Forest Ecosystem Services Losses: Cost of Policy Inaction', *Environmental Resource Economics*.
- [5] Costanza, R., 1997, 'The Value of the world's ecosystem services and natural capital', *Nature*, 387, p253-260.
- [6] ESCAP, 2009, 'Innovative socio-economic policy for improving environmental performance: Payments for Ecosystem Services', *Greening of Economic Growth Series*.
- [7] FAO 2011, 'Payments for Environmental Services from Agricultural Landscapes' Available online at: <http://www.fao.org/es/esa/pesal/index.html>. Accessed September 23 2011.
- [8] Gauvin, C., Uchida, E., Rozelle, Xu, J., and Zhan, J., 2010, 'Cost Effectiveness of Payments for Ecosystem Services with Dual Goals of Environment and Poverty Alleviation', *Environmental Management*, 45: 3.
- [9] George, A., Pierret, A., Boonsaner, A., Valentin, C., Orange, D., and Planchon, O., 2009, 'Potential and limitations of Payments for Environmental Services (PES) as a means to manage watershed services in mainland Southeast Asia', *International Journal of the Commons*, 3:1.
- [10] Gyimah-Brempong, K., 2002, 'Corruption, Economic Growth, and Income Inequality in Africa', *Economics of Governance*, 3 pp 183-209.
- [11] Huang, M., and S. K. Upadhyaya. 2007. *Watershed-based payment for environmental services in Asia*. Working Paper No. 06–07.
- [12] International Policy Centre for Inclusive Growth (IPCIG), 2009, 'Do CCT Programmes Work in Low-income Countries?', *IPCIG One Pager*, No. 90 July 2009.



- [13] Janvry, A and Sadoulet, E., 2006, 'Making Conditional Cash Transfers More Efficient: Designing for Maximum Effect of the Conditionality.' *World Bank Economic Review*, 20:1-29
- [14] Kandel and Cuellar, 2011, 'Compensation for ecosystem services: Directions, potentials and pitfalls for rural communities', PRISMA Policy Brief, Salvadoran Research Program on Development and Environment.
- [15] Kumar, P (IISD), 2005, *Market for Ecosystem Services*, International Institute for Sustainable Development.
- [16] LEMONIA, B., and LAXMAN, J., 2009, 'Can rewards for environmental services benefit the poor? Lessons from Asia', *International Journal of the Commons*, 3:1, pp82-107.
- [17] Milder, J., Scherr, S. and Bracer, C, 2010, 'Trends and future potential of payment for ecosystem services to alleviate rural poverty in developing countries'. *Ecology and Society* 15(2): 4.
- [18] Nelson, F., Foley, C., Foley, L., Leposo., Peterson, D., Peterson, M., Peterson, T., Sachedina, H., and Williams, A., 2009, 'Payment for Ecosystem Services as a Framework for Community-Based Conservation in Northern Tanzania', *Conservation Practice and Policy*, 24:1, pp 78 -85.
- [19] OECD, 2008, 'Gender and Sustainable Development: Maximizing the Economic, Social and Environmental Role of Women', OECD, Paris.
- [20] Pagiola, S., 2007, 'Guidelines for "Pro-poor" Payments for Environmental Services' , Environment Department, World Bank, April 2007.
- [21] Pattanayak, SK, S Wunder and PJ Ferraro. 2010 (In Press). Show me the money: do payments supply ecosystem services in developing countries? *Review of Environmental Economics and Policy*.
- [22] Persson, M. and Alpizar, F., 2011, 'Conditional Cash Transfers and Payments for Environmental Services', *Environment for Development Discussion Paper Series*, EFDDP 11-06.
- [23] Peterson, G., 2011, 'Ecosystem Services and Poverty Alleviation', Available online at: <http://rs.resalliance.org/2011/06/07/ecosystem-services-and-poverty-alleviation/>
- [24] Porras, I., 2010, 'Fair and Green? Social impacts of payments for environmental service in Costa Rica. IIED, London.
- [25] Redford, K. H., & Adams, W. M. (2009). Payment for ecosystem services and the challenge of saving nature. *Conservation Biology* 23(4), 785-787.
- [26] Rodriguez, L., 2009, 'Linking Microfinance and payments for ecosystem services', *Marine Biodiversity Hub*, December 2009.
- [27] Rodrik, D., 2007, *One Economics, Many Recipes: Globalisation, Institutions and Economic Growth*, Princeton University Press
- [28] Savioa, A., Easaw, J., McKay, A., 2010, 'Inequality, Democracy, and Institutions: A Critical Review of Recent Research', *World Development*, 38: 142.
- [29] Sen, A. 1999. *Development as Freedom*. Oxford: Oxford University Press. 1999.



- [30] Swallow, B., Meinzen-Dick, R, and van Noordwijk, M. 2005. Localising Demand and Supply of Environmental Services: Interactions with Property Rights. CAPRI Working Paper # 42. World Agroforestry Centre Secretariat, Washington DC. September 2005.
- [31] Tacconi, L 2009, 'Compensated successful efforts for avoided deforestation vs compensated reductions', *Ecological Economics*, vol. 68, no. 8-9, pp. 2469-2472.
- [32] United Nations Environmental Programme, 2008, 'Payment for Ecosystem Services: Getting started A Primer', *Forest Trends*, the Katoomba Group and UNEP.
- [33] Uphoff, Norman (1992). *Local Institutions and Participation for Sustainable Development. Gatekeeper Series No. 31*, IIED, London.
- [34] Vidal, J., 2011, 'Bolivia enshrines natural world's rights with equal status for Mother Earth', 10 April 2011. Available online at: guardian.co.uk
- [35] World Bank, 2001, 'Engendering Development: through gendering equality in rights, resources and voice', Oxford University Press, Washington, D.C.
- [36] World Bank, 2011, 'Conditional Cash Transfers: Reducing Present and Future Poverty', Oxford University Press, Washington, D.C.
- [37] Wunder, S. 2008. Payments for environmental services and the poor: Concepts and preliminary evidence. *Environment and Development Economics* 13:279-297.
- [38] Wunder, S., and Wertz-Kanounnikoff, S., 2009, 'Payments for Ecosystem Service: A New way of Conserving Biodiversity in Forests', *Journal of Sustainable Forestry*, 28:3, pp576-596
- [39] Wunder, S., S. Engel, and S. Pagiola. 2008. Taking stock: a comparative analysis of payments for environmental services programs in developed and developing countries. *Ecological Economics* 65:834–852.

