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**GETTING STARTED BEFORE YOU BEGIN: EXPERIENCES FROM
ENVIRONMENTAL SERVICE BENEFIT TRANSFER SCHEMES IN INDONESIA**

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1. Abstract

‘Payment for environmental services’ (PES), or what we refer to in this paper as ‘rewards for environmental services’, is recognised as an innovative scheme to achieve the dual goals of environmental conservation and poverty alleviation in developing countries. This concept has attracted attention since the turn of the century, with many initiatives implemented at pilot sites throughout Indonesia. The importance of the dual objectives in the Indonesian context means a PES scheme has to be adapted to local conditions. This paper will discuss the experiences and lessons learnt from implementing environmental service (ES) transfer benefit schemes developed in Indonesia.

Five pilot sites with schemes in different stages of development are discussed. Three sites deal with watershed functions, one site focuses on biodiversity and one site has bundled watershed functions and carbon sequestration together. The case studies show that having quantifiable environmental services to develop a PES scheme is not an easy task. In many cases, there is no clear link between the ES provision and land-use change. The ES provision is also more dependent on the condition of natural capital in the area concerned. ES providers in Indonesia are mostly poor communities who either protect the existing environment or rehabilitate degraded areas through their land-use practices. The assessment of ES buyers shows that, in Indonesia, a local approach through public funding schemes is easier than seeking international buyers. This takes account of the institutional readiness and transaction costs that might be involved in an ES reward transaction. Best management contract practices and land concessions are the best and most common rewards.

The lesson learnt is that rewards are a synergy of natural, human and social capital, and that the rewards sit within a broader domain combining trust, planning and negotiated voluntary agreement; they are much less based on ES criteria and indicators (van Noordwijk *in prep.*). This statement

shows that pushing a pure, market-based environmental service is not wise, given that developing countries are unprepared for such an approach, and given the necessity to fulfil certain criteria and indicators when such schemes are implemented. Therefore, testing how this mechanism can be best adapted to a certain situation before fulfilling other prerequisite conditions is a valid way to develop an ES benefit transfer scheme. In short, get started before you're ready.

2. Background

Indonesia is well-known for its rich biodiversity, widespread tropical forests and coral reefs; the archipelago is home to rare and endangered species such as elephants, orang-utans, tigers, rhinoceros, whales and sea-turtles. Yet environmental degradation is unavoidable. Forest fires, illegal logging and wildlife trading, conflicts on forest conversion and coastal reclamations are rampant, threatening Indonesia's position as a mega-biodiverse treasure house and 'world-lung'.

The Asian economic crisis that began in mid-1997 struck down Indonesia's strong economic growth over the last three decades, increased the number of impoverished people and caused socio-economic instability. Other problems compound the poverty, such as natural disasters, disease outbreaks, and unsustainable natural resource management. This multidimensional crisis sharpens conflict and adds to pressure on the environment. In 2005, the deforestation rate is more than 2.8 million hectares yearly, or 7 soccer fields per minute.

Poor environmental management has also accelerated the degradation. Past efforts to rehabilitate critical land have met with little success, for three main reasons. First, rehabilitation projects have only focused on conservation aspects without considering economic issues affecting local communities. Second, minimal participation by local communities and poor coordination with local leaders undermines rehabilitation efforts. Third, inconsistent regulations, a lack of responsible institutions and no power sharing between stakeholders have caused failures at governmental level. The government's limited finances have exacerbated the situation, with funding to rehabilitate only three million hectares over five years (2004-2009), out of more than 50 million hectares of degraded forest.

A timber-oriented management policy in production forests, plus weak controls, is a major cause of degradation. The policy ignored important ecological benefits in the form of environmental services such as hydrological and biodiversity protection, carbon sequestration, and ecotourism. But a policy shift towards management based on overall forest resources means environmental services ignored in the past are beginning to be recognised.

Strategies to reduce degradation and speed ecological recovery are urgently needed. One option is a reward scheme for environmental services provided by ecologically benign practices. Such schemes are still nascent in Indonesia, but progressively more effort is being made to develop a model that can work in the local context. A national workshop in February 2005 concluded that an environmental service transfer mechanism in Indonesia should operate within 'sustainable development' and 'poverty alleviation' frameworks. Reducing poverty and conserving the environment become the twin goals in creating workable, pro-poor reward schemes in Indonesia.

This paper will discuss the experiences and lessons learnt from implementing ES transfer benefit schemes developed in Indonesia. The term 'rewards' for ES will be used interchangeably with 'compensation' and 'payment'. 'Rewards' aims to distinguish a broader class of payment mechanisms beyond cash.

