



An Overview of PES Implementation in the Philippines

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Published by WorldFish (ICLARM) – Economy and Environment Program for Southeast Asia (EEPSEA).
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ISBN: 978-971-9680-41-3

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Suggested Citation: Macandog, P.B.M. 2016. An Overview of PES implementation in the Philippines. EEPSEA SRG Report No. 2016-SRG6. Economy and Environment Program for Southeast Asia, Laguna, Philippines.

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October, 2016

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EEPSEA is supported by the International Development Research Centre (IDRC); the Swedish International Development Cooperation Agency (Sida); and the Canadian International Development Agency (CIDA).

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AN OVERVIEW OF PES IMPLEMENTATION IN THE PHILIPPINES

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EXECUTIVE SUMMARY

Payment for ecosystem services (PES) is an emerging scheme in resource conservation, which has been recognized in the Philippines as a viable approach to environmental conservation. Although the Philippines still lacks a national policy that provides a framework for establishing PES, there are various policies that may provide an enabling environment for such schemes. Adequate laws exist, which regulate the delivery and utilization of environmental services, protection of source areas, and extension of benefits to local communities in the source areas. The various institutional players in the ecosystem services sectors include government agencies and corporations, private sector, donor community, civil society, and the local government.

This study was done to provide an overview of the implementation of PES and PES-like schemes in the Philippines. It also highlights the success stories in the country, describes the challenges, and determines the future research needs for the advancement of this interdisciplinary.

The implementation of PES schemes in the Philippines are still at the initial stages. Although there have been positive results from their implementation, there have also been significant drawbacks that hinder their efficient implementation. Based on the reviewed PES cases in the Philippines, the government's role as intermediary is crucial in establishing PES schemes; it can greatly influence information dissemination and education to key stakeholders. The case studies also show that people's organizations and NGOs have been effective in strengthening the cooperation among upland communities. Through the government's initiative, the PES schemes have successfully raised funds for resource conservation activities. Fully functioning user fee systems are also capable of independently generating funds for ecosystem management.

Implementers of existing and new PES schemes may learn from the key issues that stood out in the case study areas. The institutional and social conditions at the sites must be considered when establishing PES schemes. Accordingly, the viable conditions for implementing PES schemes include well-defined sellers and buyers, potential for poverty alleviation through the transfer of resources from richer buyers to poorer sellers, existence of a defined environmental problem, a chance to promote land-use management to counter environmental degradation, and a cost-effective institutional framework. An efficient PES scheme can be established through the coordination and active participation of stakeholders and by establishing a well-defined set of goals and responsibilities among the institutions involved.

The decision-making process and design of a PES scheme must also consider the effect of uncertainty in the provision of ecosystem services caused by limited baseline information and information gaps about the ecosystem linkages. If ecosystem linkages are

not properly identified, then ecosystem services may show little improvement despite efforts in resource rehabilitation. Failing to improve the provision of ecosystem services may also jeopardize the short- and long-term implementation of PES schemes. Continuous efforts must be made to revise current experiences and to explore other aspects that could achieve sustained flow of ecosystem services over time

PES implementers should also follow-through with their livelihood improvements and poverty alleviation objectives. In several cases, the PES scheme was unsuccessful in improving the income of the upland communities. In extreme cases, providers did not receive any payment from the water users for the water service they had provided.

PES-like approaches to resource protection and conservation are being practiced by multiple sectors in the Philippines. The schemes have been established by recognizing the importance of maintaining ecological integrity in order to achieve sustainable ecosystem service provision. Private companies and local communities also recognize the importance of resource protection to support business operations and livelihood activities. PES-like schemes have also been successful in generating additional revenue for implementing conservation programs.

1.0 INTRODUCTION

1.1 Ecosystem Services

Ecosystem service is formally defined by the Millennium Ecosystem Assessment (MEA) as “a set of amenities provided by natural or managed ecosystems that may directly or indirectly benefit society” (MEA 2003). The MEA categorizes environmental services into four broad groups: provisioning services, regulating services, cultural services, and supporting services.

Provisioning services encompass the productive capacity of environmental services. Examples of which include the products obtained from ecosystems such as food, fresh water, fuel wood, fiber, and biochemicals. *Regulating services* are the benefits obtained from the regulation of ecosystem processes. These services include processes such as climate regulation, water purification, and pollination. *Cultural services*, meanwhile, are defined as the nonmaterial benefits that society gets from ecosystems such as aesthetic values, recreation, spiritual, and religious benefits. *Supporting services* are the processes needed for the production of all other environmental services that include soil formation and nutrient cycling.

Ecosystem services are valuable to society as they provide a wealth of benefits to human well-being (Figure 1). The interlinking of environmental services provides benefits such as security to society in the form of personal safety, resource access security, and security from disasters. Raw materials from environmental services also provide shelter, livelihoods, and food. Moreover, environmental services provide health benefits to society through the provision of clean air and water. Good social relations can also be products of sufficient supply of environmental services as they can foster social cohesion and mutual respect (MEA 2003).

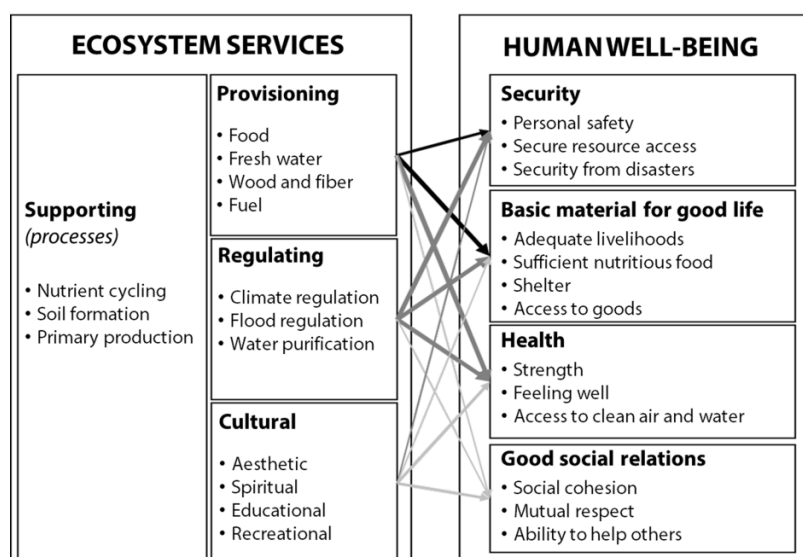


Figure 1. The value of environmental services to society

Source: MEA (2003)

In the Philippines, watersheds occupy about 70% of the country's total area. These watersheds were originally covered with lush forests located in the upstream area of the watersheds, occupying 15.88 million hectares (ha), which is about 53% of the country's total land area (Arocena-Francisco 2003; Francisco 2005).

The ecosystem services provided by watersheds are vital to the livelihood and survival of communities, especially the rural poor. However, human pressure most often leads to the degradation of watersheds, affecting its ecological integrity and ability to provide ecosystem services. Anthropogenic activities include land-use change, fragmentation of habitats, overexploitation, pollution, and loss of biodiversity. In most Philippine uplands, the land uses of small-scale farmers are driven by goals of subsistence living from forest extraction activities and farming practices. This land uses provide short-term benefits at the expense of ecosystem services that are important to a larger society at both national and global levels. Particularly, the high deforestation rate of about 100,000 hectares per year in the past 60 years due to logging, conversion to agricultural lands, and settlements have remarkably reduced the flow of watershed services (Bennagen et al. 2006; MEA 2003; Arocena-Francisco 2003).

Such environmental degradation is further aggravated by market failures, lack of awareness of the environmental services provided by natural ecosystems, and the presence of aberrant subsidies and taxes that encourages activities that destroy the environment (Cremaschi, Lasco, and Delfino 2013). This environmental degradation has affected about 60% of ecosystem services provided by natural ecosystems (MEA 2003).

The main challenge now is to protect and conserve the remaining natural forests, promote and encourage non-destructive and pro-environmental land uses of secondary forests, and promote sustainable land uses/practices in deforested and cultivated areas. To address this issue, the Philippine government and upland development agencies have embarked on community-based forest management and watershed management approaches; the upland communities have been engaged as partners in the efforts to

protect the environment. Assistance directed toward improving the socioeconomic conditions of the upland communities has been provided to engage the cooperation of upland communities (Arocena-Francisco 2003; Chokkalingam et al. 2006).

However, several attempts of both the government and nongovernment institutions to maintain watershed services have failed due to the top-down approach used in project implementation, the limited involvement of local communities, and the lack of financial support. Previous experiences have shown that it is not sustainable for the government to provide these ecosystem services or to provide external funding (Francisco 2005; Alpízar and Madrigal 2008 as cited by Cremaschi, Lasco, and Delfino 2013).

1.1.3 Positive externalities and payment for ecosystem services

Ecosystem services are considered positive externalities as they are oftentimes obtained directly or indirectly from the environment and are not integrated into the market. Ecosystem services are also categorized as public goods because they exhibit characteristics such as non-excludability (consumers cannot be prevented from enjoying the goods or services) and non-rivalry (the consumption of goods or services does not reduce the amount available for others). Thus, due to the absence of property rights or other legal means and the non-recognition of the service provision by the beneficiaries and providers, markets fail to emerge (Tongson 2005; Cremaschi, Lasco, and Delfino 2013).

Conservation and protection of public good services like ecosystem services require government intervention through establishing rules and regulations. However, weak bureaucracies, corruption, inefficiency, and rent-seeking behavior are some of the major obstacles to this approach. Public funds to secure or conserve the public good are always lacking due to competing priorities for government resources. Areas of scenic beauty under government control are often neglected, which results in decline in tourism.

PES is an emerging scheme that endeavors beneficiaries to pay providers for the ecosystem services. PES allocates the costs and benefits equitably creating a “win-win” institutional arrangement. Public good or positive externalities are internalized into the payment scheme. Equity and social justice may also be promoted in the PES scheme (Tongson 2005).

1.2 Research Problem and Objectives

The Economy and Environment Program for Southeast Asia, which funded this research, believes that a deeper understanding of the economic values of ecosystems services is essential in order to craft a sound policy design. In fact, the assessments of ecosystem services are particularly challenging in developing countries like Southeast Asia due to the limited ecological, economic, and social information available. Thus, with this motivation, it is important to cull information in order to provide an overview of the PES implementation in Southeast Asian countries and to highlight the success stories, describe the challenges, and determine the future research needs for the advancement of this interdisciplinary field.

Accordingly, this study has the following objectives:

1. To provide an overview of the implementation of PES or PES-like studies in the Philippines; and
2. To highlight success stories of PES implementation in the country by providing scientific and anecdotal evidence related to the selected sites.

2.0 LITERATURE REVIEW

2.1 Payment for Ecosystem Services

2.1.1 PES schemes

All PES schemes are based on the principle that people located in ecosystems, who provide the services (providers), should be compensated for the continuous provision of such services. Those who benefit (beneficiaries) from such ecosystem services, in turn, should pay for the protection of such ecosystems (Wunder 2005; Pagiola, Arcenas, and Platais 2005; Engel, Pagiola, and Wunder 2008). Wunder's (2005) definition of an ideal PES includes five main characteristics: (1) a voluntary transaction between providers and buyers, (2) well-defined and measurable ecosystem service(s), (3) ecosystem service as demanded by a minimum of one buyer, (4) provision of ecosystem service carried out by a minimum of one seller, and (5) conditionality of payments made upon the provision, of sustained flow and ecosystem services over time.

The nature of land use is an important consideration in a PES program. Higher costs will be incurred by the service providers if a PES program entails a change in land use as compared to a PES program that requires a specific land use to be retained. In terms of the benefits received by landowners from different land uses, conservation activities yield lower benefits than agricultural land uses. For example, to pursue agricultural production, upland forests are cleared to make room for crops and livelihood. In turn, these make the downstream population vulnerable to soil erosion, floods, and loss of biodiversity and carbon storage. Therefore, by providing incentives, PES schemes make conservation activities attractive to landowners (Engel, Pagiola, and Wunder 2008).

The aim of PES programs is to convert socially desirable yet unprofitable land uses into profitable ones that will encourage landowners to adopt or continue the adoption of that land use. However, there are a number of reasons why PES schemes become inefficient. PES programs are rendered inefficient when the payments set are too low that they fail to encourage the adoption of socially desirable land uses. Also, PES schemes become inefficient when the land use endorsed by the program incur higher costs than the benefits from the land use. Lastly, the program becomes inefficient if the land use is adopted regardless of the existence of PES programs (Engel, Pagiola, and Wunder 2008). Despite the pitfalls of PES schemes, many have remained hopeful with the idea of "contractual conservation." PES brings innovations to both the supply and demand side of environmental services. In particular, PES provides efficient use of funds for conservation (Wunder 2008).

In the Philippines, the linkage between land-use practices and the supply of the ecosystem service should be made clear between the supplier and the buyer of ecosystem services. Many conditions are needed to implement a working environmental service payment scheme. Since providers are expected to conduct various natural resource management practices or avoid extractive/damaging activities to support the ecosystem in providing environmental goods and services, they may face higher costs and incur opportunity costs in terms of foregone income. In the bargaining process, the buyers or beneficiaries should at least compensate the opportunity cost of land. The maximum amount of money paid by the beneficiaries should be less than the value of the benefits they obtain for the protection, conservation, and provision of ecosystem services they are not willing to pay. It is also critical to organize a negotiation between the potential sellers and buyers (Wunder 2005; Engel, Pagiola, and Wunder 2008; Francisco 2005).

2.1.2 Preconditions of PES schemes

PES schemes require a strong involvement of resource-based communities, and this seems to be quite suited under Philippine conditions. However, beneficiaries should be active participants in the scheme. An important aspect of PES scheme that distinguishes it from previous natural resource management schemes is the active involvement of the beneficiaries in the transaction process, directly or indirectly. Transaction in PES, usually occurring in a market setting, involves payments in exchange for provision of goods or services. It is implicit that the provider receives the payment upon delivering the ecosystem services or that sustained payments will be provided only from continuous ecosystem service provision (Wunder 2005; Engel, Pagiola, and Wunder 2008; Francisco 2005).

Aside from cash payments, short-term rewards under the PES scheme may include wages for services rendered, free planting materials, training, technical assistance, and security of tenure. The amount of payment by which the payment scheme will be based on should reflect both the foregone income of the provider and the value of the benefits provided to the beneficiary. The computation of the benefits should include both the tangible (water, electricity, bio-diverse resources) and intangible benefits (recreation, carbon sequestration, and other ecological functions).

The intermediary or facilitator is another important party to the ecosystem service payment. The facilitator can be responsible for bringing buyers and sellers together, and therefore plays a critical role in the transaction process. In the Philippines, The World Bank, Asian Development Bank, and the Global Environmental Facility (GEF) have been actively providing funds for the transaction costs (Francisco 2005). Similarly, the Rewarding Upland Poor for Environmental Services (RUPES), supported by the International Fund for Agricultural Development (IFAD), is a project aimed at developing PES mechanisms that will benefit the poor upland people of Asia. These initiatives intend to build working models of best practices for successful environmental transfer agreements adapted to the Asian context (Leimona 2005).

Finally, institutionalizing the system of collecting payments, paying fees/dues, monitoring land-use activities, and providing the ecosystem service should supplement any PES scheme (Francisco 2005).

2.2 PES Policy Context in the Philippines

In recent years, PES has been recognized in the Philippines as a viable approach to environmental conservation. Although no national policy that provides the framework of PES establishment in the country exists, there are legal basis that may provide enabling environment for PES schemes (Reyes-Boquiren 2005).

2.2.1 Institutional players

The various institutional players in the environmental services sectors include government agencies and corporations, private sector, donor community, civil society, and local government units (LGU) (Reyes-Boquiren 2005). In watershed management for water supply, the institutional players include the DENR, National Irrigation Authority (NIA), National Water Resources Bureau (NWRB), National Commission on Indigenous Peoples (NCIP), water supply companies, water districts and the Local Water Utilities and Water Authority, LGUs, Community-Based Forestry Management Agreement (CBFMA) holders, assisting NGOs, sponsoring multilateral/bilateral agency, and business sector (e.g., Dole Philippines).

In the case of watershed management for hydroelectricity, the potential institutional players are the Department of Energy (DOE), Energy Regulatory Commission, National Power Corporation (NPC), NCIP, independent power producers, distribution utilities/franchisees, regional electric cooperatives, Manila Electric Company (MERALCO), private independent-owned utilities, LGUs, holders of Certificates of Ancestral Land Doman Title/Claim (CADC/CADT), assisting NGOs, and sponsoring multilateral/bilateral agencies (e.g., International Labor Organization, Japan Bank of International Cooperation).

