

■ ■ ■ RUPES: A STEP FORWARD

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Abstract

The Rewarding Upland Poor for Environmental Services Program is testing mechanisms to reward the upland poor for the environmental services they provide at a number of sites across Asia. Four years since its commencement, the program has learned numerous lessons in establishing payment for environmental services mechanisms in developing countries with particular emphasis on the upland poor as beneficiaries. A market-based approach for environmental services with potential funding from private sectors delineated the first establishment of this program. As the program has progressed, constraints on operating ‘pure’ payments for environmental services have appeared. This leads to a question of whether or not the market-based system for financing environmental conservation in developing countries will actually benefit the poor or be applicable and effective in the context of Asian developing countries. This paper introduces four approaches that describe the different conditions exercised by two contrasting methods – a market-based payment for environmental services and non-market-based system, in this case, Integrated Conservation and Development Program – in achieving the dual goal of environmental conservation and development. Supported by recent publications by notable authors on payments for environmental services issues, this paper will briefly show the shift of RUPES basic assumptions as a result of lessons learned from RUPES action research sites and its research. Positioning RUPES and its next step will support the progressive development of a pro-poor payments for environmental services concept in the tropics.

1. Introduction

Various approaches and policies have been used to address environmental problems and manage natural resources. Conventionally, environmental policies have been based on “command-and-control” mechanisms, in which regulations attempt to dictate certain actions in dealing with the environment. For example, highly specific regulations control potential polluters in developed countries and impose particular patterns of land use in developing countries. In addition to these regulations, responses to environmental problems could also come as remedial measures such as repair of the damage caused by landslides or flooding.

Pagiola and Platais (2002) proved that neither regulation nor the remedial approach has been effective. One author noted that, “In the real

world, regulatory systems are rarely discarded and replaced wholesale. Rather, reform of regulatory systems proceeds in an incremental fashion,”¹ but still this “command-and-control” method could be difficult and expensive to implement, monitor, and enforce, especially in countries with weak institutional capacity (Huber *et al* 1998). Hence, market-based instruments (MBIs) have been proposed to reduce the cost of achieving environmental goals and move resources in more efficient ways.

The enthusiasm for markets arose and became increasingly trendy in the 1980s. More than 100 different types of MBIs were identified by the Organization for Economic Cooperation and Development (OECD) in 1989. Such environmental management policies included packaging taxes, effluent taxes and charges, capital or operation subsidies, tradable permits,

¹ Market for the Environment by Richard T. Woodward in CHOICES – the magazines of food, farm, and resources issues 1st Quarter 2005 – 20(1).

deposit-refund schemes, performance bonds, liability instruments, and many others. Huber et al (1998) described early OECD experiences that showed various benefits of the MBIs ranging from reduced compliance costs by industry to reduced administrative costs for better environmental and human health. In 1992, the use of MBIs was also endorsed within the Rio Declaration on Environment and Development as an important component of sustainable development. After being promoted for decades by economists, this tool is now beginning to be widely promoted as part of the solution to an ever-increasing range of environmental problems.

However, in spite of their notable successes, the evidence has increased that, as command-and-control procedures have, MBIs are facing constraints – even in developed countries – due to limited institutional capacity to oversee them (Huber et al 1998). Even now, after seven years, Woodward (2005) concluded that a number of unsuccessful efforts to apply MBIs could be observed.

In February 2002, the ICRAF (World Agroforestry Centre) launched Rewarding Upland Poor for Environmental Services (RUPES), a project developing PES mechanisms benefiting poor upland people of Asia, supported by the International Fund for Agricultural Development (IFAD). RUPES aims to enhance livelihoods and reduce poverty of the upland poor while promoting environmental conservation at local and global levels. These initiatives aim to build working models of best practices for successful environmental transfer agreements adapted to the Asian context and tested in six action research sites across Asia (section 2). The RUPES agenda examines the environmental services (ES) that are generated in the upland areas, noting how and to whom they are important. It examines mechanisms to bring together local, scientific, and policy knowledge on ES, supporting negotiation systems and local monitoring.

The importance of markets became the focus of discussions in the early implementation phase of RUPES, and project members concluded that much more attention needed to be placed on market factors for the RUPES program to succeed². It emphasized the importance in dealing with potential buyers of the services. Realizing the potential weakness of the MBI approach if institutions are not capable of proper oversight, local institutional dynamics, capacity at the local level, and national and international policy were acknowledged to need more attention.