3. Action Research Sites in Indonesia

Delivering rewards for environmental services is not new, with many traditional initiatives operating for decades. In the village of Pawang Timpas in the Bayan subdistrict on Lombok Island, Indonesia, irrigators set aside 2kg of rice per hectare after harvesting to supply another community that protects and conserves forest functions¹, and thus assures a secure supply of clean water downstream. Parts of these provisions are used for forest conservation efforts, such as in traditional ceremonies.

A study reviewing 81 cases of environmental service reward systems suggested much potential for establishing ES transfer benefit mechanisms in Indonesia (Suyanto et al 2005). Some cases directly provided benefits to communities involved in conservation activities, or captured private funding for rehabilitation. However, the cases generally did not explicitly use the ‘payment for environmental services’. The new millennium has seen some organizations in Indonesia increasingly recognising ES reward mechanisms through their action research sites. Five cases from various organisations will be briefly discussed to give the ‘flavours’ of how this mechanism emerges: Sumber Jaya watershed, Lampung Province; Bungo, Jambi Province; Singkarak Lake watershed, West Sumatra Province; Cidanau, Banten Province; and Lombok, West Nusa Tenggara Province (Table 1). Three sites in Sumatra (Sumber Jaya, Bungo and Singkarak) are action research sites for the RUPES (Rewards for Upland Poor for Environmental Services they provide) program², coordinated by the World Agroforestry Centre (ICRAF-SEA). The Cidanau site is facilitated by two local NGOs, LP3ES and *Rekonvasi Bhumi* in collaboration with the International Institute for Environment and Development (IIED) and The United Kingdom Department for International Development (DFID). The Lombok site, the only one located in eastern Indonesia, is a pilot WWF Indonesia site in collaboration with the local NGO, called KONSEPSI.

Table 1: Site Portfolio of Rewards for Environmental Services in Indonesia

Site	Types of Land Use Promoted	Type of Environmental Services	Type of Reward and its Beneficiaries and Status
Sumber Jaya – Lampung	Shade-grown coffee	<input type="checkbox"/> Total water yield for hydroelectricity generation via run-off from the river <input type="checkbox"/> General watershed rehabilitation and erosion control	<input type="checkbox"/> Land concession (local government) – <i>operational</i> <input type="checkbox"/> Best management practice contract (state owned company) – <i>under implementation</i>
Bungo – Jambi	Jungle (old-agroforest) rubber	Biodiversity landscape corridor	Best management practice contract (not determined yet) – <i>planned</i>

¹ ‘Workshop Design on Developing National Learning Network of Payment for Environmental Services Program in Indonesia’ by LP3ES, 30-31 August 2005.

² <http://www.worldagroforestrycentre.org/sea/networks/rupes>

Site	Types of Land Use Promoted	Type of Environmental Services	Type of Reward and its Beneficiaries and Status
Singkarak – West Sumatra	<input type="checkbox"/> Community forest rehabilitation <input type="checkbox"/> Shade-grown coffee	<input type="checkbox"/> Regular water supply for hydroelectricity via storage lake <input type="checkbox"/> General watershed rehabilitation and erosion control <input type="checkbox"/> Carbon restocking on degraded landscape	Best management practice contract (state owned company) – <i>under implementation</i>
Cidanau – Banten	Private forest rehabilitation	<input type="checkbox"/> General watershed rehabilitation and erosion control <input type="checkbox"/> Regular water supply for industrial and domestic uses via river run-off.	Best management practice contract (private company) – <i>operational</i>
Lombok – West Nusa Tenggara		<input type="checkbox"/> General watershed rehabilitation and water quality <input type="checkbox"/> Regular water supply for industrial and domestic uses via river run-off	<input type="checkbox"/> Best management practice contract (state owned company) – <i>under implementation</i> <input type="checkbox"/> Land concession (local government) – <i>planned</i>

3.1. Sumber Jaya, Lampung Province

The 55 000-ha Sumber Jaya – meaning *source of wealth* – sub district in the Bukit Barisan mountain range includes the upper watershed for some of Sumatra’s major rivers. Its population is 80 000, or 150 people/km². About 40% of the sub district is classified as “protected forest” and 10% as a national park. Nevertheless, forest cover has declined from 60% in 1970 to 12% in 2000, leaving vast hillsides bare. Simultaneously, coffee farms have increased tremendously. Establishing and maintaining “shade coffee” as part of the agroforestry system has been thought potentially to slow erosion and improve deteriorating water quality, as well as contributing to farmers’ incomes. Land tenure rights have been an issue for the past 100 years. Government perceptions that coffee cultivation was depleting watershed functions led to four military campaigns between 1991 and 1996. Thousands of farmers were evicted, and their coffee farms burned.