In the case of biodiversity conservation-like cases in Palawan, the institutional players are the Protected Areas and Wildlife Bureau (PAWB-DENR); Department of Science and Technology; Philippine Council for Aquatic and Marine Resources Research and Development; Department of Agriculture (DA); Bureau of Fisheries and Aquatic Resources; Protected Area Management Board (PAMB); NGOs; academic communities; CADC/CADT holders; LGUs; and sponsoring multilateral/bilateral agencies (e.g., UNDP-GEF-SGP, World Bank for CPPAP, EC, DANIDA, The Royal Netherlands Embassy). For ecotourism sites like Mt. Kitangland and Mt. Pulag, the institutional players involved are the Department of Tourism (DOT), DENR (for Protected Areas), NCIP, tourism service providers, PAMB-DENR, CADC/CADT holders, LGUs, and sponsoring multilateral/bilateral agencies (e.g., UNDP-GEF-SGP, the World Bank). For other environmental services like elevation and strategic location, the institutional players include the Department of Transportation and Communication, DA, LGUs, telecommunication companies, and farming communities.

2.2.2 Framework for payment mechanisms

A major challenge in the PES framework is the fair sharing of costs and benefits through the development of new markets. In the Philippines, there are adequate laws to regulate the delivery and utilization of environmental services, to protect source areas, and to extend benefits to local communities in the source areas. Policies are continually

re-examined by active stakeholders with the aim of improving the efficiency of provision, control over, access, and utilization of resources. Policies are evolving from purely technical and administrative to those that respond to changing demands on natural resource management regimes such as sustainable development, conservation, centralized governance, and multi-stakeholder participation.

There are several existing instruments for ES payments for various ES sectors. In the case of watershed management for water supply, the various instruments include CBFMA, resource-use permits (RUP), Annual Work Plan (AWP) for non-timber forest products (NTFP), water use permits, and LGU ordinance for watershed management and fund utilization. In the case of watershed management for hydroelectricity, the instruments may include user fees from power producers and LGU ordinance for watershed management and fund utilization. In community-based forestry management (CBFM) programs, the instruments are CBFMA with RUPs, and AWP for NTFP, whereas Commercial Research Agreement can be the instrument used for biodiversity conservation. The instrument for NTFP is RUPs, user fees for tourism, and real property tax or rental fees for other environmental services.

The opportunities, rewards, and incentives for PES in the watershed management for water supply include supplemental income, livelihood opportunities, training (agroforestry, entrepreneurship, leadership, project management, adaptive farming technologies); and share from national wealth (Reyes-Boquieren 2005). In watershed management for hydroelectric power, the benefits may include power benefits, employment, capacity building, livelihood opportunities, Reforestation Watershed Management Health and/or Environment Fund, and LGU share from national wealth. The benefits from CBFM awards are security of tenure, supplemental income from trees, employment, seed capital for income-generating projects, and training (agroforestry, watershed management, leadership, project management, adaptive farming technologies, watershed management, entrepreneurship). The benefits from biodiversity conservation may include application fee, rehabilitation/performance bond, bio-prospecting fee, milestone payments (annual user fees, royalties, and product development fees), training, and supplemental income from livelihood. The benefits from NTFP RUPs are NTFP harvests and supplemental income from tourism services; while those from other environmental services are real property tax or rental fee.

There are substantial gaps and constraints in the policy framework for PES. A policy framework for benefits transfer and sharing that needs to be established should be practical and based on real-life scenarios. The factors critical to the success of PES include LGU leadership, strong community organization, social preparation and social acceptability, and appropriate livelihood support (Reyes-Boquieren 2005).

3.0 OVERVIEW OF PES CASES IN THE PHILIPPINES

In this study, seven existing PES schemes, one newly established PES, and 101 PES-like cases were reviewed (Figure 2). The population of PES schemes documented in this study does not encompass all existing PES and PES-like schemes in the country, as several implemented PES and PES-like schemes being implemented lack online and formal written documentation. These schemes were chosen because they have been ongoing for several years, which allowed for significant insights on implementation experiences and issues. Sufficient documentation and evaluation studies were conducted in these sites, which helped to further understand the implementation issues encountered by the stakeholders.

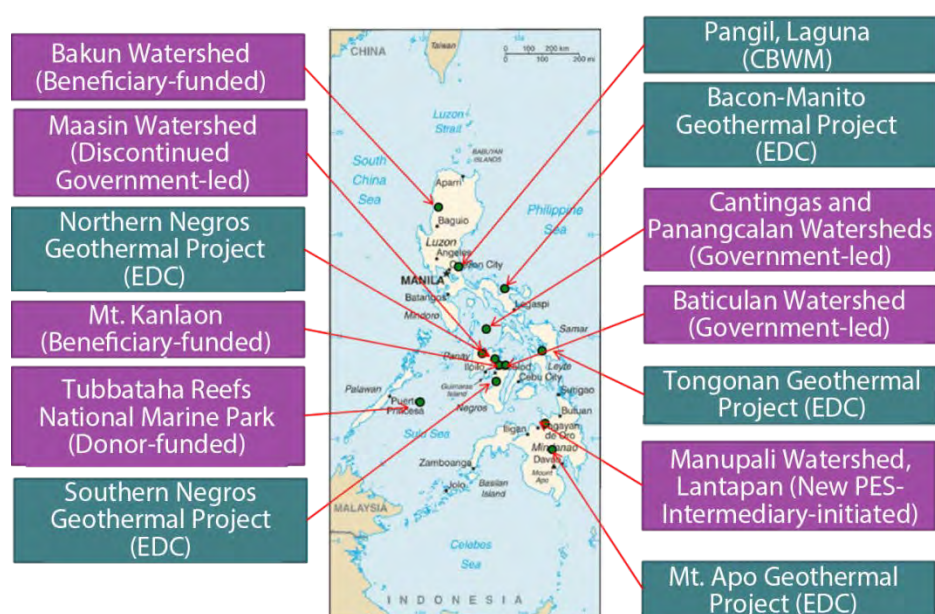


Figure 2. Location of reviewed PES-like schemes in the Philippines

In-depth analysis of PES implementation (Table 1) was conducted for the seven identified PES schemes; the drivers, activities, and goals of the 101 PES-like cases (95 are protected areas in the country, five are implemented by EDC, and one is a community-based watershed management system) were assessed. The overview of PES and PES-like implementation in the study sites is summarized in succeeding Tables 1–8.

PES cases differ from site to site ranging from beneficiary-driven to intermediary and government-implemented schemes. Most of the PES schemes are adopted in watershed ecosystems with the primary goal of protecting the watershed to regulate water flow. PES schemes are also used as a market-financed conservation scheme in protecting natural parks. Although PES schemes provide great potential in natural resource conservation, it is not foolproof. There are cases in the Philippines where PES has failed to achieve sustained ecosystem service provision. Several PES cases, both ongoing and inactive, are highlighted in the succeeding section.

Table 1. In-depth analysis of PES schemes

PES Site	Bakun Watershed ^a	Mt. Karlaon Natural Park ^e	Baticulan Watershed ^d	Sibuyan Island: Cantingas and Panangalan Watersheds ^c	Maasin Watershed ^b	Tubbataha Reefs National Marine Park (TRNMP) ^f
Classification	Beneficiary-financed	Beneficiary-financed	Government-financed	Government-financed	Government-financed (discontinued)	NGO-financed
Ecosystem	Watershed	Watershed	Watershed	Watershed	Watershed	Landscape/ Seascape beauties
Specific ecosystem services	Water flow regulation for domestic, industrial, and agricultural uses	Water flow regulation, biodiversity	Water flow regulation for domestic, industrial, and agricultural uses	Water flow regulation, flood mitigation, water for hydropower, farm and fishery production	Water flow regulation	Aesthetic seascape beauty Marine biodiversity
Location	Benguet, Northern Philippines	Negros Occidental and Negros Oriental, Visayas	Negros Occidental, Visayas	Romblon, MIMAROPA	Iloilo, Visayas	Sulu Sea
Area size (ha)	31,000	24,558	428	45,600	6,738	33,200
Status	Ongoing	Ongoing	Ongoing	Ongoing	Discontinued	Declared a World Heritage Site in 1993
Initiator	RUPES	La Tondena Distillers, Inc. (bottling company)	San Carlos City Government	San Fernando, La Union government and Kabang Kalikasan ng Pilipinas (NGO)	Iloilo local government, DENR, MIWD	Tubbataha reefs was declared a World Heritage Site on 11December, 1993 by UNESCO
Buyer	Private hydroelectric companies	KSWP owned by La Tondena Distillers, Inc.	Households, industries, small-scale farmers	Households, industries, small-scale farmers	Households, industries, small-scale farmers	Recreational scuba divers; Philippine Navy

Table 1 continued

PES Site	Bakun Watershed ^a	Mt. Kanlaon Natural Park ^e	Baticulan Watershed ^d	Sibuyan Island: Cantingas and Panangcalan Watersheds ^c	Maasin Watershed ^b	Tubbataha Reefs National Marine Park (TRNMP) ^f
Intermediary	RUPES	PBSP (NGO) MUAD (NGO)	Local Government of San Carlos	San Fernando, La Union government Kabang Kalikasan ng Pilipinas (NGO)	LGUs, Kahublagan Sang Panimalay Foundation, DENR, local NGO KSPFI, Tigum-Aganan watershed management council, and the Iloilo watershed management council	WWF-Philippines
Seller	Upland indigenous people	Private upland landowners	Private upland landowners	Upland dwellers, indigenous people of the Mangyan Tagabukid tribe	Private upland landowners	Palawan Council for Sustainable Development; DENR; local government and fisher folk of Cagayancillo
External donor support	–	GEF-WB	–	WWF, CARE International, and IIED secured funds from DGIS and DANIDA	JOECF; user fees from MIWD	UNDP-GEF, Packard Foundation, JICA, Marine Parks Center of Japan, local and international conservation organizations, and UNESCO

Table 1 continued

PES Site	Bakun Watershed ^a	Mt. Kanlaon Natural Park ^e	Baticulan Watershed ^d	Sibuyan Island: Cantingas and Panangcalan Watersheds ^c	Maasin Watershed ^b	Tubbataha Reefs National Marine Park (TRNMP) ^f
Major obstacles to implementation	Lack of transparency in fund utilization Misallocation of funds	Implementation flaws Long process of community preparatory work Unclear guideline on the use of livelihood fund	–	–	Benefits from PES scheme were not channeled to service providers MIWD stopped transferring funds to DENR after two years Farmers practiced improper cultivation of land within the watershed	Open access, public good, difficulty in establishing accountable service providers
Linked policy	Energy Act of 1992 and EPIRA of 2001	Implemented watershed rehabilitation activities in compliance with the requirement of the DENR	Implemented by San Carlos City Government through the Water City Ordinance No. 37 Series of 2004	Implemented by San Fernando LGU through an ordinance for water levy in 2009	Local Government Code of 1991 (RA 7160); NIPAS Act (RA 7586); DOE Act (RA 7638) and EPIRA (RA 9136, 2001); EO 318 (2004)	

Table 1 continued

PES Site	Bakun Watershed ^a	Mt. Kanlaon Natural Park ^e	Baticulan Watershed ^d	Sibuyan Island: Cantingas and Pangcalan Watersheds ^c	Maasin Watershed ^b	Tubbataha Reefs National Marine Park (TRNMP) ^f
Mode of payment	Payments collected via Electrification, Development, and Livelihood Fund; and Reforestation, Watershed Management, Health and/or Environmental Enhancement Fund; tax paid to local government	No direct monetary payments but La Tondeña Distillers, Inc. funded watershed rehabilitation activities and provided livelihood opportunities to locals	Water levy in the form of an environmental fee	Water levy in the form of an environmental fee	User fee system	User fee system for tourists
Payment rate	Trust fund tax	Tree planting, community development, livelihood opportunities, donations	Environmental fee: water levy of PHP 0.75 (USD 0.017) on every cubic meter of water billed	Environmental fee: Water levy of PHP 15/month (USD 0.36/month) per household	Payments: real estate tax and user's fee for watershed protection	Fee structure of USD 25 for local divers and USD 50 for foreign divers per visit

Sources: ^a Cremaschi, Lasco, and Delfino (2013); Villamor and Lasco (2006); Villamor and Lasco (2009); Lasco and Villamor (2007); ^b Arocena-Francisco (2003); Porras and Neves (2006); Salas (2005); Cremaschi, Lasco, and Delfino (2013); ^c Lasco and Villamor (2007); Villamor and Lasco (2009); Cremaschi, Lasco, and Delfino (2013); Porras (2011); Tongson and Balasinorwala (2010) ^d Villamor and Lasco (2007); Villamor and Lasco (2009); Catacuta, Villamor, and Pinon (2010); Cremaschi, Lasco, and Delfino (2013); ^e Arocena-Francisco (2003); Porras and Neves (2006); ^f Tongson (2005); Salas (2005)

Notes: (1) MIMAROPA is an administrative region in the Philippines located in South Luzon. It is composed of the provinces Marinduque, Occidental Mindoro, Oriental Mindoro, Palawan, and Romblon. (2) CARE = Cooperative for Assistance and Relief Everywhere; DANIDA = Danish International Development Agency; DGIS = Directorate General for International Cooperation; DENR = Philippine Department of Environment and Natural Resources; DOE = Philippine Department of Energy; EPIRA = Electric Power Industry Reform Act; GEF-WB = Global Environment Facility-World Bank; ILED = International Institute for Environment and Development; JICA = Japan International Cooperation Agency; JOECF = Japanese Overseas Economic Cooperation Fund; KSFI = Kahublagan Sang Panimalay Foundation, Inc.; KSWD = Kanlaon Spring Water Plant; LGU = local government unit; MIWD = Metro Iloilo Water District; MUAD = Multi-sectoral Alliance for Development; NIPAS = National Integrated Protected Area System; NGO = nongovernmental organization; PBSP = Philippine Business for Social Progress; RUPES = Rewarding Upland Poor for Environmental Services; UNDP-GEF = Global Environment Facility of the United Nations Development Programme; UNESCO = United Nations Educational, Scientific, and Cultural Organization; WWF = World Wildlife Fund

3.1 Ongoing Beneficiary-Financed PES Schemes

3.1.1 Bakun Watershed and Mt. Kanlaon Natural Park

The Bakun watershed is located in Benguet, Northern Philippines with a total area of 310 km² divided among seven *barangays* (villages). The ecosystem services/functions provided by the watershed include water flow regulation; landscape beauty; spiritual enhancement; water for domestic consumption, industrial use (e.g., hydroelectric production), and irrigation for lowland and upland agricultural fields; sediment control; optimal habitat for various species; food; and timber. However, the watershed underwent a high deforestation rate due to agricultural production. In order to mitigate the loss in forest cover, the locals practiced sustainable farming and land management for continuous provision of watershed services (Swallow et al. 2010; Cremaschi, Lasco, and Delfino 2013).

The main beneficiaries of watershed conservation are the hydropower companies, namely, the Hydroelectric Development Corporation (HEDCOR, Inc.), the Northern MiniHydro Corporation, and the Luzon Hydropower Corporation (LHC). The sellers of ecosystem services are the indigenous groups of Bago and Kankana-ey, who constitute about 92% of the population in the uplands. The Bakun indigenous people (IP) are predominantly poor with limited economic activities but are rich in sociocultural heritage and traditional knowledge of the natural world. They are highly dependent on natural resources, and they use indigenous knowledge of agricultural systems and practices for subsistence (Villamor and Lasco 2006; Villamor and Lasco 2009; Lasco and Villamor 2007).

In this PES scheme, the RUPES program intermediated among stakeholders to develop effective and transparent market-based mechanisms aimed at improving standards of living by providing better livelihood sources, reducing poverty, and promoting natural resource conservation. LGUs and the Bakun Indigenous Tribe Organization were also active intermediaries in providing information, education, and communication programs and in promoting participation of upland communities (Villamor and Lasco 2009; Cremaschi, Lasco, and Delfino 2013).