In its fourth year running, the program has started to compile and synthesize all lessons learned. This also meant evaluating the approaches to addressing the possibility of establishing of PES mechanisms in Asia with particular emphasis on the potential for the upland poor to benefit. Supported by recent publications on PES issues by notable authors, this paper will show the shift of RUPES basic assumptions as a result of lessons learned from RUPES action research sites.

2. RUPES Action Research Sites across Asia

Through a partnership with the IFAD as the major donor, the ICRAF is taking an active role in leading a consortium of partners engaged and interested in developing pro-poor environmental service transfer mechanisms adapted to the Southeast Asian context –the RUPES project. The consortium includes such organizations as: the Center for International Forestry Research (CIFOR), the World Conservation Union (IUCN), Winrock International, Conservation International, World Wide Fund for Nature (WWF), the Ford Foundation, The Nature Conservancy, national partners from each country in Southeast Asia, and other investors. This consortium has supported RUPES to determine the six action research sites across Asia.

²IFAD Office Memorandum: ICRAF TAG 534 Start-up Workshop: Developing Mechanisms to Reward the Upland Poor in Asia for the Environmental Services They Provide, Bogor, Indonesia, 6-8 February 2003 – Back to Office Report by Vanda Altereli and Nigel Brett.

At the six research sites – three in Indonesia, one in Nepal and two in the Philippines — the program is supporting (financially and technically) research into which PES mechanisms work and how. The brief descriptions of RUPES sites are as follows:

2.1 Ikalahan Ancestral Domain, Nueva Vizcaya Province, Philippines.

The Ikalahan Ancestral Domain covers 58,000ha of mountainous forest and farmlands from 550 to 1,717 m above sea level, and is located 270 km north of Manila in Luzon. About 90 per cent of the Domain's 20,000 inhabitants are of the Ikalahan tribe. The Ikalahan watershed is 70 per cent forest, and provides water for the cities and irrigation systems below. The Domain's Magat River is downstream from the famous Banaue Rice Terraces, considered the "eighth wonder of the world." High biodiversity characterizes this area, more than 1,500 plant species and about 150 bird species, 35 of them on the CITES or IUCN lists of endangered bird species, have been identified in the domain.

In developing rewards for environmental services, the RUPES Kalahan team is examining services from carbon sequestration, biodiversity, and watershed protection, and test payments for these services. Potential buyers of protection of the Ikalahan watershed include major beneficiaries such as the Magat and Talavera river irrigation systems. Ecotourism may also provide income to bolster the conservation of forest biodiversity.

2.2 Kulekhani, Makwanpur District, Nepal.

The Kulekhani watershed, about 50km southwest of Kathmandu, covers 12,496ha at an altitude of 1,400 to 2,300m. Most of the Kulekhani watershed's 43,000 people are disadvantaged ethnic groups and Dalits, or low caste people. Water from the Kulekhani River and its tributaries is the

main source for two downstream hydroelectric plants. Winrock International will help quantify and value the environmental services that the watershed provides, and identify mechanisms to transfer payments. The Nepal Electricity Authority, a potential buyer, has expressed interest in reducing sedimentation and increasing water availability in the dry season to enhance the capacity of its hydroelectric plants.

Kulekhani watershed community members have begun mobilization efforts, such as establishing an ad hoc group to represent the interests of various community forest users and other community-based organizations in the watershed. Currently, they are discussing the appropriate rewards and reward mechanisms that they might consider once the environmental transfer agreements are further clarified. Decisions are made democratically ensuring that women and other marginal groups are represented. A key lesson is that when communities are made aware of the benefits, they have an incentive to take steps to obtain a share of such benefits.

2.3 Sumberjaya, Lampung Province, Indonesia.

The 55,000ha Sumberjaya - meaning source of wealth – is a sub-district in the Bukit Barisan mountain range that includes the upper watershed for some of Sumatra's major rivers. Its population is 80,000, or 150 persons/km². About 40 per cent of the subdistrict is classified as "protected forest" and ten percent as a national park. Nevertheless, forest cover has declined from 60 per cent in 1970 to 12 per cent in 2000, leaving vast areas of formerly forested hillsides bare. Simultaneously, coffee farms have increased tremendously. Establishing and maintaining "shade coffee" as part of the agroforestry system has been shown to potentially slow both erosion and the decline in water quality, as well as contributing to farmers' incomes. Land tenure rights have been an issue

in Sumberjaya for the past 100 years. Watershed issues and the government's perception that coffee cultivation in this area caused the depletion of the watershed triggered four military campaigns from 1991 to 1996. Thousands of farmers were evicted from their land and their coffee farms burned.