The RUPES project is studying three proposed reward mechanisms. Firstly, a payment scheme is

being tested involving a state hydroelectric power company, which as a buyer expects better water quality. Secondly, land tenure is the main reward mechanism proposed for watershed protection and carbon sequestration projects. The state forestry department potentially could provide rewards for environmental services because it can issue permits for land use. Local communities and the government have begun negotiating for legal rights to land use, in exchange for better state forest management. ICRAF and local non-government organizations have helped farmers to develop community forestry schemes that envision land tenure for 25 years, after a five-year trial period. Farmer groups have already obtained five-year rights in protected forests, with two requirements: plant trees and protect the remaining natural forests. Thirdly, potential mechanisms are being developed to improve the quality of water for local domestic uses by introducing the possibility of direct payment.

3.2. Bungo, Jambi Province.

Most rubber is now synthesised from petroleum, but 25% is still derived from tropical rubber trees. Malaysia, Indonesia and Thailand produce 90% of the world's "natural" rubber. Jambi is Indonesia's third-largest rubber-producing province. About 97% of Jambi's natural rubber is produced from "jungle rubber" gardens of 5 ha or less. Tapping rubber from wild trees in these huge reservoirs of biodiversity has been a traditional income source, but the practice is rapidly disappearing as monoculture rubber and oil palm plantations replace the forests.

RUPES activities in Bungo are taking place in the 455 308-ha watershed of the Batang Hari, Sumatra's second-largest river. Only 12% of the land is higher than 500 m. The population density is about 50 people/km². RUPES is financing the development and testing of reward mechanisms for communities that protect rubber agroforests for the biodiversity and carbon storage they provide. Two sites have been identified for testing the RUPES approach after completing detailed site exploration and characterisation. The next step is analysing the two sites using a framework developed by ICRAF and RUPES, namely Rapid Agro-Biodiversity Assessment (RABA). RABA is proving useful for identifying the information necessary for providers and beneficiaries of biodiversity protection to engage in an environmental service agreement. Interest in RABA has been growing steadily and attracting partners keen to further develop this assessment tool.

3.3. Singkarak Lake Watershed, West Sumatra Province

Intensive upland agriculture and fishing generate income for 77% of the 399 000 people, or 205 people/km², who live around Singkarak Lake, the upstream watershed reservoir of the Inderagiri River. The 160m deep Singkarak Lake, one of Indonesia's largest, covers 13 665ha and is nestled at the base of a rugged mountain landscape formed by ancient volcanic eruptions. The scenery is spectacular, but the lake is increasingly polluted by bad land management on the surrounding slopes, inappropriate fishing practices such as poison and small bombs, and drawing off lake water for hydroelectricity. 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 58 469 ha of the lake's catchment, which is mostly covered with unproductive Imperata grass spread through deforestation. The local communities are becoming increasingly aware of how important it is to protect and increase the forested areas around the lake. One current reforestation program is named the Million Tree Planting Program. Watershed protection and carbon sequestration are the main environmental services offered at the RUPES Singkarak action research site. The state hydropower company and the international community are potential buyers.

3.4. Cidanau Watershed, Banten Province

Cidanau Watershed is one of the most important in Banten Province. The area has two main roles in the economic development of the province's western area. Firstly, it is the only reservoir with

adequate discharge to provide water for heavy industrial activities and domestic uses. Secondly, Cidanau watershed includes the Rawa Danau Nature Conservation reserve, which is the only remaining mountain swamp conservation site on Java; it contains several endemic plant and animal species. Encroachment into the swamp and intensified land use in the catchment as a whole affects the quality of water flowing from the Cidanau watershed, and urgent action is needed.

In the newly created Banten province, integrated management of the Cidanau watershed is a priority. Decree Number 124.3/Kep.64-Huk/02 of the Banten Governor, dated 24 May 2002, formally established the *Forum Komunikasi DAS Cidanau* (FKDC - Cidanau Watershed Communication Forum). FKDC as the intermediary is now in the process of establishing an alternative financial institution to collect all the 'rewards' and channel them to the environmental service providers. *PT. Krakatau Tirta Industri* (KTI), the company that pipes water from the lower part of the river for industrial and urban use, has partially funded development activities within the conservation area and is ready to contribute to a comprehensive solution that will protect water resources. A Memorandum of Agreement between FKDC, represented by the Banten Governor, and KTI was developed at the end of 2004. In this agreement, KTI voluntarily would compensate community efforts to maintain good forest cover for two years in a 50 ha pilot site; the deal can be renegotiated and extended to five years. This could be a very good start for establishing an environmental services reward scheme.