The Mt. Kanlaon Natural Park (MKNP) is located in the provinces of Negros Occidental and Negros Oriental. Its land area is approximately 24,558 ha and covers four cities and two municipalities with 3,000 households. It has rich biodiversity, many of which are classified as threatened, critical, or endangered. Under the National Integrated Protected Areas Systems (NIPAS) Law, MKNP was proclaimed a protected area in 1997. It is one of the 10 priority sites covered by the Conservation of Priority Protected Areas Project (CPPAP). A part of the park functions as headwater catchment of three major river systems that drain into northwestern Negros. According to the MKNP Management Plan of 2001, 75% of the park belongs to Bago watershed and 25% to the Nahalin and Binalbagan River watersheds (Arocena-Francisco 2003).

The activities of migrants and indigenous people who are culturally and economically dependent on the resources of Mt. Kanlaon have caused continuous degradation of forest cover. Rehabilitation efforts have been done, including reforestation

of denuded areas, stabilization of riverbanks, and investment in soil conservation measures (Arocena-Francisco 2003; Porras and Neves 2006).

The La Tondeña Distillers, Inc. owns the Kanlaon Spring Water Plant (KSWP), which draws spring water from the innermost strict protection zone of the Kanlaon Natural Park. The bottling company is aware that the sustainability of their spring water bottling business rests on the preservation of the watershed function of the natural park. Thus, they funded a 50-hectare tree-planting project in Bago watershed, and planted about 100,000 fruit trees along with some forest trees. The project was implemented by La Tondeña Foundation in collaboration with the NGO Philippine Business for Social Progress and the People's Organization of Barangay Ilijan. The project was able to establish two nurseries that assisted 51 local farmers in adopting sustainable agroforestry practices including Sloping Agricultural Land Technology (SALT), multi-storey, rock walling, and use of organic fertilizers (Rosales et al. 2001 as cited by Arocena-Francisco 2003).

In compliance with the requirement of the DENR, the company carried out additional protection activities including reforestation of 20 ha and rehabilitation of 80 ha of land within the watershed. A total of 28 upland farmers were involved in the conduct of these forest rehabilitation activities, and were subsequently accredited as members of the Kanlaon Green Brigade. As part of its social responsibility, the company provided 50 spring boxes that benefitted 50 households, conducted feeding programs and free medical clinics, donated cash, and built 1–2 km of access road and a two-room school building. The company also provided assistance in the organization of the Ilijan Development Organization (IUDO) with 98 farm families as members. The IUDO was contracted to conduct reforestation activities and was provided with livelihood enhancement programs. The IUDO's great performance in forest management was well-recognized by the DENR; they were awarded with Tag-Amlig for three consecutive years from 1998 to 2000, and were elevated to the Hall of Fame Awardees in the People's Organization category. The La Tondeña Company also won awards in the Industry category in 1999 and 2001 for its social responsibility projects and the reforestation of 207 ha of forestlands.

Landowners within the infiltration area of the spring/groundwater reservoir of MKNP play a crucial role in the protection and conservation of the watershed. As such, community-based, participatory and multi-sectoral approach to resource management was advocated in the area. As of 1999, the reforestation programs have reforested approximately 500 ha of forestland (Arocena-Francisco 2003; Porras and Neves 2006).

The La Tondeña Foundation, with the collaboration of the NGO and the Philippine Business for Social Progress, was the major intermediary in the PES scheme. Furthermore, funding for livelihood projects, park protection, and conservation activities came mostly from the Global Environment Facility-World Bank (GEF-WB). Other agencies involved in the implementation of these programs include the DENR and NIPAS (Porras and Neves 2006).

The PES scheme started in 1997 and was active until 2008. In order for the KSWP to protect the quality of its bottled water, it encouraged and rewarded the upland farmers in MKNP for practicing sustainable agroforestry systems (Porras and Neves 2006).

3.1.2 Establishment of the payment rate for the PES scheme

The payment rate for the PES scheme in Bakun watershed was established through a series of Memorandum of Agreements (MOA), which were formalized separately by HEDCOR and LHC with the LGU as mandated by the Energy Act of 1992 and the Electric Power Industry Reform Act of 2001 (Villamor et al. 2007). The MOAs stipulate the duties and responsibilities of the stakeholders and the payment levels for the use of the water domain. Accordingly, payments are collected through the following mechanisms:

1. Electrification Fund (50% of one centavo per kilowatt-hour of total electricity sales);
2. Development and Livelihood Fund (25% of one centavo per kilowatt-hour); and
3. Reforestation, Watershed Management, Health, and/or Environmental Enhancement Fund (25% of one centavo per kilowatt-hour of the total electricity sales).

In addition, statutory benefits in the form of tax payments are paid to the local government. These are then shared by the province, municipality, and villages. A percentage of the total electricity sales of the hydroelectric companies go to social development and livelihood assistance and infrastructure projects (Villamor et al. 2007). The payments of companies are distributed according to the following payment scheme: province (20%), municipality (45%), and barangay (35%). The municipal government of Bakun handles the payments and determines where and how to utilize the money for the welfare of the community (Lasco and Villamor 2007).

Meanwhile, the payment mechanism in MKNP has not been clear, although the funds from the CPPAP project funded by the Global Environment Facility through the World Bank (GEF-WB) are managed by an intermediary NGO (i.e., Multisectoral Alliance for Development [MUAD] Negros). The MUAD is contracted to work with the Protected Area Superintendent (PASu), who is responsible for the protection, maintenance, and rehabilitation activities in the natural park. The MUAD, on the other hand, is responsible for organizing the community and for implementing information, education, and communication (IEC) programs and trainings of the upland communities. Funds are allocated for livelihood projects to provide incentives for upland communities to participate. However, the lengthy process of community work, unclear guidelines on the use of the livelihood fund, and lengthy learning process on the approval procedures limited the success of the livelihood component (Arocena-Francisco 2003).

The NIPAS (RA 7586), which created the Integrated Protected Area Fund (IPAF) where the funds for resource protection and management are channeled, serve as the legal basis for collecting fees for environmental services (Porras and Neves 2006).

3.1.3 Payment utilization in resource conservation

In the Bakun watershed, the payments have significantly increased the economic resources of the municipalities. However, these payments have not been properly allocated for the protection and conservation of the Bakun watershed. Fund utilization lacks transparency; the amount of funds received by the indigenous communities as

payments for protecting the natural environment is unclear (ICRAF 2006 as cited by Cremaschi, Lasco, and Delfino 2013).

In Mt. Kanlaon, the GEF-WB has been a major donor for parallel livelihood projects, park protection, and conservation activities in the Natural Park. In 1997, a budget of approximately PHP 200,000 was used to contract upland farmers to reforest and rehabilitate the lands. In-kind payments were in the form of tree seedlings, technical training, and social development projects, which included ground boxes, an access road, school buildings, medical clinics, food programs, and cash donations. (Porrás and Neves 2006). The Spring Water Company, who was benefiting from watershed resources, also implemented environmental protection activities as required under the Environmental Compliance Certificate issued by the DENR (Arocena-Francisco 2003).

3.1.4 PES evaluation

Environmental impact. In the Bakun watershed, despite the inflow of payments from the PES scheme, improvement in economic development has not directly translated into increases in ecosystem service provision, which could pose a problem in the implementation of the program. As a result, RUPES continues to intermediate among stakeholders to improve the effectiveness of the PES scheme in the watershed (ICRAF 2006 as cited by Cremaschi, Lasco, and Delfino 2013; Villamor and Lasco 2009).

Economic impact. RUPES has been instrumental in the successful negotiation of in-kind payments, which include electricity, scholarships for local students, farm trainings in tree planting, construction of roads, and others alike (Swallow et al. 2010 as cited by Cremaschi, Lasco, and Delfino 2013). The indigenous communities have benefited through the electrification, livelihood development, and watershed rehabilitation funds. Several scholarships and internships have been offered to local students in the Bakun watershed (ICRAF 2006 as cited by Cremaschi, Lasco, and Delfino 2013; Villamor and Lasco 2009; Lasco and Villamor 2007). Meanwhile, the economic benefits identified in MKNP are in the form of short-term income benefits from labor (Porrás and Neves 2006).

Social and institutional impact. RUPES is an IFAD-supported program that has been a key factor in promoting PES in the Bakun watershed. It has implemented trainings to the communities to promote ways and options that could improve their livelihoods, and has continued to work with stakeholders to create effective market-based mechanisms to improve livelihoods, reduce poverty, and promote conservation of natural resources (Villamor and Lasco 2009).

In MKNP, the La Tondeña Bottling Co. invested on forest rehabilitation activities and social development projects. The company provided the host communities with spring boxes for water collection devices, two-kilometer access roads, school building, free medical clinics, nourishment programs, and cash donations. It also supported the establishment of the Ilijan Development Organization (IUDO), a community group of 98 farm families who conducted reforestation activities and were provided with livelihood enhancement programs.

Moreover, environmental rewards were awarded to upland communities for the protection and sustainable management of the natural park. Some POs were granted funding for their nondestructive activities while others were contracted to conduct reforestation projects. The POs anticipated that the DENR will award them with land security tenure through the community-based forest agreement. Capacity-building activities (e.g., trainings on resource management and livelihood projects) were carried out in the communities. These training and intensive IEC endeavors enhanced the environmental awareness of the upland communities in the park. This heightened environmental awareness diminished the incidences of illegal harvesting of forest products and the practice of shifting cultivation (Arocena-Francisco 2003).

3.1.5 Issues Encountered and Lessons Learned

Ecological processes such as hydrological functions in watersheds are complex and challenging to be defined accurately. One critical aspect of PES schemes involve characterizing the linkages between land use and ecosystem services provision, considering that there is limited knowledge and information on the interactions in the ecosystem. Many watershed PES schemes rely on the conventional and theoretical knowledge that a positive relationship between forest cover and water quality and quantity exist. However, in several cases, hydrological evidence has been unable to support these notions. In practice, to deal with incomplete information and uncertainty, researchers assume on the linkages between land uses, ecosystem service provision, and changes in societal welfare (Cremaschi, Lasco, and Delfino 2013).

In the Bakun watershed, forests and agroforestry systems were assumed to provide ecosystem services in the form of slowed runoff, increased water flow (especially during dry seasons), increased total annual water flow, and reduced flooding and soil erosion. In reality, however, some of these linkages fail to hold true. In the watershed, inefficient allocation of payments resulted when changes in land uses did not produce the desired improvements in ecosystem services. Payment allocation was guided by political motives rather than by targeting the ecosystem service-producing areas. A critical shortcoming in local decision making was the lack and costly generation of data on land-use impacts and water resources. Technical skills in practicing appropriate farming systems to protect the soil and improve water flow in the watersheds were also lacking. Thus, it is important to build the technical capacities of local government agencies and stakeholders. The increased awareness and understanding of buyers and sellers on the dynamic relationships of land use and watershed functions aided in the successful implementation of the PES schemes in Bakun. Achieving these ensured the effective and sustainable reforestation and ecosystem service provision programs.

The difficulty in measuring baseline conditions and the underlying processes in ecosystem services provision caused higher transaction costs, which emerged from the need to involve various stakeholders— from costly information requirements and from conducting stakeholders' consultations and negotiations. Hence, the role of the government is crucial in igniting stakeholder interest and cooperation as well as in establishing a more efficient PES scheme (Padilla et al. 2005 as cited by Cremaschi, Lasco, and Delfino 2013). However, in the Bakun watershed, funds were misused; service providers were not rewarded properly and payments of hydropower companies were not

allocated to watershed conservation. It was evident that the distribution of funds was not clearly streamlined, causing misdirection of funds into communities that were not actually producing ecosystem services. This shows that unclear institutional set-up and ill-defined goals cause watershed PES schemes to work inefficiently. The roles, responsibilities, payment schemes, monitoring activities, and implementers must be well-defined and well-coordinated among the institutions and stakeholders involved in the scheme (Cremaschi, Lasco, and Delfino 2013).

In the case of Mt. Kanlaon, the PES scheme had flaws in its institutional framework, which made the scheme inefficient. The establishment of the market for ecosystem services had a number of problems, such as the very long period before the benefits to livelihood projects were realized, the long process of community preparatory work, the ambiguous guidelines on the use of the livelihood funds, and the lengthy process on the approval procedures (Arocena-Francisco 2003).

3.2 Ongoing Government-Financed PES Schemes

3.2.1 Environmental fees in Baticulan watershed

The Baticulan watershed is located in Negros Occidental and encompasses 428 ha, with about 500 settlers who are mostly engaged in agriculture. The watershed provides water for domestic water users, industrial companies, and small-scale farmers. Forest cover in the watershed also contributes to the reduction in soil erosion and mitigation of extreme weather impacts such as flooding (Villamor and Lasco 2007).

Loss of forest cover is a pressing issue in Baticulan as only 5% of the existing forest remains. As a result, environmental problems such as loss of biodiversity, soil erosion, flooding, and loss of soil fertility abound. Shifting cultivation in the watershed has also contributed to the growing problems of soil erosion and flooding in the lowlands, consequently lowering soil fertility and affecting the productivity of the land. Since agricultural practices are the main livelihood sources in the watershed, poverty incidence in the local community rose when land productivity decreased. The eroded soil transported through the river has also created a delta, which now causes local flooding. Water shortages during the dry season are also experienced due to the decline in water storage capacity of the watershed (SCDB 2005 as cited by Cremaschi, Lasco, and Delfino 2013; Catacutan et al. 2010; Villamor and Lasco 2007).

To address the extensive degradation in the uplands of the Baticulan watershed, the San Carlos City Government in Negros Island incorporated a city ordinance that entails creating a Watershed Development and Protection Fund and regulating the operation of the City Waterworks. Such activities have increased government and community awareness on the importance of environmental conservation in preserving ecological integrity of the watershed. As a result, a PES scheme was created involving the upland communities and private land owners. The beneficiaries pay for the water services while the City Waterworks Department (CDW) collects the environmental fee and places the fund in a special account. Meanwhile, private upland land owners who are service providers in the Baticulan watershed have undergone capacity-building orientations and

meetings as part of the project (Lasco and Villamor 2007; Villamor and Lasco 2007; Cremaschi, Lasco, and Delfino 2013).

The San Carlos Development Board (SCDB) intermediates between service providers and beneficiaries of ecosystem services. It is also responsible for managing the rehabilitation and conservation plans of the watershed using collected money from water levies (Villamor and Lasco 2007; Catacutan et al. 2010). Since the SCDB is a local government institution acting in behalf of the society, the PES in Baticulan watershed can be defined as “government-initiated.”

3.2.2 Sibuyan Island: Catingas and Panangcalan watersheds

The Catingas and Panangcalan watersheds in Sibuyan Island, Romblon province are about 350 km south of Manila. Mt. Guiting-guiting, where the two watersheds are located, has a total land area of approximately 45,600 ha, 75% of which is forested. The Catingas watershed drains an area of about 48 km² and 17 km in length (van de Veen 2004 as cited by Lasco and Villamor 2007; Villamor and Lasco 2009).

The rich biodiversity of the Sibuyan Island is composed of 60 endemic species and several flora and fauna species. The watersheds provide an array of ecosystem services to upland and lowland inhabitants in terms of flood mitigation, water flow regulation, water supply for urban and irrigation consumption, soil erosion and landslide reduction, sedimentation control, habitat for various flora and fauna species, water for hydropower production, farm and fishery production, and recreation. An indigenous tribe, the Mangyan Tagabukid, inhabits the upland areas, and they rely heavily on the natural resources of Mt. Guiting-guiting.

In the Catingas and Panangcalan watersheds, the improper land use in the upland areas has spurred environmental degradation. For the local inhabitants, mitigating the impacts of extreme flooding and having a sustainable source of clean water for urban and agricultural purposes are the most important ecosystem services derived from the watersheds. The WWF-CARE (Cooperative for Assistance and Relief Everywhere) Equitable Payments for Watershed Services (EPWS) project was then created to address the growing environmental degradation in both watersheds. The WWF, with the cooperation of the International Institute for Environment and Development (IIED), secured funds from the Directorate General for International Cooperation and the Danish International Development Agency (DANIDA) to implement this project (WWF-Philippines, n.d., DENR 1997 as cited by Cremaschi, Lasco, and Delfino 2013; Villamor and Lasco 2009; Lasco and Villamor 2007; Porras 2011).

The potential buyers of the watershed services are the urban residents and irrigation farming communities in the lowland areas. The LGU of San Fernando in La Union province, in collaboration with the Kabang Kalikasan ng Pilipinas (KK), provided the initial funds to finance the watershed management in Panagcalan and Catingas watersheds. The service providers are the Sibuyan Mangyan Tagabukid (SMT) tribe. The SMT indigenous group was rewarded the CADT a few years back (WWF-Philippines, n.d. as cited by Cremaschi, Lasco, and Delfino et al. 2013; Porras 2011).