The RUPES project is studying three proposed reward mechanisms. The first, a payment scheme involving a state hydroelectric power company that as a buyer expects better water quality, is being tested. The second is land tenure, the main reward mechanism proposed for watershed protection and carbon sequestration projects. The state forestry department is a potential provider of these rewards for environmental services, because it can issue permits for land use. Local communities and the government have begun negotiations for legal rights to land use, in exchange for better management of state forestland. ICRAF and local non-governmental organizations have helped farmers develop community forestry schemes that envision land tenure for 25 years, after a 5-year trial period. Farmer groups have already obtained 5-year rights in protected forests, with two requirements: they must plant trees and protect the remaining natural forests. Finally, the third potential mechanism being developed to improve the quality of water for domestic use at a local scale is the introduction of direct payment schemes.

2.4 Bungo, Jambi Province, Indonesia.

Most rubber is now synthesized from petroleum, but 25 per cent is still derived from tropical rubber trees. Malaysia, Indonesia, and Thailand produce 90 per cent of the world's "natural" rubber. Jambi is Indonesia's third-largest rubber producing province. About 97 per cent of Jambi's natural rubber is produced from "jungle rubber" gardens of five hectares or less. Tapping rubber from wild trees in these huge reservoirs of biodiversity has been a traditional income source—but is disappearing rapidly, as monoculture plantations of rubber and oil palm replace the forests.

RUPES activities are in Bungo district in the 455,308ha watershed of the Batang Hari, Sumatra's second-largest river. Only 12 per cent of the land is higher than 500 m. The population density is about 50 persons/km². RUPES is financing the development and testing of reward mechanisms for communities that protect rubber agroforests and the biodiversity and carbon storage they provide. Two sites in the Bungo district have been identified for testing the RUPES approach after completing detailed site exploration and characterization. The next step will be to analyze the two sites using framework developed by ICRAF and RUPES, namely Rapid Agrobiodiversity Assessment (RABA). RABA is proving useful as an approach to identify the information necessary for providers and beneficiaries of biodiversity protection to devise an environmental service agreement. Interest in RABA has been growing steadily and the tool is now drawing the interest of partners to further develop it.

2.5 Singkarak Lake Watershed, West Sumatra Province, Indonesia

Intensive upland agriculture and fishing provide income for 77 percent of the 399,000 people, or 205 people/km², who live around Singkarak Lake—the upstream watershed reservoir of the Inderagiri River. The 160-m deep Singkarak Lake, one of Indonesia's largest, covers 13,665 ha and is nestled at the base of a rugged mountain landscape that volcanic eruptions formed years ago. The scenery is spectacular, but the lake is increasingly polluted by bad land use on the surrounding slopes, inappropriate fishing practices like poison and small bombs, and the drawing off of lake water for electricity. The lake provides water for irrigation, hydropower, and recreation. Singkarak Lake is famous in Indonesia for the popular fish *ikan bilih*—but overfishing, pollution, and sedimentation are rapidly depleting its population.

RUPES focuses on 58,469ha of the lake's catchment area, most of which is non-productive Imperata grass that has spread with deforestation. The local communities are increasingly aware of how important it is to protect and increase the forested areas around the lake. One current reforestation program is the Million Tree Planting Program. The main environmental services offered at RUPES Singkarak action research site are watershed protection and carbon sequestration. The state hydroelectric power company and the international community are potential buyers.

2.6 Bakun Watershed, Northern Philippines

Bakun is the first indigenous area in the Philippines to be issued a Certificate of Ancestral Domain Title. Even with this significant acknowledgement of their rights over this 29,500ha in the Cordillera ranges of northern Philippines, the Bakun indigenous people is predominantly poor. It is estimated that 90 percent of the local people are engaged in rice and vegetable farming as their main livelihood. Bakun has a rich socio-cultural heritage. Their indigenous way of life governs how they relate to the land, the forests, and each other, making them unique and resilient as a tribe. The Bakun Indigenous Tribes Organization (BITO) has been engaged for the past seven years with an IFAD-assisted project that aims to reduce poverty in the 82 remote highland communities of the Bakun. As part of this partnership, the Bakun people are involved in reforestation and agroforestry projects that will increase their livelihood opportunities while protecting their natural resources. They see these land use practices as responsible stewardship of the environment through careful management.

