PAYMENTS FOR ENVIRONMENTAL AND CULTURAL SERVICES AND THE CONSERVATION OF THE IFUGAO RICE TERRACES[1]

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Abstract

This paper discusses the potential of developing a Payments for Environmental and Cultural Services system that can help in the conservation of the Ifugao Rice Terraces. The rice terraces in four municipalities of Ifugao were inscribed in the UNESCO World Heritage List in 1995 as the Rice Terraces of the Philippine Cordilleras under the category of organically evolved landscapes. However, the terraces have deteriorated over the years, and those inscribed in the World Heritage List have been reclassified to the World Heritage in Danger List in 2001.

The burden of maintaining this global heritage lies in the hands of the Ifugao farmers, whose ancestors carved the terraces from the mountains more than 2,000 years ago. However, there are many problems besetting the terraces, such as damaged terraces due to landslides and earthworms, inadequate water supply and poor irrigation system, and pest infestation. These have resulted in the abandonment of the terraces, which has compromised the sustainability of the rice terraces.

Conserving the Ifugao Rice Terraces in general, and the rice terraces inscribed in the UNESCO World Heritage List in particular, requires substantial funds on a continuing basis, which the limited budget of the local government cannot support. At present, only three municipalities charge minimal fees from tourists, but the revenues from these fees have not trickled down to the level of the farmers. The results of a

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contingent behavior survey conducted by the authors reveal that the willingness-to-pay of local and foreign tourists for the conservation of the rice terraces is higher than what the municipalities charge.

The creation of a market for environmental and cultural services has a good potential, where the sellers and buyers of these services will be the farmers and tourists, water users, and electricity users, among others. The authors thus recommend the development and institutionalization of a Payments for Environmental and Cultural Services system as a sustainable financing mechanism for the conservation of the rice terraces.

1. Introduction

The Ifugao Rice Terraces of the Philippines attract many local and foreign tourists every year, being the most famous among the rice terraces found in the Asia-Pacific region. There are rice terraces in nine out of eleven municipalities of Ifugao, and some have been inscribed in the UNESCO World Heritage List in 1995 under the category of organically evolved landscapes. These are the municipalities of Kiangan, Hungduan and Mayoyao, and the barangays of Batad and Bangaan in the municipality of Banaue.

On the other hand, the rice terraces in five other municipalities (Asipulo, Aguinaldo, Hingyon, Lagawe, and Tinoc) are not inscribed in the List. However, there are moves to have more terraces included in the List. Some stakeholders have noted that conservation efforts have focused only on the heritage municipalities, even as the same problems have been observed in the non-heritage municipalities. They expressed their concern that this may result in the deterioration of the rice terraces in other areas.

As with other heritage areas, the terraces were originally carved out of the mountains by the Ifugao people more than 2,000 years ago for them to have land to plant rice on, and not to intentionally create a heritage site. Through time, the terraces have gained recognition throughout the world, and the use of traditional skills in the engineering and hydraulic works in constructing the terraces has been marveled. Likewise, the indigenous cultural practices of the Ifugaos, enriched with the people's innate knowledge and lessons from the natural environment, promote biodiversity. They recognize that rice farming on the terraces cannot be sustainable unless there are forests that will support their farms in water and soil conservation.

The condition of the terraces has deteriorated over the years, owing to problems that include low rice productivity, outmigration, overcutting of woodlots, erosion and landslides, problematic irrigation system, and the presence of pests like golden snails and giant earthworms. Traditionally, wood extraction from their *pinugo* or woodlot was mainly for home use (e.g. fuelwood, house construction). However, the increased economic activities in the province have resulted in more tree harvesting, not only to sustain their domestic requirements but also to provide raw materials for woodcarving and more house construction. These problems have resulted in the abandonment of many terraces that, if allowed to continue, can compromise their very existence.

Furthermore, the headwaters of the Chico River Basin are found in Ifugao, particularly in Banaue and Hungduan. At present, these areas are under serious threat due to the increasing conversion of lands from forest to vegetable farms (please see Figure 1). Inasmuch as the farmers do not generate enough income from their rice paddies, some have resorted to cutting or even clearing the trees in their woodlots.