In the PES schemes in the Sibuyan Islands (Cantingas and Panangcalan watersheds), the local government institutions act as the intermediaries between service providers and buyers. Since ecosystem services are public goods, the government plays a crucial role in implementing the schemes. These schemes that rely heavily on the government for implementation are defined as “government-financed” schemes (WWF-Philippines, n.d. as cited by Cremaschi, Lasco, and Delfino 2013).

3.2.3 Status and maturity of the PES initiative

The PES scheme in the Sibuyan Islands is part of a larger project of equitable payments for watershed services. The equitable payment for watershed services was promoted by the WWF-CARE and the IIED. In 2005, the LGU of San Fernando and the KKP seeded the Cantingas Water Fund to finance the management of the Panangcalan and Cantingas watersheds. The Cantingas Water Fund has been accessible to the SMT, which is the indigenous group that has been critical to the rehabilitation and management of the watersheds. The rehabilitation project started in 2006 and has been ongoing since then (Porras 2011).

3.2.4 Establishment of the payment rate for the PES scheme

In Baticulan, a special levy was created through the Water City Ordinance No. 37 Series of 2004 “An Ordinance Regulating the Operation of the City Waterworks of the City of San Carlos Negros Occidental and Creating the Watershed Development and Protection Fund, and for Other Related Purposes.” The levy came in the form of an environmental fee of PHP 0.75 (USD 0.017) for every cubic meter of water billed. The amount collected for at least 15 years was then transferred to the Watershed Development and Environmental Protection Fund and was used to restore the structure of the watershed and the services it provided. Through the levy, an environmental rate was included that internalized the negative externalities of water extraction in the market to contribute to the sustainable and efficient use of the resource (Villamor and Lasco 2007).

Following the local government ordinance, the CDW automatically deducts the environmental fee from the payments of consumers and places it in a special account. Section 3 of the ordinance specifies the disbursement of the environmental fee that funds accrued in the Watershed Development and Environmental Fund can only be disbursed in conformity with the Implementing Rules and Regulations governing the said funds to be submitted by the CDW and approved by the *Sanggunian* (council). To control the use of the Watershed Development and Environmental Fund for watershed rehabilitation, a Memorandum of Understanding between the City Government of San Carlos and the San Carlos Development Board, Inc. was signed (Lasco and Villamor 2007).

The funds collected through the levy are used for reforestation and watershed conservation. The upland communities, the tenants of private lands, are hired by the landowner to plant and maintain the trees. The upland communities also bargain with the landowner to use a portion of the land to cultivate their own cash crops (Catacutan et al. 2010; Villamor and Lasco 2007).

Payment schemes in the Cantingas and Panangcalan watersheds were developed in collaboration with the LGU of San Fernando and the Sibuyan Mangyan Tagabukid tribe. To generate money for the Cantingas Water Fund, which finances the management of both watersheds, monthly environmental fees are charged to households (Lasco and Villamor 2007; Tongson and Balasinorwala 2010).

In 2005, several stakeholders (i.e., the SMT, the LGU of San Fernando, WWF, PANLIPI [an indigenous legal support group], DENR, and Park Office and NCIP) signed a watershed comanagement agreement. The agreement stipulates the roles and responsibilities of the various parties. It was agreed that the LGU and the WWF will set aside matching funds to finance forest patrols and reforestation. Technical support in the collection of wildlings for reforestation was provided by the DENR. The legal support to indigenous members, who face harassment suits because of law enforcement operations, was provided by the NCIP and PANLIPI. The agreement sustains the mutual interest for the indigenous people, the LGU, and the water users to secure watershed services (Tongson and Balasinorwala 2010).

The WWF-Philippines and the LGU of San Fernando drafted an ordinance for water levy in 2009, and they collect a water fee of USD 0.36 (PHP 15) per month from the household beneficiaries of the Panangcalan watershed who avail of the waterworks system. The funds are used to establish the Cantingas Watershed Fund to finance the Ancestral Domain Management Plan of the Mangyan Tagabukid. The Plan includes the establishment of forest nurseries, tree planting, and forest patrols (Villamor and Lasco 2009).

The payment rate given to the Mangyan Tagabukid tribe is based on the estimated difference between their income and expenses. This payment rate, which was measured by the WWF-CARE EPWS project, covers at least the foregone benefits of the Mangyan Tagabukid tribe for restricting their activities to rehabilitate the watershed. The economic value of the benefits was measured through the replacement cost and production function methods. Specifically, the replacement cost method measured the benefits that the domestic ecosystem service buyers get from the rehabilitation of the watershed by estimating the cost of buying drinking water. For irrigation farmers, the production function method estimated the benefits of soil conservation measures in upland areas that would reduce sedimentation. This reduction in soil erosion and sedimentation would then increase the yield and income of rice farmers (WWF-Philippines, n.d. as cited by Cremaschi, Lasco, and Delfino 2013).

Moreover, some payments to the Mangyan Tagabukid tribe are in the form of consumer credits at a local retail store. People are able to buy groceries, rice, and consumer items using the store credits. However, this kind of payment was petitioned by the women in the tribe in order to minimize the men's spending on alcohol and gambling. Hence, the store has limited the selling of alcoholic beverages to one bottle per family per week to regulate excessive drinking (Porras 2011).

3.2.5 Payment utilization for resource conservation

In the Baticulan watershed, the goal of the SCDB is to reforest 40% of the whole watershed. Agroforestry programs are also believed to positively impact landowners and upland communities (SCDB 2005 as cited by Cremaschi, Lasco, and Delfino 2013).

In the Sibuyan Islands, the Cantingas Watershed Fund was created by the WWF/Philippines and the San Fernando LGU using funds and donations collected for watershed rehabilitation in the Sibuyan Islands. This Cantingas Watershed Fund is utilized by the Mangyan Tagabukid tribe in financing the Ancestral Domain Management Plan. The activities in the management plan involve establishing forest nurseries, implementing reforestation programs, and establishing forest patrols. In Panangcalan watershed, funds collected from household beneficiaries will be used to establish a waterworks system (Villamor and Lasco 2009).

3.2.6 PES evaluation

Environmental impact. The indigenous people do the voluntary patrols in the Sibuyan Islands. This activity has resulted in the arrest of 139 poachers and seizure of 2,438.76 board feet of timber. The effectiveness of patrol activities has reduced the incidence of illegal logging in the area (Porras 2011).

Economic impact. In Baticulan, agroforestry systems are anticipated to have positive impacts on the landowners and upland communities. It is expected that there will be a good market for fuel wood since demand for it is high. Payments that will be collected from the sale of fuel wood can be allocated to repay the "Watershed Development and Environmental Protection Fund" (Catacutan et al. 2010).

In Sibuyan Island, the PES project endowed adequate incentives to attract IPs to participate in patrolling and in the reforestation efforts in the watershed. About 52% of the 82 IP households participated in the reforestation activities, while 80% participated in the patrols. Their income from the PES accounted for 81% of the household's total gross income (Tongson and Balasinorwala 2010; Porras 2011).

Social and institutional impact. The payment structure of the PES scheme in Baticulan was effective in collecting funds. The SCDB was able to raise the necessary funding through the water levy. Farmers and private landowners were provided with technical assistance for agroforestry and agricultural cropping systems livelihood activities (Villamor and Lasco 2007).

Since PES incomes made up about 81% of the total gross incomes of the IPs in Sibuyan islands, it provided sufficient incentives to attract the IPs to participate in reforestation and management efforts (Tongson and Balasinorwala 2010). The LGUs also played an important role in the successful implementation and establishment of a more efficient PES scheme. In the case of Sibuyan Islands, the LGU easily raised the necessary watershed funding through the arrangements with the service providers and buyers (Cremaschi, Lasco, and Delfino 2013).

In Baticulan and Sibuyan Islands (Cantingas and Panangcalan) watersheds, having well-defined institutional structures to facilitate cooperation among stakeholders have been critical to the success of the PES schemes. It is important to focus the discussion among the different stakeholders on the role of institutions in satisfying various criteria of PES scheme, i.e., the voluntary transaction, the quantification of the current and potential availability of the ecosystem services, and conditionality of payments (Cremaschi, Lasco, and Delfino 2013).

3.2.7 Lessons learned

The local government can be a key factor in developing PES schemes in the Philippines because of its capability in developing a comprehensive plan, coordinating negotiations among stakeholders, and creating an appropriate payment scheme in order to achieve sustainable ecosystem service provision. Furthermore, more effective PES schemes can be achieved through the development of a collaborative agreement among stakeholders (i.e., water users, hydropower companies, NGOs, POs, and LGUs) (Cremaschi, Lasco, and Delfino 2013).

3.3 Ongoing NGO-Financed

3.3.1 Tubbataha Reefs National Marine Park

The Tubbataha Reefs National Marine Park (TRNMP) is a 33,200-hectare offshore MPA located in the middle of the Sulu Sea. It is under the political jurisdiction of the municipality of Cagayancillo in Palawan province, and is located 160 km southeast of Puerto Princesa City. The TRNMP provides ecosystem services in the forms of aesthetic seascape beauty and marine biodiversity. It is home to a great diversity of marine life including 350 coral species, 500 fish species, whales, dolphins, sharks, turtles and Napoleon wrasse. The North islet is a nesting site for birds and marine turtles. The area is also the location of the safeguard monitoring outpost for countering terrorist activities (UNESCO 2013; Tongson 2005).

The Tubbataha reefs have been a prime diving destination in the Philippines since the 1980s. It is a natural heritage site that has great economic contribution to fisheries and ecotourism. However, it is under threat of overfishing by commercial fishing boats. Cases of poaching by several fishing boats from China and Taiwan have been reported. Also, some Cagayancillo residents are allegedly conducting illegal fishing activities. Other threats to the marine ecosystem include indiscriminate dropping of anchors from dive boats, seaweed farming, unregulated tourism, and pollution from passing ships.

The concern in the Tubbataha reefs is how to capture and monetize economic returns from preserving the reefs. The Tubbataha Protected Area Management Board (TPAMB) governs the conservation of the Tubbataha reefs and is faced with problems of limited government and NGO funding. One of the identified ways to generate funds for the continuous preservation of the reefs is by placing user fees.

Recreational scuba divers are considered buyers of seascape beauty ecosystem services and biodiversity in the TRNMP. Foreign donors that contribute to the maintenance of the integrity of the reef's marine ecosystem can also be considered ecosystem service buyers in this case. Such donors include the Global Environment Facility through the United Nations Development Programme (UNDP-GEF); Packard Foundation; Japan International Cooperation Agency; Marine Parks Center of Japan; local and international conservation organizations; and the United Nations Education, Science, and Cultural Organization (UNESCO). Donations provided include financial and nonfinancial support. Likewise, the Philippine Navy, a significant contributor to the marine's conservation, is also considered a buyer. Its interest lies in conserving the reef stems from the location of the reef, which is a strategic place to install monitoring outposts to counter terrorist threats and threats to the oil and gas projects in the Sulu Sea.

In this case, the environmental service provider is neither a seller nor an intermediary. Since it is a national park, the state (through the DENR) holds jurisdiction over the area. Jurisdiction is then decentralized within the province of Palawan through the Palawan Council for Sustainable Development (Palawan CSD); park management and operations is controlled by the Palawan CSD. Since the fisherfolk and the local government of Cagayancillo gave up jurisdiction over the watershed upon making it a national park, they bear the opportunity cost of park establishment. By refraining from exploiting natural resources and allowing the park to rehabilitate, they could be considered environmental service providers in this case.

The individuals who promote the Tubbataha as a diving destination (e.g., dive operators, travel agents, transport and carrier services, and hotels) could be considered intermediaries. The WWF-Philippines provided assistance in developing the user fee system to create a market for the reef's seascape beauty. The WWF-Philippines also facilitated stakeholders' workshops and aided in implementing conservation and rehabilitation projects. Specific project components included biological research and monitoring, visitor management, enforcement, information and education, coastal management and livelihoods, sustainable financing and parks systems, and infrastructure development (Tongson 2005).

3.3.2 Status and maturity of the PES initiative

The TRNMP was declared a World Heritage Site on December 11, 1993 by the UNESCO (Tongson 2005).

3.3.3 Establishment of the payment rate for the PES scheme

The two sources of environmental payments in Tubbataha reefs are the (1) fees imposed on divers through the implementation of the user-fee scheme pilot collections since 2000 and (2) donations from foreign organizations including UNDP-GEF, Packard Foundation, and the WWF-US. The proceeds from the fees collected from divers are placed in a trust fund. Donations from foreign organizations come in the form of livelihood programs and coastal resource management facilitated by the WWF-Philippines and funded by the Packard Foundation and the GEF.

In 1999, a survey was conducted to determine the willingness to pay (WTP) of divers-tourist for entry into the TRNMP. Results showed that the respondents were willing to pay a fixed fee ranging from USD 25–75. A fee structure of USD 25 for local divers and USD 50 for foreign divers per visit was then devised (Tongson and Dygico 2004 as cited by Tongson 2005).

Fee-sharing agreement was institutionalized after a series of consultation meetings with the WWF-Philippines, government officials, NGOs, boat operators, diver groups, and the communities in Cagayancillo. The WWF-Philippines presented the WTP results and fee rates to the TPAMB, who then issued a resolution authorizing the WWF-Philippines to collect the fees. A special trust fund was created by the TPAMB where user fees are deposited under the account of the Provincial Treasury, which issued the receipts. Before the start of the pilot collection, rules on disbursement were agreed with the TPAMB. TPAMB Resolution No. 00-10 authorized the board to apportion the collections as follows: 50% for the Trust Fund; 43%, park administration and management; and 7% for the municipality of Cagayancillo to finance livelihood projects. The TPAMB authorizes the actual disbursements based on annual work and financial plans prepared by the TMO. The accumulated trust fund was used as leverage to obtain more funds from funding agencies (Tongson 2005).

3.3.4 Payment utilization for resource conservation

The establishment of the Tubbataha reefs into an MPA entailed the loss of jurisdiction of local stakeholders over marine resources. As compensation for losing access over the reefs, Cagayancillo stakeholders negotiated for the provision of livelihood projects, the creation of a coastal resources management program to improve local fisheries, and entitlement to a share of the user fee revenues. The Packard Foundation and the WWF-US provided funding for the livelihood and coastal management program. Seaweed farming, retailing, and marketing were the key components of the livelihood operations plan. A multi-purpose building was also constructed for the livelihood foundation that managed the credit program. The coastal management program also intensified enforcement of laws against illegal fishing (Tongson 2005).

3.3.5 PES evaluation

Environmental impact. In 2004, the Cagayancillo local government utilized its 7% share from user fees (worth PHP 435,000) in infrastructure construction such as farm-to-market roads to aid farmers in the transportation of farm products. Due to the Tubbataha case's success, local officials of Cagayancillo established five more MPAs to support the flourishing local fishery industry. According to the WWF (Todd and Nunez 2004), live coral and fish biomass were at the highest levels during that time. Also, illegal fishing was drastically reduced due to active patrolling (Todd and Nunez 2004).

Economic impact. The successful implementation of the PES scheme in the Tubbataha reef is evidenced by the restoration of fish productivity. Fishermen estimated that their daily fish catch increased from 10 kg per day to 15–20 kg per day (Todd and Nunez 2004 as cited by Tongson 2005). Small fishers using hook-and-line and spear fishing devices have likewise benefited from the project. The foregone benefits for the loss in access to Tubbataha were apparently compensated by the improvement in fisheries and fish catch. Improvement in livelihood is shown through indicators such as house ownership, roofing, and access to electricity.

3.3.6 Lessons learned

One of the challenges faced when the market in the Tubbataha reefs was created was overcoming the public good nature of rich biodiversity and seascapes as well as closing the loop between buyers and sellers. Due to the open-access nature of marine resources, these areas may suffer environmental abuse such as illegal settlements, destructive fishing, and unregulated development if left unmanaged. It was also difficult to establish accountable service providers in this case. Regardless, the system in the Tubbataha reefs was successful in protecting and conserving the marine ecosystem. The full project cycle in the TRNMP was completed in 2005, and recommendations from the evaluation workshop will be fed into the next cycle of renegotiations and planning of the TPAMB.