Currently, RUPES and the Bakun are working together to support and build the capacity of the local communities, institutions, and government agencies in the Bakun watershed to implement fair and equitable mechanisms for environmental service payments. At present there are two hydroelectric power plants operating in the

Bakun watershed. While these companies pay taxes to the national and local governments, it is not clear how much of this is directly benefiting the communities in Bakun who are providing the watershed protection services.

3. RUPES Typology of Environmental Services

Reconciling the concept of ecosystem services with human-centric systems led to the distinction of twelve prototype situations, each describing upland-lowland relationships focusing on an environmental service function (van Noordwijk 2005) (**Table 2**). The potential for rewards for upland providers of ES will depend on the degree of dependence of the ecological service on land use. A clear need to link human activity to changes in ecosystem (or environmental) services directly and indirectly, is part of the effort to develop rewards for these services. The provision of ES is site-specific and depends on the natural capital of the area. In addition to those natural factors, human influence through land use practices, which varies from avoiding negative impacts on the environment to stimulating positive impacts, could substantially affect the ES provision.

From the current experience with ES reward mechanisms in Asia through RUPES projects, twelve 'prototypes' for further exploration of a more comprehensive typology have been proposed. Recognizing the importance of dependence of the ES provision on land use, the twelve environmental services indicate what efforts are needed from the ES providers or 'sellers' and what is expected by the ES users or 'buyers'. Among the twelve prototypes, nine of them have been tested under RUPES.

At the first regional workshop of RUPES in 2002, a review of initiatives in developed countries for implementing environmental benefit-transfers presented and provided lessons for the design of RUPES mechanisms in Asia (Gouyon 2003). In this paper, "PUPES" (Punishing Upland Poor for

Table 1. Twelve prototype situations for ES rewards in upland agricultural systems

Environmental Service Typology	Providers / sellers influence	Users / Buyers Expectations	Main Issue	Examples of RUPES cases
1. Total water yield for hydroelectricity via storage lake	Impacts on total water yield small; reservoir sedimentation issue may dominate the debate; option for sediment traps and landscape filters	Consumer satisfaction depends on continued functioning; high project investment costs, little subsequent management flexibility	Intercepting sediment flows rather than avoiding them is generally easier to accomplish; sediment flows out of well-managed upper catchments may still be high because of geological and geomorphologic processes	Singkarak (Indonesia)
2. Regular water supply for hydro-electricity via run-off from the river	A change from soil quick flow (saturated forest soils) to over-land flow will have some effect on buffering of river flows and hydroelectric operation time		Interventions influencing the speed of drainage (linked to paths, roads and drains) have the most direct effect on buffering at larger scales	Sumberjaya (Indonesia) Bakun (Philippines) Kulekhani (Nepal)
3. Drinking water provision (surface or groundwater)	Intensive agriculture and horticulture will cause rapid pollution of surface flows and slow but persistent pollution of groundwater flows with nitrogen and pesticides; people residing around streams cause pollution Ecoli & diseases	Willingness to pay for drinking water depends on quality assurance from medical perspective as well as taste	Slow response of groundwater flows to changes in the pollutant status make 'regulation' a more effective solution than results based markets	Sumberjaya (Indonesia)
4. Flood prevention	Land use effects strongest for flow buffering of small-to-medium sized events, with saturation dominating the large events	Relevance of upland land use depends on location ("floodplains") and engineering solutions (dykes, storage reservoirs)	Risk avoidance for the rare category of large events	Not available yet