3.5. Lombok – West Nusa Tenggara

Dodokan Moyosari watershed on Lombok Island is an important watershed supplying paddy-field irrigation (25%) as well as domestic and industrial users in downstream communities (75%). A state-owned company (PDAM) became the main water supplier drawing from four springs in the Kali Jangkuk sub-watershed. Water flow and quality are the main problems that might be caused by forest degradation and population pressures in the sub-watershed's uplands. WWF Indonesia and KONSEPSI, a local NGO, are facilitating a process to develop a reward mechanism in the *Mata Air Ranget* water-spring area.

"Forum Ranget" is a community group living in zone II of Mata Air Ranget, within 500 m of the spring. The community's livelihood depends on agroforestry (60%) and forest products (40%). The proposed ES reward mechanism for this upland community is in-kind contribution from earmarking the water bill of PDAM's consumers. The Lombok case is a district transboundary example, where the providers and buyers live in two different districts. A Memorandum of Understanding has been signed between the two, showing a willingness to collaborate and be involved in the ES reward mechanism. A district-level government regulation is being prepared to formally regulate the funding source and its distribution.

4. Rewards for Environmental Services: intertwining factors

Attention must first be focused on the cumulative preconditions required for developing rewards for environmental services. These preconditions, as frequently discussed in the literature, are as follows: (1) the existence and identification of quantifiable environmental service(s); (2) clearly defined providers and beneficiaries, mechanisms and forms of rewards. In other words, the basic PES principle is a voluntary transaction where a well-defined ES (or a land-use likely to secure that service) is 'bought' by (a minimum one) ES buyer from a (minimum one) ES provider, if and only if the ES provider secures ES provision (conditionality) (Wunder 2005). In the Indonesian context, land status, the negotiation process and how the poor could participate are also discussed. Landell-Mills and Porrás (2002) confirmed experience that shows a PES scheme is not a 'silver bullet' that will solve all problems, but requires an institutional and political context.

4.1. Provision of quantifiable environmental services

Three case studies are focused on conserving watershed functions (Sumber Jaya, Cidanau, and Lombok), one action research site focuses on biodiversity conservation (Bungo) and the fifth deals with bundled watershed function and carbon sequestration services (Singkarak). The 'holistic' perception of good watershed functions through promoting tree cover is still considered the main 'commodity' up for negotiation in the ES transfer payment. Clear linkages between ES provision and land-use change promoted by ES guardians (avoiding degradation) and stewards (promoting rehabilitation) have not become the main foundation in negotiations.

It is questionable whether 'regulation' will be more effective than a market-based approach for environmental services (van Noordwijk 2005). On the other hand, the perception of watershed functions urgently requires clarification to ensure a sustainable ES payment transaction. ICRAF-SEA has undertaken to test these assumptions and quantify specific relationships as it develops and continuously improves a series of rapid ES appraisal tools.³

In the Jambi case, it was found that jungle rubber plays an essential role in harbouring flora and fauna from the adjacent forest areas and serving as 'stepping stones' for terrestrial animals (landscape corridor). The Rapid Agro-Biodiversity Appraisal concluded that the jungle rubber system was not only important for biodiversity conservation, but also as an important alternative and sustainable livelihood option (Kuncoro et al. 2005).

4.2. The providers

The communities providing the environmental services reside both inside forest-claimed areas (Sumber Jaya) and outside (Cidanau, Lombok, Bungo, Singkarak). In all areas, agroforestry is the ecosystem background and the community has local knowledge in managing natural resources. In the Lombok case, private ownership dominates land status and landlessness is a serious issue. Landless groups usually become share-croppers who plant annual crops before the multistrata agroforest matures. Sharecroppers, the poorest of the poor, urgently require access, with inequality and disintegration triggered when the agroforestry system matures.

The issue of 'ownership' is crucial in an environmental service benefit-sharing agreement (Pagiola et al. 2002), and very relevant in the Indonesian context because PES is expected to contribute fully to both poverty alleviation and environmental conservation. Facilitating tenure rights for community-based natural resource management systems and legal recognition are urgently needed. This reflects the famous statement that poverty is multidimensional and includes a lack of power and rights as well as physical assets. It also implies that peasant groups must be organised into representative and accountable local organisations. In this way, peasants can apply their rights and obligations in properly managing diverse natural resources as well as determining the genuine benefits from the environmental services they provide.