As evidenced in the Tubbataha reef case, proper set-up of user fee systems can independently generate financing for ecosystem protection and management. To improve such systems, the allocation of costs and benefits should be negotiated even before the planning phase. A WTP survey should be conducted to ask beneficiaries of the amount they can afford to pay for the establishment of a conservation area and to negotiate for a fair compensation mechanism. The payments should support the agreements made and the equitable allocation of costs and benefits across stakeholder groups so that each would have a net incentive to support conservation. With these, user fee systems can contribute significantly to financing conservation activities.

The user fee system in the Tubbataha reefs is an effective mechanism to generate funding for protection of the marine ecosystem. The possibility of launching an ecotourism program and placing additional charges to fish-aggregating devices was explored by the Cagayancillo municipality to increase the user fee collections from beneficiaries of coastal resources (Tongson 2005).

3.3.7 Main policy lessons

One major lesson learned from the Tubbataha case is the need for multi-stakeholder (i.e., sellers, buyers, intermediaries, and institutions) cooperation in creating and sustaining PES markets for seascape beauty and biodiversity. Funds for the protection and rehabilitation of the Tubbataha reefs were collected from user fees, money allocations from the Palawan provincial government, fines from enforcement, interest earnings, and revenues from the sale of souvenir items. The maintenance of the Tubbataha reef is costly (PHP 6 million in 2004), and the total revenues from user fees can provide only half of the

maintenance cost of the park. The Philippine Navy and Coast Guard provide about half of the maintenance cost, thus their annual commitment is instrumental in sustaining the management of the park.

Another area for improvement in the system is the need for inter-LGU payment scheme. This has been identified as a means to compensate LGUs for the provision of landscape or seascape beauty and to equalize the costs and benefits of maintaining biodiversity and landscape/seascape beauties. Municipalities are urged by the Local Government Code to enter into joint agreements. The agreed payments should reflect the WTP and the cost of service provisioning by the LGU beneficiaries and custodians (Tongson 2005).

3.4 Discontinued Government-Financed Program

3.4.1 User fee system in Maasin watershed

The Maasin watershed reserve forest is located 30 km from Iloilo City, Iloilo province in Panay Island, Philippines. Maasin municipality has a land area of 17,100 ha, where the watershed covers 6,738 ha and spans 3 municipalities and 16 barangays. The watershed is composed of brushlands, forest vegetation, rice fields, and other agricultural lands. It is also the water source of 500,000 residents of Iloilo and of 2,000 households in nearby municipalities. In addition, the area provides irrigation water to 2,900 ha of 1,276 farmers (Arocena-Francisco 2003).

One of the first PES schemes in the Philippines was established in this watershed. The management of the Maasin watershed was spearheaded by the LGU with multiple funding sources (Salas 2005). The main ecosystem service from the Maasin watershed is water flow regulation, which helps to reduce flooding during the wet season and to alleviate dry spells during the dry season. Land cover does these functions by regulating water flow in the rivers, by controlling the rates of recharge and discharge from the aquifers, and by providing natural resources such as branches, firewood, and herbs to upland communities (Porras and Neves 2006).

For the past three decades, the high deforestation rate has been serious problem in the area, especially since approximately 10,000 inhabitants rely on the ecosystem services provided by the watershed. About 64% of the watershed have been cultivated, thus the significant loss in forest cover has led to a decrease in the quantity of water produced, thereby causing an increase in water scarcity. As a result, the watershed could supply only 35% of Iloilo City's water demand. Moreover, flood events have increased and water shortages for irrigation have been experienced during the dry season. Water quality from the service pipes of the Metro Iloilo Water District has also been observed. The growing number of environmental issues confirms the need for watershed rehabilitation.

The stakeholders' interest in the preservation of the Maasin watershed stems from the fact that it remains the main water source of water for Iloilo City. As such, it was declared a reservation in 1923. Government institutions such as the DENR, the MIWD, and the local government are in charge of managing the watershed and in maintaining the

dynamics of the watershed ecosystem in order to ensure sustainable production of ecosystem services. The local NGO Kahublagan Sang Panimalay Foundation, Inc. (KSPFI), in coordination with the local government, created a feasibility plan that promoted social-agroforestry as a conservation measure, which would still allow farmers to continue their agricultural practices. Likewise, in 1998 and 2003, the DENR created a forestry sector subproject to complement the ongoing reforestation projects that aims to rehabilitate Maasin watershed and to mitigate its continuing degradation (Arocena-Francisco 2003; Salas 2005; Porras and Neves 2006).

The ecosystem service buyers are about 500,000 residents of Iloilo City and 2,000 households, small industries, businesses, and farmers along the watershed, who reap varying benefits from the ecosystem services provided by the watershed. Funding for the PES scheme also came from other sources such as user fees from the MIWD, periodic voluntary donations, and a loan given by the Japanese Bank for International Cooperation (JBIC). The JBIC provided a significant amount of money to reforest the Maasin watershed.

The MIWD is a semi-private water utility that supplies water to Iloilo City, Maasin municipality, and three other towns. It also provides irrigation water to 2,900 ha of farmland. Currently, only 35% of the household water requirements in Iloilo City are met by the Maasin watershed, with the remaining water requirements sourced from Guimaras Island and nearby districts.

The upland communities are the service providers in the Maasin watershed. The main livelihood of these upland communities is crop farming. As such, their activities highly influence the provision of ecosystem services in the watershed. Communities under the POs' federation (i.e., KAPAWA) were compensated for reforesting with Gmelina trees, fruit trees, bamboo, and coffee. Their compensation included 70% share of the revenues from selling the by-products of the trees planted within a 25-year period reforestation contract. Technical assistance was also provided by the DENR for their natural regeneration project (Arocena-Francisco 2003; Salas 2005; Porras and Neves 2006).

LGUs act as intermediaries by providing IEC programs to local stakeholders. Other organizations that support and encourage the cooperation of stakeholders include the DENR, KSPFI, Tigum-Aganan watershed management council, and Iloilo watershed management council. The Japanese Overseas Economic Cooperation Fund also provides funding for local conservation activities (Francisco and Rola 2004; Porras and Neves 2006).

The rehabilitation of the Maasin watershed was prioritized by the governor of Iloilo. The governor created the Maasin multi-sectoral task force, an intermediary in the rehabilitation of the watershed. The task force, together with the DENR, conducted a feasibility study and planned the watershed rehabilitation project. At the same time, the task force implemented IEC to widen public awareness on the issue and to shed light on the need to rehabilitate the watershed (Arocena-Francisco 2003).

3.4.2 Status and maturity of the PES initiative

Rehabilitation work in the watershed was operational for decades, with some degree of user-provider agreement. However, since 2008 this scheme has been inactive (Porrás and Neves 2006).

3.4.3 Establishment of the payment rate for the PES scheme

The payment scheme in the Maasin watershed was based on Republic Act (RA) 7160 or the Local Government Code of 1991, which mandates the local governments of Iloilo City and Maasin municipality to pool and manage funds from different sources such as the DENR, domestic and international funds, donations by civil society groups, and from user fees from the MIWD. According to RA 7160, the local government is entitled to 1% of the gross revenues of the water distributed by the water district. The NIPAS Act (RA 7586) allows for the creation of Integrated Protected Area Funds with user fees (mostly from ecotourism), grants, donations, etc. Furthermore, the DOE (through RA 7638) and the Electric Power Industry Reform Act (EPIRA) of 2001 (RA 9136) created three development funds for the area to host energy projects, one of which is the Reforestation, Watershed Management, Health and/or Environment Enhancement Fund. Also, Executive Order (EO) No. 318 of 2004 on promoting sustainable forest management “provides for proper valuation and pricing of forestry resources and collection of fees for use of environmental services of forests and watersheds. It also provides for a plough-back mechanism that ensures service providers are properly compensated.” These were the basis for the collection of real estate tax and 1% user’s fee for watershed protection (Arocena-Francisco 2003; Porrás and Neves 2006).

3.4.4 Payment utilization for resource conservation

In the Maasin watershed, payments had been made to the local government, who then transferred the funds to the Iloilo Watershed Management Council (IWMC). The IWMC is a multi-sectoral body created in 2000 to administer the conservation, development, protection, and utilization of the 15 watersheds in the province of Iloilo. The KAPAWA (People’s Organization Federation) was paid to plant and take care of the seedlings of gmelina, fruit trees, bamboo, and coffee in the watershed. Under the technical assistance of the DENR, communities were also contracted to undertake natural regeneration activities, establish agroforestry systems, and to stabilize river banks. The fund was also used to build protective infrastructure, like trails, line fires, nurseries, concrete dams, and lookout tower (Francisco and Rola 2004; Arocena-Francisco 2003; Porrás and Neves 2006).

In the case of the Maasin watershed, however, the benefits from the PES scheme were not channeled to the service providers. As a result, the MIWD stopped transferring the additional money to the DENR after two years of implementation. Some farmers started improper cultivation of the land within the watershed area, and it was feared that this problem may intensify to levels that are difficult to control. There are ongoing negotiations for payments among various stakeholders including the irrigator's association, Sand and Gravel Operators' Association, and the Board. The Maasin watershed management plan is currently being reviewed. One of the additional plans include an action program to identify and penalize water polluters, establish measures to control quality and quantity of drinking water from small companies selling bottled water, and to establish rules on auditing payments made on natural resources (Salas 2005).

3.4.5 PES evaluation

Environmental impact. Aside from the reforestation and rehabilitation activities that were conducted, a portion of the PES funds were also allocated to infrastructure including bunk house, lookout towers, trails, and fire line for managing and monitoring watershed reserve. However, even after three years of project implementation, not much improvement in ecosystem services was experienced. Water levels in rivers remained low, especially in the dry seasons, despite the claim of the DENR that reforestation in the watershed would improve water resources. A local NGO argued that the possible reason for this was that the newly planted exotic fast-growing tree species needed more water to grow. This proves that the lack of knowledge on the linkages between land use and ecosystem service provision might lower the efficiency of PES schemes. Despite its drawbacks, local media remained supportive of the reforestation programs and promoted the need for vegetation covers to be widespread in the watershed to replenish the aquifers in the lowlands (Porrás and Neves 2006; Cremaschi, Lasco, and Delfino 2013).

Economic impact. In terms of economic impacts, the PES scheme was not successful in improving the income of the upland communities. They did not receive payments from the beneficiaries of water services. Instead, they received daily wages for their labor in the reforestation and rehabilitation activities of the watershed rehabilitation project. Also, the species that were planted in the watershed did not raise their food security and they had to seek for additional jobs to augment their income (Salas 2005).

Social and institutional impact. The PES scheme resulted to a number of social and institutional impacts. Foremost of the social impacts is the creation of the organization of upland communities into People's Organization Federation (i.e., KAPAWA) as supported by the DENR. The program provided numerous trainings for team building, leadership, and preparation of feasibility studies for capacity-building program. It also provided assistance through establishing 17 livelihood projects in the watershed.

The program also resulted in increased institutional capacity by establishing two institutions. These are the (1) Tigum-Aganan Watershed Management Council—an agreement between Iloilo City and eight other towns, signed in 2001, and (2) Iloilo Watershed Management Council, which involves 13 watersheds in the province. Both of

these were created to ensure the long-term integrated management of the Maasin watershed. However, there were also severe social costs during the implementation of the different stages of the project. Some families were evicted from their lands, others were not paid for their land, and some farmers were relocated into neighboring watersheds (Arocena-Francisco 2003; Porras and Neves 2006).

3.4.6 Lessons learned

The PES scheme was not sustained in the Maasin watershed for a number of reasons. For one, the service providers did not receive payment from the water users for the water service they provided. Instead, they received wages for the reforestation and rehabilitation activities they were involved in. After two years of implementation, the MIWD stopped transferring money to the DENR because it was unclear how the funds were managed. Also, there was a question whether the payments were given to the appropriate ecosystem service providers. Moreover, the buyers were dissatisfied with the outcomes of the reforestation activities because they had observed that the water supply that flows in the streams was significantly reduced, particularly during the dry season, after the reforestation program. Another aspect was that the tree species planted in the forest did not provide the farmers/providers with food security, thus they had to look for other income sources. Also, it was difficult to implement the PES project when most of the people were not willing to cooperate (Porras and Neves 2006; Salas 2005).

3.5 Summary of PES Scheme Analysis

3.5.1 Targeted ecosystem services

Most of the PES schemes (six out of seven) in this review are implemented in watershed ecosystems with the primary goal of improving water flow regulation in their regions, while the other scheme is implemented to protect and conserve the seascape beauty and marine biodiversity (Table 2). Aside from water flow regulation for domestic, industrial, and agricultural uses, other targeted ecosystem services include biodiversity, seascape beauty, and flood mitigation. In some cases, ecosystem services are extremely difficult to quantify and price (i.e., flood mitigation). As a result, despite having targeted ecosystem services, the schemes' payment rates are placed on easily quantifiable ecosystem services that already have markets and pricing mechanisms in place. Such is the case in most of the PES schemes here. It can be seen that since water prices already exist, water flow regulation is the most commonly paid-for ecosystem service. Similarly, geothermal energy production is a paid-for ecosystem service in one of the PES schemes. Since tourism has great potential in generating funds for ecosystem protection, one of the PES schemes utilized entrance and environmental fees as a payment vehicle for marine biodiversity conservation.

Table 2. Ecosystem services valued by each PES program

Type of Ecosystem Service		Type of Program (Frequency Count)					TOTAL
		Government-Financed	Beneficiary-Financed	NGO-Financed	Government-Financed (Discontinued)		
		Watershed	Watershed	Landscape/Seascape Beauty	Watershed		
Specific use	Water flow regulation	2	3		1	6	
	Aesthetic seascape beauty and Marine biodiversity			1		1	
Targeted ES	Water flow regulation for domestic, industrial, and agricultural use	2	3		1	6	
	Aesthetic seascape beauty			1		1	
	Marine biodiversity			1		1	
	Biodiversity		1			1	
	Flood mitigation	1				1	
ES Paid for	Water flow regulation for domestic, industrial, and agricultural use	2	3		1	6	
	Marine biodiversity			1		1	
	Geothermal energy production			1		1	

Note: ES = ecosystem service

3.5.2 Stakeholders and linked policies

Table 3 outlines the important stakeholders and the enabling policies in the PES schemes discussed in this review. The most common buyers of ecosystem services in the reviewed schemes are water users in the agricultural and industrial sectors. They are the local small-scale farmers and various industries. On the other hand, the prevailing sellers of ecosystem services include private upland landowners and IPs. In some cases, the local government, in behalf of the local community, acts as providers of ecosystem services.

The LGU has been a significant factor in establishing the PES schemes. It is their initiative that helped create majority of the PES schemes reviewed. Similarly, the NGOs are also major players in PES establishment. In fact, the RUPES has initiated a number of PES schemes in the country. The cases reviewed here prove that policies indeed aid in providing an enabling environment for the successful creation of PES and conservation programs alike. As enumerated in Table 3, there are numerous national and subnational policies that are linked to PES establishment.

3.5.3 Obstacles to efficient implementation

Despite having willing and cooperative stakeholders, PES implementation in the Philippines has faced a number of significant obstacles and issues (Table 4). A prominent issue is the misallocation of funds. There are instances in which the local government invested the funds in communities that are not contributing to the improvement of ecosystem service provision. Such incidences have caused inefficient PES implementation. Another prevalent issue with the funds is the lack of transparency in fund utilization. Stakeholders and locals have expressed discontent in not knowing clearly how the payments are being utilized in ecosystem conservation and for seller compensation. Furthermore, other implementation flaws include long processing and preparatory work, and improper land cultivation of involved farmers, among others.