Environmental Service Typology	Providers / sellers influence	Users / Buyers Expectations	Main Issue	Examples of RUPES cases
5. Landslide prevention	Mortality of deep-rooted trees ('anchors') causes temporary increase in landslide risk	Relevance depends strongly on location in the flow paths	Deep landslides are little affected by land cover	Not available yet
6. General watershed rehabilitation and erosion control	Promoting tree cover and permanence of litter layer protecting the soil is a good precaution	'Holistic' perception of watershed functions survives despite the lack of clear impacts on specifics	Communication gap with scientists who try to enhance clarity	In almost all sites
7. Biodiversity buffer zones around protected area	Use value of buffer zones depend on hunting restrictions, presence of human-life threatening species	Flagship species still dominate the public perception of value	Push and pull factors in human land use; livelihoods operate at larger scales than most conservation plans acknowledge	Not available yet
8. Biodiversity landscape corridor	Still new concept in agriculture/forest land use mosaics in the tropics; use value of patches in the 'stepping stones' similar to the buffer zone case	Relevance depends on dispersion properties of the species of main interest; sometimes higher connectivity not desirable; relevance increases with climate change concerns	Ex ante impact assessment of effectiveness is still difficult	Bungo (Indonesia)

Environmental Service Typology	Providers / sellers influence	Users / Buyers Expectations	Main Issue	Examples of RUPES cases
9. Carbon restocking degraded landscapes	Options for profitable tree restocking primarily depend on policy reform	Demand is for Certified Emission Reduction (CER) rather than carbon	Additionality issues in CDM; high transaction cost	Singkarak (Indonesia)
10. Carbon protecting soil and tree stocks	Road construction (accessibility) is main determinant of 'opportunity costs' for non-conversion		Not recognized as part of CDM	Ikalahan (Philippines)
11. Guaranteeing production landscapes meet environmental standards	Where the 'ecolabel' process starts from the consumer side, there can be a substantial gap in communication and trust, leading to high transaction costs	Consumers with high sense of personal responsibility; gradually replaced by the introduction of standards and the raising of baselines of 'acceptable' behaviour	Relevance of global standards in the face of variation in local conditions; transparency of the standards and compliance monitoring; transaction costs	Still in very initial thoughts of: Singkarak and Sumberjaya (Indonesia) for coffee-ecolabel
12. Providing guided access to landscape amenities particularly ecotourism	The local and international appreciation for landscape beauty depends on culture and time (fashion); rewards are for roles as guide and provider of accommodation, food, transport and handicrafts; gender aspects of provider roles may be prominent	The appreciation of landscape beauty and cultural traditions does not reduce the need to provide security and comfort to potential tourists	Global ecotourism is a highly volatile market where security and political concerns can interfere	Ikalahan (Philippines)

Environmental Services) in contrast to “RUPES” (Rewarding Upland Poor for Environmental Services) was introduced. Three main conclusions were presented.

First, there is the potential for market-based mechanisms to offer financial benefits compared to existing public aid budgets for environmental and poverty alleviation programs. These schemes can be effective RUPES mechanisms whenever they are implemented by the private sector in cooperation with NGOs or other institutions enabling the involvement of all stakeholders. However, the market-based mechanisms provide uncertain benefits. This uncertainty stems from the dynamics of ES supply and demand, where a clear link between the environmental service and the reward is the necessary element for a PES scheme. In addition to this condition, a fair amount of institutional development and capacity building is necessary if the poor are to become the target of these mechanisms and environmental conservation is to be effectively promoted. Finally, the PUPES paper concluded that non-market based mechanisms are theoretically more appropriate for meeting social goals and poverty alleviation objectives. Case studies of ICDP implementations were discussed, although the impacts of these schemes have been mixed. The authors added that the biggest lesson of this review was the difficulty of separating market-based from non-based market mechanisms in practice. The following sections of the paper will discuss the relevance of the three conclusions above to the lessons learned from RUPES and the emerging ‘new trends’.

4. Is the Role of Market-based Mechanisms Still Valid?

Gouyon (2003) indicated that market-based mechanisms seem to have much larger potential in terms of funding availability and can be effective in meeting RUPES objectives, but they are best implemented by the private sector in cooperation with NGOs or other institutions enabling the

involvement of all stakeholders. In general, the role of private companies was concluded to often result in greater efficiency, under the condition that their activity is closely monitored and complemented by NGOs representing all stakeholders.