A study of local institutions at the site level in Indonesia concluded that the level of norms and conventions adopted is very much determined by the specific community's characteristics and historical figures (Arifin 2005). This finding implies that the role of farmers groups as significant agents in growing crops on forest land is not as important as their function in improving social cohesiveness and togetherness. Regarding the understanding of rights, benefits and responsibilities of a farmers' association, most respondents in all RUPES sites seemed confident about their decision to join at least one local organisation. Similarly, they tend to respect more formal working rules related to sustainable resource management. Compared with two other sites studied in

³ RHA = Rapid Hydrological Appraisal and RABA = Rapid Agrobiodiversity Appraisal and RACSA = Rapid Carbon Stock Appraisal; for further information, please visit <http://www.worldagroforestrycentre.org/sea/networks/rupes>

Indonesia, respondents in Sumber Jaya were not really satisfied with the enforcement of rules and regulations on protected forests. They were also more distrustful of government officers.

Supportive institutional environments also exist (Arifin 2005). These are expected to govern and regulate groups of associated agents, enable collective control over transactions and guarantee consensus for action and the evaluation required for joint action. Several societal collective actions were found in the research sites that could provide the foundations for establishing the stronger bonding and bridging social capitals regarded as necessary to develop environmental service markets.

More formal collective action was also found in the region. A multi-stakeholder's initiative (mayors of Nagaris, Regents of Solok and Tanah Datar, and some members of the provincial parliament) agreed to establish a coordinating body and implementing agency for Lake Singkarak. The concept has led to a Management Agency of Lake Singkarak (*Badan Pengelola Danau Singkarak*) being created. By 2004, this agency was finalising its roles, structures, and functions in more detail. Such an organisation could play an important role in formulating rewarding mechanisms and payment transfers for the upland poor who have shown interest in and commitment to rehabilitating the Singkarak catchment, and who have contributed significantly to carbon-projects in Indonesia under the Clean Development Mechanism (CDM) strategy.

In Sumber Jaya, a formal collective action has been available through the watershed community forum for conserving natural resources (*Forum SDA*). This forum was launched by local government officers in January 2004 and endorsed by local government decree (*SK Bupati Lampung Barat*). The forum is an expansion of quarterly routine meetings of the farmers' group to discuss anything related to HKM (*Hutan Kemasyarakatan* = community-based forestry management) issues. Forum SDA is an arena to exchange information and progress updates, share lessons learned and discuss any other necessary collective actions related to improved natural resource management in the Way-Besai watershed. In this case, the benefits of forming HKM are much broader than simply obtaining land tenure security. Furthermore, there is also ample room for village heads to play important roles in the new rural autonomy set-up based on the new Indonesian Law 22/1999 and its improved version of Law 32/2004

4.3. The buyers

Four types of (potential) beneficiaries have been recognised in the Indonesian cases: the private sector (Cidanau), state-owned companies (Sumber Jaya, Singkarak, Lombok), local government (Sumber Jaya, Bungo) and the global community (Singkarak – carbon, Bungo – biodiversity). The existing 'payment' sources are private (Cidanau), and public (Sumber Jaya, Singkarak) through government regulations on community development programs and 'social funds' to revitalise traditional values for forest protection (Lombok). In the Cidanau case, where money flows exist, intermediaries play an important role because buyers will only enter transactions with legal bodies, but the providers are farmers who do not represent themselves as legal institutions.

Each beneficiary analysed has different motivation and payment rationales. Voluntary involvement is driven by private sector business ethics and promoting a good image, as well as the environmental benefit itself. When the private sector rejects such schemes, they do so because environmental conservation is a government responsibility under tax arrangements. Insurance for gaining consistent ES supply to reduce its cost of production and competitiveness with other ES users become main reasons. In contrast, regulations drive both state-owned companies and local government to fund conservation efforts but the distribution of funds is still ambiguous. Policy intervention at the local and national level is needed. Furthermore, regulations must force the public and private sectors to internalise the externalities, to count the 'payment' for ES as a production

cost.

4.4. The reward and its mechanism

Best management practice contract and *land lease* are the two main ES rewards used in Indonesia. Landell-Mills and Porras (2002) and Suyanto et al (2005) define *land lease/land concession* as allocating land use rights in a defined area to the lessee who commits to maintain and/or to produce certain environmental service(s). *Best management practice contract* is defined as a contract between landowners and those who wish to produce or maintain certain environmental service function(s), whereby the landowner is paid to manage their land in ways that achieve the desired contract objective.