Table 3. Stakeholders and linked policies in PES programs

Stakeholders and Linked Policies		Type of Program (Frequency Count)				TOTAL
		Government-Financed	Beneficiary-Financed	NGO-Financed	Government-Financed (Discontinued)	
		Water Flow Regulation	Water Flow Regulation	Aesthetic Seascape Beauty and Marine Biodiversity	Water Flow Regulation	
Who buys	Hydroelectric companies		1			1
	Recreational scuba divers			1		1
	Stakeholder beneficiaries		1			1
	Industries	2			1	3
	Philippine navy			1		1
	Small-scale farmers	2			1	3
Who else benefits	Locals	2	3	1	1	7
Who sells	Indigenous people	1	2			3
	Private upland landowners	2	1		1	4
	LGU		1	1		2
	Local communities involved in resource management			1		1
	DENR			1		1
	Area under ancestral domain of indigenous people	1	2			3
Seller selection	Privately-owned uplands	1	1		1	3
	World Heritage Site			1		1

Table 3 continued

Stakeholders and Linked Policies		Type of Program (Frequency Count)				TOTAL
		Government-Financed	Beneficiary-Financed	NGO-Financed	Government-Financed (Discontinued)	
		Water Flow Regulation	Water Flow Regulation	Aesthetic Seascape Beauty and Marine Biodiversity	Water Flow Regulation	
Who initiated	RUPES		2			2
	Private company		1			1
	LGU	2			1	3
	World Heritage Site			1		1
	DENR				1	1
	NGO	1				1
	Water district				1	1
Linked to other policy tools	Energy Act of 1992 and Electric Power Industry Reform Act of 2001		1			1
	Compliance to the DENR		1			1
	San Carlos City Government Water City Ordinance No. 37 Series of 2004	1				1
	San Fernando Government Water City Ordinance of 2009	1				1
	Local Government Code of 1991, NIPAS Act (RA 7586), DOE (RA 7638), EPIRA (RA 9136) EO No. 318 of 2004				1	1
	IPRA of 1996; Water Code of the Philippines of 1975		1			1

Notes: DENR = Department of Environment and Natural Resources; DOE = Department of Energy; EPIRA = Electric Power Industry Reform Act; IPRA = Indigenous People's Right Act; LGU = local government unit; NIPAS = National Integrated Protected Area Systems; RUPES = Rewarding Upland Poor for Environmental Services

Table 4. Obstacles, monitoring, and conditionality of PES programs

Obstacles, Monitoring, and Conditionality		Type of Program (Frequency Count)				TOTAL
		Government-Financed	Beneficiary-Financed	NGO-Financed	Government-Financed (Discontinued)	
		Water Flow Regulation	Water Flow Regulation	Aesthetic Seascape Beauty and Marine Biodiversity	Water Flow Regulation	
Obstacles to implementation	Lack of transparency in fund utilization		1			1
	Misallocation of funds		1		1	2
	Implementation flaws, long process of community preparatory work, unclear guideline on the use of livelihood fund		1			1
	Open access, public good, difficulty in establishing accountable service providers			1		1
	Only started implementation in January 2014		1			1
	Buyer stopped transfer of funds to the DENR				1	1
Monitoring	Farmers practiced improper cultivation of land				1	1
	Indigenous people do voluntary monitoring	1				1

3.5.4 Fund sources, payment rates, and modes of payment

In the reviewed schemes, the biggest sources of funding are the water users and beneficiaries (Table 5). They comprise households, small-scale farmers, and industries. The modes in which these beneficiaries pay vary across the schemes but the most common payment vehicles are the use of an environmental fee system and a user fee system. However, not all conservation activities are funded using monetary payments. In some cases, nonmonetary compensation has been provided. Under these scenarios, instead of paying landowners directly, beneficiaries cover the expenses of watershed rehabilitation activities and provide livelihood opportunities for locals. Other forms of nonmonetary compensation include scholarships, technical trainings, and additional community infrastructure.

3.5.5 Baseline scenarios, program objectives, and welfare effects of PES programs

Much of the reason for establishing PES schemes in these respective sites was to address and mitigate the widespread degradation and deforestation in the watersheds (Table 6). These programs aim to control soil erosion and reduce landslide and flood risks. Similarly, marine ecosystem protection in one of the sites was initiated to stop overexploitation of marine biodiversity (i.e., overfishing by commercial fishing vessels, indiscriminate dropping of anchors, and unregulated tourism). The programs also aim to provide sufficient livelihood alternatives to local communities by engaging them in reforestation and watershed rehabilitation activities. Social development projects were also provided to improve the well-being of poor communities.

PES schemes have benefitted the target communities, especially the poor settlers, in various ways (Table 6). Such welfare effects on poor residents include improved economic resources through in-kind payments, scholarships, and technical trainings; technical assistance for agroforestry agricultural livelihood activities; restoration of fish productivity; and community infrastructure construction. However, there are also recorded incidences in which, due to poor targeting, upland communities did not receive the agreed monetary payments but were instead compensated with wages for labor provided during reforestation activities. Nevertheless, the obstacles and shortcomings of these programs must not outweigh the positive impacts and welfare improvements that such programs provide.

Table 5. Fund sources, payment rates, and modes of payment of PES programs

Funding Source, Payment Rates, and Modes of Payment		Type of Program (Frequency Count)				TOTAL
		Government- Financed	Beneficiary- Financed	NGO-Financed	Government- Financed (Discontinued)	
		Water Flow Regulation	Water Flow Regulation	Aesthetic Seascape Beauty and Marine Biodiversity	Water Flow Regulation	
Source of funding	Beneficiaries	2	2	1	1	6
	DOE		1			1
	External donors		1	1	1	3
Mode of payment	Payments collected via Electrification Fund; Development and Livelihood Fund; and Reforestation, Watershed Management, Health and/or Environmental Enhancement Fund; Tax paid to local government		1			1
	No direct monetary payments, but the private company funded watershed rehabilitation activities and provided livelihood opportunities to locals		1			1
	Water levy in the form of an environmental fee	2				2
	User fee system			1	1	2
	No information yet		1			1

Table 5 continued

Funding Source, Payment Rates, and Modes of Payment		Type of Program (Frequency Count)				
		Government- Financed	Beneficiary- Financed	NGO-Financed	Government- Financed (Discontinued)	TOTAL
		Water Flow Regulation	Water Flow Regulation	Aesthetic Seascape Beauty and Marine Biodiversity	Water Flow Regulation	
Payment rate, cash equivalent (entrance fee, trust fund, donation, tax, etc.)	Trust fund Tax		1			1
	Tree planting, community development, livelihood opportunities, donations		1			1
	Environmental fee: Water levy of PHP 0.75 (USD 0.017) on every cubic meter of water billed	1				1
	Environmental fee: Water levy of PHP 15 (USD 0.36) per month for households	1				1
	Based on a WTP study in 1999, fee structure of USD 25 for local divers and USD 50 for foreign divers per visit was established			1		1
	Payments: Real estate tax and user's fee for watershed protection				1	1
	No information yet		1			1

Table 5 continued

Funding Source, Payment Rates, and Modes of Payment		Type of Program (Frequency Count)				TOTAL
		Government- Financed	Beneficiary- Financed	NGO-Financed	Government- Financed (Discontinued)	
		Water Flow Regulation	Water Flow Regulation	Aesthetic Seascape Beauty and Marine Biodiversity	Water Flow Regulation	
Additionality (provides incentives to landowners)	Improved economic resources of locality Provided in-kind payments, scholarships, technical trainings, and community infrastructures		2			2
	Technical assistance for agroforestry and agricultural cropping systems livelihood activities	1				1
	Payments were based on the foregone benefits of the Mangyan Tagabukid tribe for restricting activities in order to rehabilitate watershed	1				1
	Compensation in the form of revenue- sharing from selling by-products of trees planted; technical assistance; establishment of protective infrastructure in the watershed				1	1
	Donations from foreign organizations came in the form of livelihood programs and coastal resource management			1		1
	Livelihood opportunities to locals	1				1

Table 6. Baseline scenarios, program objectives, and welfare effects of PES programs

Baseline Scenario, Program Objectives, and Welfare Effects		Type of Program (Frequency Count)					TOTAL
		Government- Financed	Beneficiary- Financed	NGO- Financed	Government- Financed (Discontinued)		
		Water Flow Regulation	Water Flow Regulation	Aesthetic Seascape Beauty and Marine Biodiversity	Water Flow Regulation		
Baseline and scenarios	Watershed degradation	2	2		1	5	
	Overfishing of commercial fishing vessels, illegal fishing, indiscriminate dropping of anchors, seaweed farming; unregulated tourism, pollution			1		1	
	Watershed protection and rehabilitation to ensure sustainable provision of ecosystem services					0	
	Existence of various stakeholders and multiple payment schemes caused confusion and created conflicts over water resource allocation and utilization		1			1	
	Deforestation	1	2		1	4	
	Improper land use in the uplands	1				1	

Table 6 continued

Baseline Scenario, Program Objectives, and Welfare Effects		Type of Program (Frequency Count)				
		Government-Financed	Beneficiary-Financed	NGO-Financed	Government-Financed (Discontinued)	TOTAL
		Water Flow Regulation	Water Flow Regulation	Aesthetic Seascape Beauty and Marine Biodiversity	Water Flow Regulation	
Side objective	Landscape beauty		1			1
	Sediment control/soil erosion and landslide reduction	2	1			3
	Livelihood projects		1		1	2
	Safeguard monitoring outpost for countering terrorist activities			1		1
	Sustainable and agreeable sharing scheme for water resource users		1			1
	Habitat, food, and forest products	1	1			2
	Social development projects		1		1	2
	Recreation	1				1
	Improved economic resources of locality					
Welfare effects on poor settlers	Provided in-kind payments, scholarships, technical trainings, and community infrastructures		2			2
	Farmers and private landowners were provided with technical assistance for agroforestry and agricultural cropping systems livelihood activities	1				1

Table 6 continued

Baseline Scenario, Program Objectives, and Welfare Effects		Type of Program (Frequency Count)				TOTAL
		Government- Financed	Beneficiary- Financed	NGO- Financed	Government- Financed (Discontinued)	
		Water Flow Regulation	Water Flow Regulation	Aesthetic Seascape Beauty and Marine Biodiversity	Water Flow Regulation	
Welfare effects on poor settlers	Improved income from PES, provided in-kind payments, technical assistance for reforestation activities	1				1
	Restoration of fish productivity, improvement in livelihood and living conditions, community infrastructure construction			1		1
	Poor targeting Upland communities did not receive payments from the beneficiaries of water services. Instead, they received daily wages for their labor in the reforestation and rehabilitation activities of the watershed rehabilitation project The species that were planted in the watershed did not raise their food security, and they had to seek for additional jobs to augment their income				1	1
	Cannot be determined yet because scheme has just started		1			1

4.0 PES-LIKE SCHEMES

Aside from PES schemes in the country, PES-like mechanisms have also been implemented by different sectors to achieve resource conservation goals. In this study, a PES-like scheme is defined by any mechanism in which service providers are compensated by beneficiaries of ecosystem services for implementing resource management practices. A designated market for ecosystem services may not exist but as long as beneficiary-supported conservation programs exist that aim to protect the environment in order to achieve sustainable resource use, they will be considered PES-like mechanisms. In the Philippines, various PES-like mechanisms have been spearheaded by different sectors, including the government, POs, and even private companies. Table 7 highlights the outstanding ongoing PES-like cases in the Philippines.

Table 7. In-depth analysis of PES-like schemes (101 sites) in the Philippines

PES-Like Site	Community-Based Watershed Management in Balian Watershed ^a	Protected Areas in the Philippines (95 sites)	EDC Hydropower Plants(5 sites)
Type of program	Beneficiary-financed	Government-financed	Beneficiary-financed
Ecosystem	Watershed	Varies on site (Watershed, biodiversity, landscape/seascape beauty)	Watershed
Targeted ecosystem services	Water flow regulation	Varies on site (Biodiversity, recreation services, watershed services)	Geothermal energy production, biodiversity
Location	Pangil, Laguna	95 PA sites generate revenue 30 out of 95 PA sites generate sufficient revenue from beneficiaries who use ecosystem services	(1) Bicol, (2) Leyte, (3) Negros Oriental, (4) Bacolod, and (5) North Cotabato
Initiator	SBPTI (community organization)	Localities; PAWB under the DENR	EDC, owner of geothermal energy plants
Buyer	Households	Visitors, beneficiaries	EDC, owner of geothermal energy plants

Table 7 continued

PES-Like Site	Community-Based Watershed Management in Balian Watershed ^a	Protected Areas in the Philippines (95 sites)	EDC Hydropower Plants(5 sites)
Intermediary	SBPTI (community NGO); local government; Lingap Kalikasan (NGO)	Varies on site	Local government
Seller	Community-owned water sources	Localities where protected areas are located; PAWB under the DENR	Local communities are involved in watershed management programs implemented by EDC
External donor support	STRAP (NGO), government (DENR), local government	varies on site	–
Major obstacles to implementation	Limited funding to cover rehabilitation expenses	Limited funding from government to cover operations expenses of all PA sites	Lack of quantitative evidence/ linkages of improvement in ecosystem service provision due to watershed rehabilitation activities
Linked policy	–	NIPAS Act (RA 7586) Law that allows for the establishment and management of protected areas in the Philippines	Wildlife Rescue and Rehabilitation program of EDC is enrolled in the “Adopt a Wildlife Species” of the DENR
Mode of payment	Household pays a monthly fee of PHP 30	Government fund allocation from the DBM User fee system including entrance fees, facilities fees, and development fees	No direct payments but EDC-funded watershed rehabilitation activities and provided livelihood opportunities to locals

Table 7 continued

PES-Like Site	Community-Based Watershed Management in Balian Watershed ^a	Protected Areas in the Philippines (95 sites)	EDC Hydropower Plants (5 sites)
Payment rate	Household monthly fee	Fund, entrance fee, facilities fee, development fee, donation	Tree planting, community development, livelihood opportunities, donations
Side objectives	Livelihood projects for local community	Livelihood projects for local community	Livelihood projects for local community
Welfare effects on poor settlers	Improved income from PES, provided in-kind payments, technical assistance for reforestation activities	Ecotourism provides locals with additional livelihood opportunities	Farmers and private landowners were provided with technical assistance for agroforestry and agricultural cropping systems livelihood activities

Sources: ^aContreras (2004); Duque-Piñon et al. (2012)

Notes: DBM = Department of Budget and Management; DENR = Department of Environment and Natural Resources; EDC = Energy Development Corporation; NIPAS = National Integrated Protected Area System; PAWB = Protected Areas and Wildlife Bureau; SBPTI = Samahan ng Balian para sa Pagbabalik ng Tubig, Inc.

4.1 Community-Based Watershed Management in Balian, Pangil, Laguna

Brgy. Balian is the second largest barangay in the municipality of Pangil, Laguna. It is composed of three agro-ecological zones: coastal, lowland, and uplands. The coastal and lowland zones are used for human settlements and for irrigated rice paddies. The uplands are planted with coconuts, bananas, citrus, coffee, mangoes, rambutan, bamboos, and root crops. Some portions of the upland areas are covered with cogon grass, whereas the rest of the uplands have second-growth forest where indigenous forest species can be found. The Balian forest watershed, from where the water system is sourced from, has a land area of 31 ha. The watershed is located at the slopes of the Sierra Madre mountain range facing Brgy. Balian. The village has 4,712 residents and about 1,000 households. However, there are no known settlers within the forest watershed as of 2000. Most of the population in the barangay resides in the coastal areas. It is a relatively urbanized community. As such, agriculture is not considered the main source of income in the area as only 28.16% of the household are involved in agricultural activities. Meanwhile, 38.68% are in the service sector and 26.57% work in blue-collared jobs.

The local community manages the watershed resources through the alliance of two groups: (1) the Samahan ng Balian para sa Pagpapauwi ng Tubig, Inc. (SBPTI), a community-based PO formed in 1926 that leads the management of the water system sourced from a spring within a small watershed in the Sierra Madre Range; and (2) the Lingap Kalikasan, a group that focuses on the management, protection, and rehabilitation of the watershed zone. The SBPTI uses its own technical capacity to manage the waterworks system and to implement protection and rehabilitation programs in the watershed. Fortunately, it receives enabling support from an NGO (STRAP) in the form of technical trainings of SBPTI on forest and watershed management. Moreover, members voluntarily pay PHP 0.05–0.10 per cubic meter as water user fees or contribute labor to support the operations of the SBPTI and Lingap Kalikasan. Financial assistance from external resources and from local government are also provided to the SBPTI.

The SBPTI relies on strong social and institutional capital in governing over the management of the watershed. For instance, an indigenous mechanism for conflict resolution called *pahumog* is conducted every Thursday to provide community members an opportunity for dialogue and discussion. Activities like this allow the community to discuss environmental and water-related issues. The SBPTI conduct rehabilitation programs such as reforestation and protection activities in the buffer zones of all springs in the watershed. The group garners support from local fisherfolk and upland farmers, and from the DENR, Department of Agriculture, and STRAP. However, its relationship with local politicians is strained. Due to the conflict with local political leaders, the future of the SBPTI and Lingap Kalikasan remains uncertain (Contreras 2004).