Market-based mechanisms are characterized by a prime role for economic incentives, the involvement of multiple actors, choices, and competition. The mechanisms strongly link demand and supply through a process of price adjustment. However, in line with other research conducted in developing countries, the RUPES project developed a typology of environmental services in the context of ES rewards (section 3) and found that it was not a true market system. The research on RUPES typology shows that in most RUPES cases, ‘holistic’ perceptions of watershed functions are dominant. This means that locals believe a ‘good’ watershed involves the promotion of tree cover and permanence of litter layer as precautions for erosion control. This perception is caused by a lack of clear impacts on watershed functions by the existence of trees. Obviously, communication gaps between the government’s and scientists’ perceptions exist and need clarifications. When this becomes the case, the continuum of public regulations—public investment in environmental services plays an important role in finding funding for such mechanisms. These schemes usually produce a ‘memorandum of understanding’ between a group or community and a single ‘buyer’, such as a state-owned-hydroelectric power company under its community development program, and it is clearly not market-driven.

Wunder (2005) emphasized that markets for ES do exist in some developed countries, but in developing countries, they seem remote. At least three obstacles in mainstreaming PES have been recognized. The first obstacle is limited demand from the ES beneficiaries. Since PES is still nascent in developing countries, not many ES beneficiaries are confident about the PES mechanisms, often because the link between land

use and ES provision is insufficiently understood or ambiguous. Additionally, a second obstacle is poor knowledge about the dynamics of ES supply. In developing countries, the institutional preconditions required for suppliers to negotiate a PES deal sometimes do not seem clear enough, especially with regards to how to direct the payment to the poor communities. Wunder (2005) suggested that more hands on experiments were needed. Finally, communicating the PES concept is problematic. In many cases, proponents often use an economic rationale in delivering the PES scheme, while skeptics counter with their perspectives from other social sciences.

5. Where does RUPES Stand?³

Van Noordwijk and Place (2005) described four different methods encompassing two contrasting approaches to upland area protection— market-based payment for environmental services and non-market based schemes, in this case the ICDP and looked at their effectiveness in achieving the dual goal of environmental conservation and development. The four methods are (1) markets regulating payments for actual ES provided (PES); (2) rewarding/paying land users for accepting restrictions on their land use (the current RUPES principle); (3) co-managing landscapes to reduce poverty and enhance the environmental services of the area; and (4) implementing ICDP. The interactions between providers and beneficiaries of environmental services are analyzed according to six criteria: type and level of rewards/payment; target population and its poverty effect; assumed characteristics of the ES; attribution of ES or conditionality of ‘rewards’; role of a local institution; and priority of actions (**Table 2**). These four approaches resulted from analyzing four levels of interactions between local actors and external stakeholders in their efforts to conserve the environment and achieve development objectives (**Figure 1**).

The first level of interaction begins with the establishment of a set of criteria and indicators between the local stakeholders (or providers of ES) and the external ones (or beneficiaries of ES). The relationship is dependent on how both parties follow the previously set criteria and indicators. The expression ‘pay for what you get’ becomes a *modus operandi* for the external beneficiaries. This first level is the foundation for any market-based mechanisms. In most cases, the type of payment is monetary and would create new flows of income for the ES providers. The price level, resulting from negotiations between the ES sellers and buyers, is stated in a contract that becomes the basis for the ES payment deal. This contract agreement therefore demands secure control of land tenure from the ES providers. The provision of ES is often measurable as a precondition for the payment and proportional to the activity of providers. Strong local institutions are encouraged to reduce transaction costs and provide economies of scale. Transaction cost reduction and real impact on income become priorities when creating replicable payment models.

At the second level, ‘rewards’ are given if the local actors make efforts that are perceived as good actions by external stakeholders, for example, maintaining good land management that meets specified restrictions or protecting a piece of land that is ecologically sensitive. Agroforestry practices in the tropics are a prime example of how ‘domesticated forests’ can provide local benefits and positive externalities appreciated by the outside stakeholders. In addition, there are many models showing how local communities effectively implement the protection status without calculating the opportunity cost of doing so. In RUPES, the terms ‘stewards’ or ‘guardians’ are recognized for providers of ES. The external beneficiaries will ‘*pay for what they (the local actors) do or don’t do*’. The second level is a basis for the current RUPES principle –rewarding/paying land users for accepting restrictions on their land use. Clear guidelines of land use practices that could lead

³This section adapts the unpublished draft version of ‘Carrots, sticks, donkeys, roads and markets for environmental services: approach change on the PES-ICDP continuum as impact’ by Meine van Noordwijk and Frank Place.

to the improvement of ES provision need to be further developed. Also, as opportunity costs are the basis for sellers to negotiate, the measure of these opportunity costs becomes important.