Both mechanisms have been operating in Cidanau and Sumber Jaya. In Cidanau, two pilot sites were chosen in a 50 ha plot in total. Payments are made through the watershed forum (Forum *Komunikasi Cidanau*). This forum facilitates transactions between the private water supply company *Krakatau Tirta Industri* (KTI) and the communities at two pilot sites. An Ad Hoc Team was developed in the forum structure to manage the fund. A Memorandum of Agreement between the Cidanau Watershed Communication Forum represented by the Banten Governor and KTI was developed at the end of 2004. In this agreement, KTI voluntarily compensates the community's efforts to maintain good forest cover for two years at the pilot site; the arrangement could be renegotiated to extend to five years. In principle, the contractual agreement between the two parties is:

1. The ES providers receive Rp. 1 200 000⁴ or USD 126 per hectare yearly.
2. The contract will last for five years after being signed.
3. Money will be paid in three rounds as follows:
 - a. 30% at the time the contract is signed.
 - b. 30% 6 months after signing the contract.
 - c. 40% 12 months after signing the contract.
4. No less than 500 fruit or timber trees standing at the end of fifth year.

In Sumber Jaya, 12 HKM (community-based forestry) groups with a total of about 1035 farmers as members have so far been formed with help from the District Forestry Service, ICRAF, and WATALA, a local NGO. Five groups have had initial, five-year HKM licences issued by Major of West-Lampung District (*Bupati Lampung Barat*) and have become the first HKM groups licensed under Ministry of Forestry Decree No. 31/Kpts-II/2001.

5. Current condition of laws and regulations

This section will describe the mostly national laws and regulations relevant to ES rewards. Some local initiatives have emerged; these usually have more operational and specific characteristics. For example, regulations laying out the rules for obtaining an initial HKM licence in Sumber Jaya, the legalisation and distribution of a fund created by earmarking water bills in Lombok, or the legalisation of a multi-stakeholder forum supporting the operation of ES reward scheme in Cidanau.

5.1. Environmental services in protected and production forests

Environmental services provided by forest lands were recognised in 1999 through Act Number 41 on Forestry. The Act regulates the general use of environmental services in protected and production forests. The Act was followed by government regulation Number 34 on Forestry

⁴ 1 USD = Rp. 9500

Planning, detailing the uses of environmental services in protected and production forests. This regulation includes definitions, typology, and permit mechanisms.

The regulation defines environmental services as a kind of a commercial activity utilising the environmental service, without generating environmental problems or damaging the main characteristics of the protected and production forests. Environmental services are divided into five typologies, namely ecotourism, outdoor recreation, water-based commercial activities, carbon trade, forest and environment protection. The concession rights mechanism provides details on all relevant matters to the concession holders, techniques of utilisation, rights to grant a local government permit, the permit duration and sanctions. The weakness is that the regulation generalises all types of uses, which means technical obstacles and business liabilities are inevitably arising. Another weakness is that all stakeholders are dubious about the prospects for providing environmental services as a commercial business. Also, there is no similar incentive for commercial practitioners relevant to sustainable forest management.

Not one company has yet submitted a permit proposal. The Asian Development Bank has assisted in compiling a project design document for afforestation/reforestation under the Clean Development Mechanism (CDM) in four provinces. The use of water resources either for commercial or non-commercial purposes is found in the field, but not yet supported by the necessary regulation. Water resources in production and protected forests are used for hydropower, bottled drinking water, and the supply of clean water for households. None observe the rights and duties laid out in the regulations.

5.2. Environmental services in conservation forests

Act Number 5 of 1990 on Natural Resources Conservation and Their Ecosystems does not explicitly regulate environmental service uses in conservation forests. But the essential substance is contained in Article 26 of the Act through the use of the environment including ecosystems (biological and non-biological), climate condition, natural phenomena, characteristics of plants and animals, and cultural heritages. These uses have not yet been followed-up by appropriate and operational policies and regulations.

The services include, among others: the use of water resources as a non-biological element, carbon trade as part of climate regulation, natural phenomena and cultural heritage for ecotourism, and the protection of specific plants and animals as a source of germ-plasma and bio-prospecting. Their use must be based on the following values: (1) maintaining a sustainable function of the area; (2) equitably improving local people's welfare; (3) applying principles of great care in the implementation.

The use of the service does not yet specify where the use can take place. Based on the environmental service typologies, they can be practically used in national parks, grand forest parks and nature recreation parks. Meanwhile, restricted use can take place in wilderness zones in the national parks, the grand forest parks and the nature recreation parks.

In relation to factual uses in the field, government regulation Number 68 of 1998 on Nature Conservation Area and Nature Reserves Area requires an addendum. The regulation must contain the types of environmental services, including the use of conservation forests as a water regulator. Ideally it must also be followed up by a set of Ministry of Forestry regulations relevant to the criteria and indicators needed, zoning the management as well as the mechanism for environmental service uses. One potential problem is that some stakeholders in the Ministry – conservationists – tend to argue that any conservation forest must free from any exploitation for whatever reasons. Others support the use of conservation forests to reach conservation goals through forest protection

and restoration. The addendum is currently in the hands of decision makers. Studies of the water use in relation to possible administrative, technical, legal, financial and ecological aspects are strictly analysed. It is expected that the results of the studies will narrow down the different perspectives of all relevant stakeholders, and that the addendum can be finally issued by the end of this year.