4.1.1 Status and maturity of the initiative

Ever since the SBPTI was formed in 1926, its goal has been to manage the water system sourced from a spring located in a watershed in the Sierra Madre mountain range. The group, with assistance from NGO intermediaries, resolves conflicts over water resources and governs over the community's water needs. The SBPTI has been effective in influencing local farmers to practice proper and ecological land-use management systems. Furthermore, people in the downstream areas are well-informed about ecological linkages and the importance of conserving the watershed. In turn, downstream residents have been actively involved in managing the watershed. The Balian case, thus, shows how raised awareness of ecological linkages is an enabling factor in directly involving stakeholders in the rehabilitation and protection of natural resources (Contreras 2004).

4.1.2 Establishment of the initiative

In 1930, upon the approval of the Department of the Interior, the SBPTI laid water pipes across the main road. The SBPTI expanded its operations when it discovered two more springs in 1940 and 1950. However, commercial logging operations by Interwood in the 1960s until the 1970s caused environmental degradation in the watershed, thereby reducing water flow by the 1980s. By 1992, the DENR recognized the SBPTI as the legal body that will manage the Balian spring and water system. A 100-meter radius was declared to protect the natural spring resources (Contreras 2004).

4.1.3 Lessons learned

The volunteerism of the members of the SBPTI and Lingap Kalikasan is the main reason why the operations of the two organizations have thrived all through the years. The SBPTI collects water user fees from its member households. In the past, members contributed PHP 0.05–0.10 per cubic meter of water or contributed labor toward the protection of the watershed. The main factor that drives the stakeholders to invest their time and effort toward protecting the watershed is that they are aware of the importance of the watershed in providing them with water for their livelihoods downstream (i.e., farming, fishing, off-farm employment) (Contreras 2004).

4.2 Government-Financed Protected Areas in the Philippines

The PAWB under the DENR is mandated to

1. establish and managing protected areas, wildlife, coastal and wetland ecosystems, and cave resources,
2. promote and institutionalize ecotourism,
3. inform and education the public on nature conservation, and
4. negotiate biodiversity-related Multilateral Environmental Agreements (www.pawb.gov.ph).

The PAWB oversees the management of 240 PAs in the country. The Department of Budget and Management (DBM), through the General Appropriation Act, allots funds for the management of these PAs. The DBM releases a lumped funding to the regional Protected Areas and Wildlife and Coastal Fund. These funds are channeled to the provincial environmental offices (DENR-PENRO) that hold jurisdiction over the different PAs. It cannot be determined at the national level how the regional offices distribute the received lumped funding among PAs, wildlife areas, and coastal areas. PA sites receive different amounts of funding. However, the funds provided by the government oftentimes are minimal and unable to cover all of the operations costs of the sites. In some extreme cases, some PA sites do not receive funding. It is the PAWB national office's responsibility to set which PAs should be prioritized for funding although the final budget appropriation remains the prerogative of the PAWB regional office. As such, the recommendations of the national office on which PAs should be prioritized may not be necessarily followed by the regional offices if they perceive that certain PAs need more priority.

4.2.1 Payment mechanisms and revenue management of PAs

Aside from government funding, PAs in the Philippines generate additional funding to cover their respective operations costs through payment mechanisms such as entrance fees, facilities user fees, and development fees. Revenue-generating mechanisms are usually placed on tourism activities such as mountain hiking, diving, and snorkeling. End users and visitors pay for entrance fees and facilities user fees. Meanwhile, development fees are solicited from telecommunication companies in areas where developments have been established prior to the declaration of the area as a PA.

Currently, a total of 95 PAs generate revenue from payment mechanisms, and 30 of these sites earn sufficient revenue to support park management and operations expenses. The other 65 PA sites generate very minimal income.

Revenues generated by the PAs are channeled into the IPAF. The IPAF is managed by the Bureau of National Treasury of the Philippines. Seventy-five percent of the revenues generated by each PA, upon the request of the PA management, is transferred back to the site as additional funding to cover maintenance costs. The remaining 25% is retained in the IPAF to fund operations costs of low-earning PA sites.

The revenue generated by the PAs for park management is primarily utilized for the operation, maintenance, and rehabilitation costs. However, no PA site has used its revenue for community projects since earnings are barely enough to cover park management costs, much less to fund projects for the local community. Although in some PAs, a part of the revenues is shared with the local community and the government. A case in point is the Mt. Pulag protected area, in which the LGU collects PHP 25 per visitor as an environmental fee. In the Mt. Apo protected area, a MOA was set-up between the PA and LGU, which stated that the LGU is responsible for payment collection. As compensation, a sharing mechanism of the IPAF is agreed upon between the LGU and the PA.

4.2.3 Payment utilization for resource conservation

A number of PAs have become self-sustaining from revenues generated through tourism. In marine habitats, most of the ecosystem services valued are biodiversity to spawn breeding grounds for fish, seascape beauty, and marine habitat for diving and snorkeling. Forest habitats in PAs are managed for ecotourism purposes. Mountain hiking and trekking have been significant revenue-generating activities for PAs. Such sites include Apo Island, Apo Reef, Mt. Pulag Protected Area, Tanyon Strait Protected Seascape, Mt. Katinglad Protected Area, and Ninoy Aquino Parks. The highest generating PAs are tourist spots that offer diving, snorkeling, mountain hiking, and trekking activities. In the case of Tanyon Strait, it generates plenty of revenue because of the submerged cable attraction. This cable was established by a private company. As such, the private company is in charge of collecting fees from visitors. In turn, the company pays the PA for allowing its operations inside the premises. Funds received are then channeled to the IPAF.

The establishment of PA sites has impacted the local communities in various ways. Since PAs have zoning policies, areas that were previously accessible to locals have become off-limits. Despite the restriction on resource use, local communities may still end up better-off because of improved provision of ecosystem services brought about by environmental protection. Take a marine ecosystem for example. Breeding grounds of fish have become off-limits upon the PA establishment. Since fish are mobile, once they move away from the off-limit zones, local fishermen can already catch them. In this set-up, protecting the breeding grounds can create sustainable fisheries to the local community.

On the contrary, some PAs implement strict off-limit rules. The Tubbataha reefs is an example of a no-take zone PA. Fishing in the PA is thereby completely not allowed. Nevertheless, positive ramifications of PA establishment seem to outweigh negative

consequences. One of the main benefits reaped by the locals from establishing tourism through environmental protection is the alternative livelihood opportunities that ecotourism creates. Some of the primary income-generating activities borne out of tourism are boating and tour guide services. In Mt. Pulag Protected Area, the locals get to keep all of their earnings from being tour guides on mountain hiking trips. Similarly, locals earn from porter fees from popular diving spots. Only the entrance fees are collected by the PAs, the rest of the income earned from tourism activities are kept by the locals. This set-up provides mutual gains for both park managers and community members. By acknowledging potential livelihood opportunities from environmental conservation, locals become active participants and advocates of resource conservation to ensure sustainable resource use and continuous tourism activities.

4.2.4 Lessons learned

The Mt. Pulag Protected Area presents a case of effective PA management and successful implementation of revenue-generating activities. The lessons that can be drawn from this case could provide a working foundation to proper PA management in order to achieve both ecosystem conservation and community livelihood development. Proper visitor management and local livelihood support are the cornerstones of the Mt. Pulag park management. The PAWB regional office encourages locals to create souvenirs; they let them display these items at the offices for tourists to see and buy directly from the locals. This provides significant source of income to the local community. Moreover, various livelihood trainings have also been provided to local members. For example, the DOT provides tour-guiding training to locals.

There is also the agreement between Mt. Pulag and the locals that allows the latter to be tour guides and to keep all of their earnings from guiding. In return, they will act as park patrols. This set-up represents a case in which park management is effective because both parties realize the mutual benefits they can gain from maintaining the integrity of the PA by adhering to rules and regulations while still offering services to tourists.

4.2.5 Future plans of the PAWB on PES

The establishment of PES for PAs is still being explored. Studies have been conducted in pilot areas. In the proposed set-up, the PAWB will act as the service seller, and the prospective buyers will be the local water districts. In particular, pilot studies have already been implemented in the protected areas of Mt. Kalatungan, Mt. Isarog, Mt. Malindang, and Mt. Banahaw. The PES establishment in Mt. Isarog has the highest likelihood of being implemented among the four pilot sites since water districts have already expressed willingness to pay for watershed/forest protection.

In the Philippines, PES in PAs is still under pilot testing. To aid in its establishment and implementation, MOAs must be set between the buyers and sellers. This can be achieved through stakeholder dialogues and consultations. The results of the pilot studies have generally been positive. However, no formal report or publication has been released yet because exploration is still underway. Information on the specifics of the PES mechanisms in pilot sites cannot yet be released to the public as it is still being reviewed.

4.3 Beneficiary-Funded (Energy Development Corporation)

The Energy Development Corporation (EDC) is a company that pioneers in geothermal energy production in the country. It is committed to harnessing clean and renewable energy through sustainable resource use. Currently, the company has five geothermal plants in the country: (1) Bacon-Manito Geothermal Project in Bicol, (2) Tongonan Geothermal Project in Leyte, (3) Southern Negros Geothermal Project in Negros Oriental, (4) Northern Negros Geothermal Project in Bacolod, and (5) Mt. Apo Geothermal Project in North Cotabato. EDC also has one hydropower plant in Pantabangan (Pantabangan-Masiway Hydroelectric Power Plant) and one wind power plant (Burgos Wind Project) in Ilocos. Despite being a company focused on energy production, EDC maintains resource protection and conservation as a crucial part of its obligation. Environmental protection has been part of EDC's mandate since its privatization in 2007. Formerly part of the Philippine National Oil Company, EDC was privatized and deputized, through a MOA between the two companies, to invest in watershed protection programs.

4.3.1 Watershed management programs and community involvement

The resource-protection programs of EDC extend farther than the company's corporate social responsibility (CSR). Since watershed resource protection is part of its mandate, sustainability has become EDC's core value. To achieve sustainability and continuity, the framework for watershed management involves three core aspects: (1) environment protection and conservation, (2) business and operations, and (3) benefits for people and organizations.

EDC has implemented numerous environment conservation and protection programs in all of its geothermal plant sites. Currently, majority of the watershed management programs of the company revolve around forest protection, biodiversity conservation, and hazard mitigation. One of the company's ongoing program is the Binhi program, which is an initiative that aims to reforest 10,000 ha of forestland in the span of 10 years. The program started in 2008 and is targeted to be completed in 2018. The local people are involved in the reforestation activities of the Binhi program. They are contracted to conduct reforestation activities and are compensated in return for their involvement. More importantly, their consent is gathered by the company in choosing reforestation sites.

In another geothermal plant site, the company has launched its Wildlife Rescue and Rehabilitation program, which is enrolled in the "Adopt a Wildlife species" program of the DENR. This program aims to establish a rescue center to provide temporary shelter for sick, injured, and orphaned wildlife. These programs aim to involve local communities in the development and implementation of initiatives by enhancing stakeholder capacities in biodiversity and watershed management projects. The reforestation project falls under the "Tree for Life" advocacy of the company, while the wildlife rescue program is part of its "Tree for the Future" advocacy of protection diverse species in the watershed.

EDC has also devised programs that directly benefit local communities and organizations. These programs include alternative livelihood initiatives such as the community-based ecotourism (CBET) and livelihood and agricultural productivity projects. CBET partners with POs in developing ecotourism in the watersheds as a way of involving the locals in watershed conservation while providing viable livelihood opportunities and alleviating poverty. Similarly, livelihood and agricultural productivity projects aim to improve the socioeconomic conditions of locals by encouraging them to become partners in the resource management of the watersheds. Most of the beneficiaries of these types of programs are the upland communities, who are comprised of farmers, cooperatives, and POs.

These community-based programs are part of the company's "Tree for Food" advocacy. By addressing livelihood problems through agroforestry initiatives, the company aims to discourage the locals from illegal poaching of forest products and to stop *kaingin* (slash-and-burn) practices. EDC engages locals in agroforestry initiatives by providing them with inputs for reforestation and agroforestry systems. In return, the locals provide the labor in establishing these systems. Moreover, EDC and the community have mutually agreed on benefit-sharing schemes upon the implementation of the initiatives.

A "Tree for Leisure" program, which aims to maximize the potential of geothermal sites by promoting ecotourism, is the company's latest endeavor. However, programs of this nature have not yet been implemented in the geothermal sites. The security of the geothermal power plants remains a major concern in developing sites for ecotourism.

4.3.2 Lessons learned

EDC's efforts present a case where the private sector is actively involved in resource conservation and watershed management. The lessons learned over the course of project implementation could provide insights on how conservationists can elicit local community participation and to resource conservation activities. Being a business operation first and foremost, it is important to make the EDC management understand the need to invest in resource conservation activities, especially since the nature of their business relies heavily on ecosystem services.

As in any other business, the internal clients view conservation programs as additional costs. In order to change their perspective, the Watershed Management Division of EDC needs to make them realize the importance of ecosystem services as inputs to energy production. Similarly, to achieve successful implementation of conservation programs, the project implementers need the support of the local communities. IEC initiatives have been found to be effective tools in raising community awareness and in establishing widespread acceptance of the company's initiatives. Sustainability can then be achieved by creating a clear understanding of the linkages of ecosystem service provision and its crucial role in energy production.

4.3.3 Future plans of EDC on PES

EDC has also explored the possibility of creating markets for environmental services. In the last year, the company has collaborated with the Flora and Fauna International (FFI) to conduct a series of valuation studies in its geothermal sites. Its goal is to appraise the natural resources that the company is utilizing in its operations and to quantify the impacts of its resource conservation programs on ecosystem service provision. The company has sought the help of the FFI to gather baseline information of resource use and watershed conservation and to identify priority ecosystem services. It is testing the viability of implementing PES schemes to provide an avenue in generating additional funds for resource conservation. Moreover, results of valuation studies will be used to justify the implementation of a PES program that will improve ecosystem services for energy production and for community consumption. EDC has also partnered with the Resource Economics and Environment Center for Studies to conduct valuation studies, in which the results will be used as basis for planning and decision making in order to determine the appropriate fees to pay the government.

4.4 Summary of PES-like Scheme Analysis

4.4.1 Targeted ecosystem services in PES-like schemes

The PES-like schemes reviewed in this study include PAs, geothermal power plant sites, and a community-based resource management site. The various ecosystems and ecosystem services valued in these sites are outlined in Table 8—biodiversity (44 sites), landscape/seascape beauty (38 sites), and watershed (13 sites). Since majority of the PES-like schemes are PAs, much of the targeted and paid-for ecosystem services include biodiversity conservation and recreation services. Meanwhile, ecosystem services paid for by the geothermal plants contribute to its geothermal energy production. Similarly, the community-based watershed management system continues to protect and conserve the watershed as a means of ensuring the continuous flow of water to its communities. This shows that biodiversity and watershed conservation are valued not only for the improvements it can potentially bring to tourism in the country, but also for the sustainable the production of water and energy.

Table 8. Ecosystem services valued by each PES-like program

Service			Ecosystem Services			
			Biodiversity	Landscape/ Seascape Beauty	Watershed	TOTAL
ES paid for	Biodiversity conservation Ecosystem recreation benefit	Specific use	Game refuge and bird sanctuary	1		1
			Wilderness area	2		2
			Wildlife sanctuary	1		1
	Geothermal energy production	Specific use	Geothermal energy production		5	5
	Marine biodiversity Recreation benefit	Specific use	Marine reserve	2		2
	Recreation benefit Biodiversity conservation	Specific use	Managed resource PA	1		1
			Mangrove swamp forest reserve	5		5
			National park		16	16
			Natural monument/ landmark		4	4
			Natural park		18	18
			Protected landscape/ seascape	32		32
	Water flow regulation	Specific use	Water flow regulation		1	1
	Watershed services Biodiversity conservation	Specific use	Watershed forest reserve		13	13
TOTAL			44	38	19	101

Note: ES = ecosystem service; PA = protected area

5.0 NEW PES SCHEME

5.1 RUPES Lantapan Project

The municipality of Lantapan covers a total land area of 35,465 ha, 60% of which is devoted to agriculture while 40% is composed of forestlands. In this watershed, numerous rivers and creeks channel from the Mt. Kitanglad Range Natural Park, passing through the Lantapan valley, with intensively cultivated agricultural areas, and ultimately drain into the Manupali River. The buyers of water services are the

1. farmers, including IPs, Dumagat farmers, and Hilltop Lantapan farmers (a farmer cooperative) residing in the upstream and midstream areas of the watershed who are engaged in crop production such as agroforestry, abaca, tree farms, sugarcane, corn, and vegetable farms;
2. poultry operators;
3. the LGUs, who distribute potable water for domestic use;
4. the multi-national banana corporations, including Mt. Kitanglad Agri-Ventures, Inc. (MKAVI); DOLE-Skyland Philippines; Celebrate Life, Inc. banana plantation; and AMS Farming Corp. (AMSFC) banana plantation, which is located in the middle to the mid-lower section of Manupali watershed;
5. Manupali River Irrigation System (ManRIS), which supplies irrigation of rice fields in the downstream areas;
6. the Bukidnon Irrigation Management Office (BIMO), which operates a network of irrigation canals; and
7. National Power Corporation-Pulangui IV.