The third level of interaction introduces the term 'management,' understood as the 'right to regulate internal use patterns and transform the resource by making improvements,' from providing linkages to risk-sharing and conflict resolution (Carlsson and Berkes 2005). Partnership is the essence of co-management and therefore stopping 'PUPES' before implementing 'RUPES' or looking at the concept 'To Not Punish is To Reward' introduced by Gouyon (2003) is relevant at this stage. For example, lifting policies that promote environmentally harmful practices or/and discriminate against the poorer or smaller farmers can create great impacts on behavior. Harmonizing of perceptions on managing the environment to achieve a 'win-win solution' is promoted by the

external stakeholder, who will '*pay for the way they (the local actors) decide what to do or what not to do*'.

The fourth level is based on the ICDP principles, which aim to combine the objectives of environmental conservation with poverty alleviation and greater participation of local communities in conservation strategies and activities. Popular participation is secured at all the ICDP cycle stages –from design to implementation, monitoring, and evaluation. People are also expected to provide resources to the project to ensure that they have a real interest in its realization, even if the contribution is limited to labor and the use of local materials. Ferraro and Simpson (2005) referred to the ICDP as an indirect intervention for meeting the environment and development goals that likely require a sustained flow of funds over time to maintain conservation outcomes. Support and trust of mutually agreed upon objectives and criteria become the main basis of this practice.

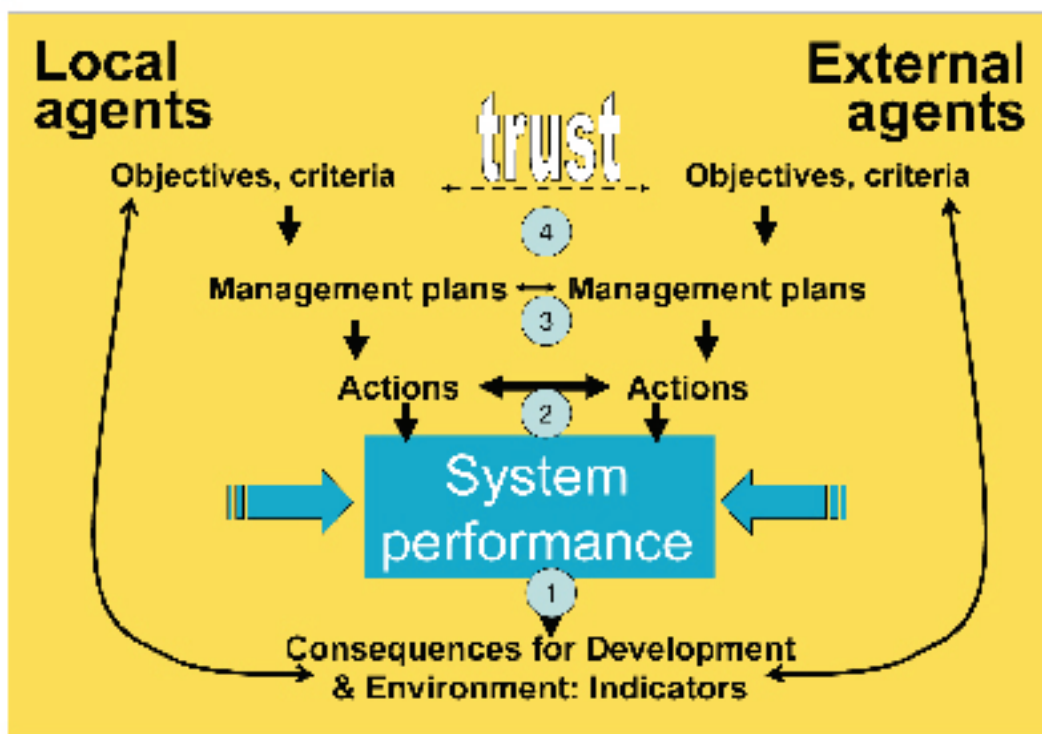


Figure 1. Schematic representation of four levels at which the interactions between local actors and external stakeholders can take place (van Noordwijk and Place 2005)