5.3. Environmental service uses outside forest areas

Environmental services, particularly water, are used more outside forests than within them. This is because of the permit's transparent process. The use of water outside forests is regulated by Act Number 7 of 2004 on Water Resources. The Act regulates water resource management in a comprehensive, integrated way, taking care of environmental principles with the main purpose of using the resources to increase the people's prosperity. The comprehensive management regime includes conservation, empowerment and water control. It also involves a planning, implementation and evaluation system. Integrated management means involving all relevant stakeholders. Management must be based on an equal balance between the significance of ecosystems and the area's environmental carrying capacity for the sake of future generations.

Act Number 7 states that other particular act regulates water conservation in nature reserves, nature conservation areas, forests and coastal areas. Consistently, referring to chapter 5.1 and 5.2, Act Number 5 of 1990 and Act Number 41 of 1999 are the ones that regulate water conservation in protected and production forests, and conservation forests. However, these forestry laws have not regulated water resources conservation at nature reserves, conservation areas, forests and coastal areas. Therefore a new particular government regulation must be issued in accordance with Article 25 of the Act Number 7 and as compliment for Act Number 5 of 1990 and Act Number 41 of 1999.

5.4. Next step: government regulation bill on environmental services' uses

With regards to law enforcement, a government regulation on environmental service uses must be immediately issued to avoid legal ambiguity and complexity, especially with regard to water uses inside and outside forest areas. This regulation will integrate the uses of services, including protected riparian zones, mangroves and coastal areas. Such action is important because all ecosystems connected to the forest fall within the framework of environmental service uses.

In relation to regulation, an academic draft on environmental service uses has already been formulated and all stakeholders at regional and provincial levels have been consulted on the contents as a practical implementation of Act Number 22 of 1999 on Local Government. Nationally, the compilation of the draft has involved all stakeholders from government, universities, NGOs and professionals, including COMMITTEESS (The Indonesian Community of Interest to Empower Environmental Services), the RUPES program coordinated by the World Agroforestry Centre, the Centre for International Forest Research, WWF Indonesia, USAID – Environmental Service Program, Bogor Agricultural Institute (IPB), The Indonesian Institute for Forest and Environment (RMI) and Kehati Foundation.

Obstacles in the processes of compiling the draft regulation include: diverse perceptions on environmental services uses, particularly among decision makers; different backgrounds of knowledge and experience; and successful samples in the field not yet identified. The payment for environmental services in the field is sporadic in nature, and it still impartial.

6. Lessons Learnt and Challenges for Implementation

6.1 Challenges for the establishment of PES

'Payment/reward for environmental services' schemes in Indonesia are still new and experimental. Each institution involved is at a different stage of development and entry point, as described in the above case studies. However, the primary goals of all initiatives are to conserve the environment

and alleviate multi-dimensional poverty, including lack of access, security and problems with equity and justice. On the other words, the schemes are considered as one tool to address such problems. Problems arise when the stakeholders assume that these schemes are panaceas for difficult situations in Indonesia. Therefore, it is important to firstly recognise the main approaches and entry points of each institution engaged in this learning exercise.

Strongly market-based nuances have become the logic behind the current PES concept – a principle of economic incentive instead of command-and-control. Wunder (2005) described PES conditionality as the ‘business-like principle’ that only pays if the service is actually delivered. Based on preliminary analysis of Asian cases (van Noordwijk in prep), especially Indonesian cases, rewards for ES can only be achieved if there is a synergy between natural, human and social capital. The combination of the three provides the basis for evaluating environmental conservation. This experience broadens the conditionality of rewards for ES implementation to four elements that intrinsically contain the three capitals mentioned above: Value (natural capital), Threat (human capital), Opportunity (social-bonding capital) and Trust (social-bridging capital).

‘Value’ is the direct and indirect benefit gained from the environment in the form of natural capital. If it is linked to the ES typology in environmental benefit transfer schemes, it reflects the environmental performance and assesses ES criteria and indicators for its conditionality to rewards. The existence of ‘threat’ depends on the quality of ‘human capital’. Human capital can be manifested as guardian (to protect existing environment) and steward (to rehabilitate degraded environment). Voluntary land-use restriction agreements become the indicators for ES reward conditionality. Finally, social-bonding capital creates ‘opportunity’ for further development of such schemes internally inside a community while social-bridging capital fosters the actualisation of ‘trust’ among different communities. The existence of social-bonding capital will ease the process in developing good spatial planning or rule-based land-use restriction. Social-bridging capital results in mutual respect and shared objectives. The lesson is that rewards are situated in a broader domain combining the elements of trust, planning and negotiated voluntary agreement, and are much less based on ES criteria and indicators.