The whole river network finally flows water into the Pulangui reservoir that provides hydropower to the NPC-Puangui IV, the largest hydropower facility in Mindanao (Coxhead and Buenavista 2001 as cited by Duque-Piñon 2012).

In the Manupali watershed, there are two types of water rights:

1. *Customary rights*. This type of water right is based on the 1996 Indigenous People's Rights Act (IPRA). It grants customary water rights to IPs based on their traditional belief systems.
2. *Statutory rights*. This is based on the 1976 Water Code of the Philippines, which provides the government control over water distribution. However, it is the National Water Regulatory Board (NWRB) who is empowered to issue water rights, decide on who can avail of water rights, charge appropriate payment for water rights, collect water charges for water development, and determine the amount of water that can be used by water rights holders. As such, the NWRB has awarded water rights to ManRIS, Hilltop Farmers cooperative, two private farm owners, and banana companies. Other stakeholders entered voluntary agreements with water rights holders for sharing of water resources (Duque-Piñon et. al 2012).

5.2 PES-Like Schemes in the Manupali Watershed

Various stakeholders in the Manupali watershed have collaborative agreements on feasible water rights sharing schemes (Figure 3):

1. *ManRIS and MKAVI*. ManRIS has prior water rights over the Manupali River and its tributaries. The MKAVI is paying irrigation service fee equivalent to 150 ha of irrigated rice fields.
2. *Dole and Hilltop Multi-Purpose Cooperative (MPC)*. In 2000, Hilltop MPC obtained water rights in the Maagnao River. The MPC members accorded the arrangement to share water rights with Dole Company in exchange for livelihood assistance and employment. Village officials played an important role in mediating the negotiations between Dole and the MPC.
3. *High-Value Crops Producers Multi-purpose Cooperative and IPs*. Following the NIPAS and IPRA laws, the Talaandig community has the water rights for Kibuda Spring. A negotiation between the Talaandig community and the Celebrate Life Banana Company was arrived at through the successful mediation by the PAMB. The banana company was granted water rights of Kibuda spring by the Talaandig community within the CBFM area in exchange for livelihood and community conservation projects.
4. *ManRIS and AMSFC*. In exchange of water rights, the AMSF offered to maintain the road system and sponsored tree-planting activities along the small creeks within the water service area of ManRIS as part of the company's CSR. The company is also paying irrigation service fee equivalent to 375 kg/ha per year of rice.
5. *Cawayan village government and the IPs*. The IPs allowed the LGU of Cawayan village to develop a reservoir for the water system that will provide the community with potable water. It was agreed that the local government will share 10% of the water system project income to the IPs to support watershed protection activities upstream.
6. *Green River Gold Ranch and the IPs*. A MOA was drawn between the two parties to allow the Green River Gold Ranch to extract water from an open access spring in exchange of a 1% annual levy.

In the case of the Manupali watershed, negotiations were either done directly between the concerned stakeholders or mediated by village officials or government officials (e.g., PAMB) through a series of consultation meetings.

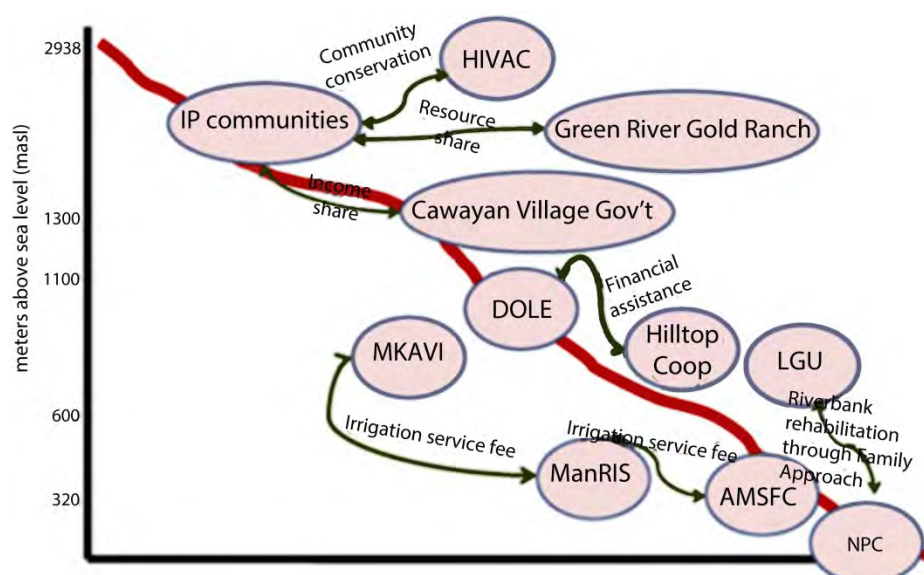


Figure 3. Water rights sharing scheme among the various water users in the Manupali watershed

Source: Duque-Piñon et al. (2012)

5.3 Plans of PES Establishment in Lantapan

The existence of various stakeholders and multiple payment schemes in the Manupali watershed have caused confusion and created conflicts among the users over water resource allocation and use. It was identified that conflict resolution was viable through cooperative and collective actions. Thus, the Municipal Government of Lantapan initiated the creation of a “cooperative initiative” with the World Agroforestry Centre, Bukidnon Environment and Natural Resource Office, Bukidnon Watershed Protected and Development Council, NPC, and NIA to develop a PES mechanism in the Manupali Watershed.

The driving force behind this initiative is to attain sustainable and agreeable sharing scheme for water resource users in the watershed (Duque-Piñon et al. 2012). This PES mechanism has recently been granted funding by the DOE and has only started testing the RUPES project in January 2014. It is expected to achieve project completion in December 2016.

Table 9. In-depth analysis of new PES Scheme

PES Site	Manupali Watershed (Lantapan)
Classification	Intermediary-initiated
Ecosystem	Watershed
Ecosystem services	Water flow regulation
Location	Lantapan, Bukidnon, Mindanao
Area size (ha)	35,465
Status	Newly established (2014–2016)
Initiator	RUPES

Table 9 continued

PES Site	Manupali Watershed (Lantapan)
Source of funding / buyer	Stakeholder beneficiaries: • Farmers including IPs, Dumagat farmers, and Hilltop Lantapan farmers • Poultry operators • LGUs who are distributing potable water for domestic use • Multi-national banana corporations including MKAVI, DOLE-Skyland Philippines, Celebrate Life, Inc. banana plantation, AMSFC banana plantation • ManRIS • BIMO • NPC-Pulangui IV
Intermediary	RUPES
Seller	Water rights are held by the IPs and the local government
Major obstacles to implementation	Only started implementation in January 2014
Linked policy	IPs were given water rights based on the 1996 IPRA Government was given water rights based on the 1976 Water Code of the Philippines
Mode of payment	No info yet
Payment rate	No info yet

Note: AMSFC = AMS Farming Corp.; BIMO = Bukidnon Irrigation Management Office; IP = indigenous people; IPRA = Indigenous People's Rights Act; LGU = local government unit; ManRIS = Manupali River Irrigation System; MKAVI = Mt. Kitanglad Agri-Ventures, Inc.; NPC = National Power Corp.; RUPES = Rewards for Upland Poor for Environmental Services

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 PES in the Philippines

The implementation of PES schemes in the Philippines are still at the beginning phases as with other developing countries. Although there have been positive results, there are still significant drawbacks that inhibit the efficient implementation of the PES schemes. In the study cases, different local and national stakeholders showed clear interest in establishing sustainable watershed conservation and rehabilitation schemes.

Cremaschi, Lasco, and Delfino (2013) have argued that the definition of a PES scheme set by Wunder is challenging to attain in practice, especially in developing countries, due to the large information gaps on the ecological linkages and ecosystem service provision. Gathering the necessary information would be too costly and time consuming. It is common practice that relationships between improved land uses and increased ecosystem services are based on assumptions and presumed linkages. Also, PES schemes for watershed service provision tend to work inefficiently when institutional set-up and goals are ill-defined.

6.2 Role of Government

In the Philippines, the government's role as intermediary is crucial in establishing PES schemes as it has great influence in the information dissemination and education of key stakeholders. The case studies also showed that POs and NGOs, such as the Bakun Indigenous Tribes Organization in Bakun and the local Kahublagan Sang Panimalay Foundation in Maasin were effective in strengthening cooperation among upland communities.

In the cases of Sibuyan Islands and Tubbataha Reef Marine Park, it showed that the LGU can be an effective intermediary in setting up arrangements between buyers and sellers. Moreover, through the government's initiative, PES schemes could successfully raise funds for resource conservation activities. Fully functioning user fee systems have been capable of independently generating funds for ecosystem management.

However, as highlighted by Tongson (2005), a significant portion of the ecosystem service buyers in the Tubbataha reefs have expressed major concerns on the transparency and accountability and the role of government in collecting and allocating funds. Majority of the survey respondents in Tubbataha expressed distrust toward the local government's handling of funds because of perceived graft and corruption. Fortunately, user fee system was supported by divers because of their higher capacity to pay. Similarly though, divers preferred NGOs to handle the money instead of the government. However, NGOs have no legal mandate over the funds unless the state appoints them to or they receive voluntary donations. Since LGUs are mandated to collect fees, actions must be undertaken to reverse negative perceptions, promote good governance, and provide transparency over the collection and allocation of funds.

6.3 Issues in the Implementation of Existing and New PES Schemes

Existing and new PES schemes may learn from the key issues that stood out in the case study areas (Arocena-Francisco 2003; Porras and Neves 2006; Tongson and Balasinorwala 2010; Cremaschi, Lasco, and Delfino 2013).

Firstly, in establishing PES schemes, institutional and social conditions in the area must be taken into account. Viable conditions for implementing PES schemes include well-defined sellers and buyers, potential for poverty alleviation from the transfer of resources from richer buyers to poorer sellers, existence of a defined environmental problem, a chance to promote land use management to counter environmental degradation, and a cost-effective institutional framework. An efficient PES scheme can be established through the coordination and active participation of stakeholders and by establishing a well-defined set of goals and responsibilities among the institutions involved. In the Mt. Kanlaon case, issues with the PES scheme stemmed from inefficient implementation. It was documented that the benefits to livelihood projects took a long time to bear fruit due to the long process of community preparatory work, unclear guidelines on how to use the livelihood fund, and long approval procedures.

Secondly, the decision-making process and design of a PES scheme must consider how the uncertainty in the provision of ecosystem services caused by limited knowledge

and information gaps about the ecosystem linkages would affect the implementation of the PES scheme. If ecosystem linkages are not properly identified, then the PES scheme would not considerably improve ecosystem services despite efforts in resource rehabilitation. Failing to improve provision of ecosystem services may jeopardize short- and long-term implementation of the PES scheme, as such was the case in the Maasin watershed. Thus, efforts to revise current experiences should be continuous, and other aspects that could achieve sustained flow of ecosystem services over time should be continuously explored.

Thirdly, the institutional and social conditions in the sites must be considered when establishing PES schemes. In some cases, despite successfully raising the local stakeholders' awareness of natural resource conservation, issues on fund utilization and effective channelling of funds for watershed conservation have emerged. In these sites, how the funds were allocated was not clearly defined; thus, the local government invested the money in communities that are not actually providing the ecosystem services. Moreover, when implementing PES schemes, implementers need to follow through on its livelihood improvements and poverty alleviation objectives. In the Maasin and Bakun watersheds, the PES scheme was not successful in improving the income of the upland communities. In extreme cases, providers did not receive any payment from the water users for the water service they had provided. Specifically, the PES scheme was unable to effectively channel the funds for watershed conservation collected from hydropower companies to service providers. PES schemes for ecosystem services provision in watershed may work inefficiently if institutional set-up and goals are not clearly established.

6.4 Effective Payment Scheme

Since majority of the PES schemes are watershed cases, one effective payment mechanism for raising funds is to place a water levy on water users. This is shown in the the cases of Baticulan watershed, Tubbataha reefs, and Balian watershed. Establishing user fee systems properly can generate financing for ecosystem protection and management.

6.5 Were PES Schemes Successful?

Satisfying all the five conditions identified by Wunder (2005) in implementing a successful PES scheme is extremely challenging in the Philippines. In most cases reviewed, only few conditions were met. Generally, PES schemes such as those in Bakun, Maasin, Baticulan, and Sibuyan are depicted by ill-defined ecosystem services and inadequate scientific information on the link between land use and ecosystem provision. Information gaps on the linkages of land uses and ecosystem services and failure to satisfy the conditionality criterion by Wunder (2005) lower the environmental efficiency of PES (Cremaschi, Lasco, and Delfino 2013). Thus, government and institutions play crucial role in the process of establishing PES schemes.

Specifically, the PES scheme in the Maasin watershed was not successful due to a number of reasons. For one, the providers received wages for the reforestation and rehabilitation activities instead of payments for the water service they provide.

For another, the reforestation did not provide sufficient food security to the upland communities. Meanwhile, the buyers were dissatisfied with the outcomes of the reforestation activities because they have observed that the water supply that flows in the streams was significantly reduced, particularly during the dry season, after the reforestation program (Salas 2005; Cremaschi, Lasco, and Delfino 2013). In Mt. Kanlaon Natural Park, the main constraints that caused inefficient implementation of the PES schemes are the lengthy process of community preparatory work and approval procedures. Furthermore, the guidelines on how to use the livelihood funds were vague, resulting in a long lag period before the benefits of livelihood projects took effect (Porrás and Neves, 2006).

On the other hand, the Tubbataha reefs represent a case where multi-stakeholder management approach is effective in watershed management. The project acts as a facilitator among stakeholders rather than an implementer. As such, the project's role involves facilitating the management of stakeholders, developing a collective vision, identifying issues, formulating strategies, and creating a management plan. The social capital built over the years among stakeholder groups has also been a key factor in this case. Through the multi-stakeholder management, goals and visions are collectively owned by the parties involved. With this set-up, stakeholders are actively involved in the implementation and monitoring of activities. Because of the collective vision, stakeholders take ownership of outputs and outcomes of the project. The project also works together with local government institutions in utilizing resources, minimizing constraints, providing technical assistance, and setting standards for implementation to manage the park efficiently.

The case in Tubbataha reefs is replicable in similar sites and context. Stakeholders need to exude willingness to cooperate and to achieve a shared vision of attaining positive outcomes. Due to the nature of ecosystem services as public goods, beneficiaries do not often share the cost of providing ecosystem services, while providers rarely receive compensation. In this case, creating a market for ecosystem services through user-fee systems has been successful in generating independent financing for the conservation of the marine ecosystem. Upon the success of the Tubbataha management scheme, the WWF-Philippines successfully replicated this process in Anilao, Batangas in 2003 (Tongson 2005).

6.6 PES-Like Schemes

PES-like approaches to resource protection and conservation have been practiced by multiple sectors in the Philippines. PES-like schemes have been established through recognizing the importance of maintaining ecological integrity to achieve sustainable ecosystem service provision. Private companies and local communities have also recognized the importance of resource protection to support business operations and livelihood activities. PES-like schemes have also been successful in generating additional revenue for the implementation of conservation programs.

As highlighted in the Balian watershed case, the stakeholders in the community-based watershed management are highly aware of the importance of protecting the watershed such that the watershed can continue supplying them with water for their

livelihoods. On the other hand, in the various PAs in the country, ecotourism provided an avenue to generate additional revenue to supplement the costs in park management. Meanwhile, the Energy Development Corporation is committed to investing in conservation programs that encourage community participation through incentive provision in the form of alternative livelihood opportunities.

Although the PES-like mechanisms established in their respective sites seem to be working, the EDC, the PAWB, and other involved agencies and LGUs have acknowledged the potential of actual PES schemes to provide a market-based mechanism to support resource conservation programs. Together with the RUPES site in Lantapan, these stakeholders have expressed plans of establishing PES schemes to create new markets for ecosystem services that will potentially generate additional revenue to strengthen their efforts in ecosystem protection and conservation.

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