6. Conclusions

At their first stage of implementation, RUPES projects modified market-based mechanisms with conditionality—they strived to operate at the second level of the four approaches mentioned. However, lessons learned from the implementation of the projects at RUPES research sites indicate that RUPES operates more toward the third level of interaction, considering that a ‘holistic’ perception of environmental services still dominates and the main challenge in RUPES mechanisms is poverty alleviation. The conditions that are likely to occur in developing countries, such as inadequate policy and institutional framework including in the field of land tenure, inappropriate intellectual rights on natural resources, lack of institutional framework for local peoples consultation and participation in decisions that affect them, and a general lack of law enforcement, support this conclusion. The recommendation of Gouyon (2003) that three things are needed in designing RUPES mechanisms: laws, policies, and institutions, fit with the immediate actions taken by current RUPES Program.

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Table 2. Four approaches for the interaction between local and external stakeholders (van Noordwijk and Place 2005)

Markets Regulating Payments for Actual Environmental Services Provided (PES) – level 1	Rewarding/Paying Land Users for Accepting Restrictions on their Land Use – level 2	Reducing Poverty and Enhancing ES –level 3	Integrated Conservation and Development Projects (ICDP's) –level 4
Type and Level of Rewards/Payments			
Recurrent monetary payments	Recurrent monetary payments	Negotiated, conditional tenure security Reduction of current land use conflicts	Investment in ecofriendly enterprises. It expectedly will lead to long-term payoffs for both rural welfare and conservation
New flows of income	Substantial new fund- ing & investment resources for poverty reduction	Reduction of conflicts and collateral damage to both environment and rural welfare Modest new financial transfers	Trust between conser- vation agencies and rural communities will allow for mutual benefit
Price level is fully negotiable, the market price is the right one (by definition)	Fair price for sellers depends on knowledge of opportunity costs for the land user Buyers 'efficiency' is protected by requiring 'additionality above baselines'	Improved public services (above base- line) can be a suitable form of rewards	Essentially public investment to enhance welfare at the level of society
Target Population; Poverty Effects			
Land owners or at least persons/agencies with secure <i>de facto</i> control	Land owners or at least persons/agencies with secure <i>de facto</i> control	Any marginalized communities, including migrants	Upland and 'indigenous' people in and surrounding areas of high conservation value
Assumed characteristics of the environmental service			
The ES is 'divisible' and at least propor- tional to the activity of providers Exclusion from the service is possible 'Optimum levels of threat' are the main selling point for providers	Land use prescriptions are the most effective way of guaranteeing persistence of the service, as they can be easily monitored and understood	Environmental services are 'emergent proper- ties' and only exist if all land users are involved ES thus require land use planning & management Need trust, shared responsibility for effective co- management of landscapes	Integrity of the core protected area implies continuity of the envi- ronmental services The main function of the 'buffer zone' is to provide local income while protecting integ- rity of the core area

Attribution of ES; Conditionality of 'Rewards'			
No LU prescriptions/ micro-management; as long as the service is there payments will continue ; stimulates local inventiveness and increase in efficiency of 'producing' the service desired	Clear, identifiable ES can be attributed to providers & activities	Complex causality, no simple attribution possible in many cases Public funding justified when ES provision (result) depends on level of participation (Broader 'emergent properties' of ES provision)	Integrity of the core area is the target
Potentially any positive externality (lateral benefit flow) or desirable condition can be rewarded Payments are conditional to 'service indicators'	Only those land use prescriptions that generate lateral benefit flows that exceed a baseline of 'business as usual' can be rewarded	Enforced baseline of 'good' behaviour Expected/normative quality standard is non-trivial Rewards must build on standard of improved care	The investment cannot be withdrawn, condi- tionality is replaced by 'trust' and self-interest in mutual goals
Local Institutions			
Local institutions can help reduce transac- tion costs and provide economies of scale	Strong local organizations needed Ready for project cycle transactions and negotiations	Local conflict resolu- tion needed Access to info about landscape level ES is priority Environmental educa- tion needed: formal & informal channels	Environmental education needed: formal & informal channels
Priority Actions			
Create replicable, payment models Reduce transaction costs & provide economies of scale	Establish clear guidelines of land use practices to be avoided/ promoted Measure opportunity costs	Stop lose-lose scenarios for poverty & environment (Prevent/reduce "PUPES")	Establish trust in clearly prioritized areas of high conservation value