6.2 Challenges for the dissemination of best practices

All PES pilot sites in Indonesia discussed in this paper are part of a broader international network that is developing a scheme enabling ES providers and beneficiaries to exchange benefits. The Sumber Jaya, Singkarak and Bungo sites are three of six sites in the RUPES program. RUPES is a consortium of partners interested in the RUPES program, coordinated by the World Agroforestry Centre with the support of the International Fund for Agriculture and Development. The consortium includes such organisations as the Centre for International Forestry Research (CIFOR), World Conservation Union (IUCN), Winrock International, Conservation International, Ford Foundation, The Nature Conservancy (TNC), International Institute for Environment and Development (IIED), Worldwide Fund for Nature (WWF), national partners from Asian countries where the program is conducting action research, and other investors. The Cidanau and Lombok sites are part of IIED’s research on Markets for Environmental Services with the support of International Development Research Centre (IDRC). The project is to promote the provision and maintenance of environmental services in ways that are equitable and beneficial for poor people, through market creation, compensation mechanisms, fiscal incentives and other market-based instruments.

At the national level in Indonesia, the COMMITTEES, a multi-stakeholder network, was established as the follow-up action of the Indonesian National Workshop on Payment and Rewards for Environmental Services in February 2005. The network’s vision is to become an organisation capable of supporting all stakeholders in developing compensation for environmental services mechanisms in the frameworks of sustainable development and community livelihood enhancement

in Indonesia. Four main strategies have been drafted: (1) to increase the internal capacity of the network through shared learning and regular meetings; (2) to profoundly analyse environmental service issues nationally and internationally; (3) to stimulate both scientific and applicative public debates through media information and open discussions; and, (4) to effectively advocate environmental service issues through networks and collaborations with other interested groups and communities. In line with workshop's recommendation, the COMMITTEES's two main programs are internal and external capacity building of ES issues in Indonesia, including payment and rewards; and dissemination and advocacy at local, national and global levels.

Various multi-stakeholder forums exist at local level. The roles range from intermediaries for the ES payment transaction to media for information exchanges. In many cases, these forums give advice and input into the field implementation of PES schemes. Formal letters from municipalities or provincial government usually grant such forums legal status. These forums are very useful to disseminate awareness and updates on how a PES scheme is being established to more localised stakeholders. Usually local NGOs and governments facilitate the trickle-down information flows to communities.

6.3 Challenges for research and capacity building initiatives

The RUPES program has undertaken one of the most comprehensive series of research activities. The program aims to create the basis for applying proven institutional mechanisms that will recognise and reward poor upland communities for the environmental services they provide. To achieve this, the program consortium is creating the knowledge to direct rewards to upland communities. New methods for environmental transfer payments will be tested and monitored through action research. These methods will ensure that the transaction costs for these activities are competitive, and that there is full community involvement in decision-making. The program is also exploring the most appropriate means to institutionalise a sustainable payment process.

At national level, the most recent national workshop on PES recommended steps to develop the payment scheme for environmental services in Indonesia. Those steps are: national regulation; exploring the potential for environmental benefit-sharing schemes; concept packaging through publication and marketing of ideas; capacity building for stakeholders, being the community as the environmental service provider, environmental service users, policy makers (government body) and intermediaries (NGOs); the preparation of monitoring officers; and the evaluation of payment schemes already created. The network-based COMMITTEES team was formed as an initiator and motivator of payment and to further implement all recommendations from the workshop. This network (see 6.2) will act as an initiator, coordination centre and communicator of different initiatives for payment mechanisms for environmental services in Indonesia.

Three types of capacity improvement are recommended in Indonesia: the concept of payment for environmental services; legal drafting about payment schemes; and skill enhancement such as marketing, silviculture, negotiation and interdepartmental coordination within government. This is in line with recommendations from the discussion group examining implementation strategies. This discussion group also recommended an evaluation of payments implemented within one location, and to review studies by many different institutions. To further analyze the social mobilisation and capacity building needs, the RUPES program will identify an initial approach to the RUPES site leaders and partners in Indonesia, asking them to incorporate social mobilisation and capacity building activities relevant to testing ES rewards and reward mechanisms into the site operational plans in the next year.

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