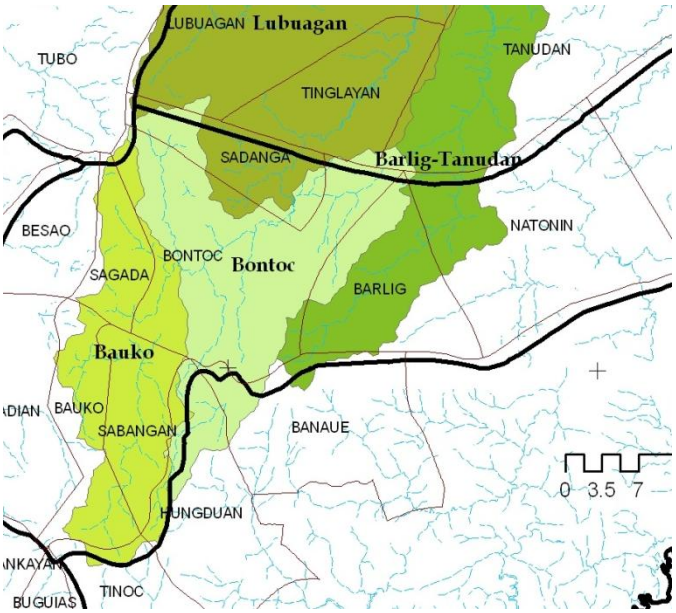

Figure 1 shows the headwaters of Chico River Basin in the municipalities of Hungduan, Banaue, Tinoc (Ifugao); and Sabangan, Bauko (Mountain Province).

This paper discusses the potential of developing a Payments for Environmental and Cultural Services system that can help in the conservation of the Ifugao Rice Terraces.

2. Financing Conservation

2.1. Why raise funds for the conservation of the Terraces?

Some of the threats to the IRT include the lack of an effective site management authority and adequate legislation; lack of a finalized strategic site management plan; declining interest of the Ifugaos in their culture and in maintaining the terraces; and the lack of human and financial resources (UNESCO 2005). According to the World Heritage Committee (UNESCO 2005), various initiatives have been undertaken to preserve the IRT, such as in the areas of water management, agricultural management, watershed management, hazard management, transport development, spatial restructuring and tourism development, cultural enhancement and livelihood development.

A 10-year Ifugao Rice Terraces Master Plan was prepared in 2002, and required a total of P1.034 billion. The total amount needed for the first year of implementation alone was P47.6 million. The plan should have been implemented in 2003, but it has not been fully implemented for lack of funds. Several potential funding sources were identified in the plan, such as national and local government agencies, multi-lateral and bilateral sources (e.g. official development assistance and other grants), private organizations, academe, research centers, and overseas Filipino workers from Ifugao. However, the possibility of tapping local and foreign tourists to provide incentives to

encourage Ifugao farmers to continue farming (and maintaining the rice terraces) has not been seriously considered. The study of Calderon et al. (2009) revealed that the farmers need support to continue farming the rice terraces and sustain the provision of the cultural and environmental services that they, in the process of farming, provide; that there is a demand for these services; and that there is an excellent potential to raise revenues from the demand side, e.g. local and foreign tourists and other possible donors.

A joint UNESCO World Heritage Centre/ICOMOS/IUCN Reactive Monitoring Mission that went to Ifugao in April 2006 noted, among other things, the need to develop a more coordinated, long-term funding and a more sustained local resource generation mechanism, including tourism revenues and the marketing of local products. Apparently, the short-term funding provided by the provincial and municipal governments from their revenue allotments was not sufficient. This underscores the importance of a viable mechanism that will sustainably finance the conservation of the Ifugao Rice Terraces.

2.2. The Terraces as a Public Good

There is no question about the great value of the Ifugao Rice Terraces as a heritage site, and they are important not only to Filipinos but also to the global community. While different clans privately own the rice paddies and woodlots on the terraces, the terraces as a whole can be considered a public good.

Klamer and Zuidhof (1998) define cultural heritage to include "objects, structures, and other products of cultures and individuals that have been passed from previous generations to the present and are valued because they are representative of a particular culture and are, at least partly, valued because of their age." Cultural heritage goods are typically public goods (Ready and Navrud 2002). However, they possess varying degrees of the characteristics of public goods, i.e. non-excludability or the infeasibility of keeping other users from enjoying the good, and non-rivalry.

Peacock (1994 as cited by Klamer and Zuidhof 1998) notes that heritage is not produced specifically to respond to a consumer demand, but is a by-product of other products. The heritage was usually created for a specific purpose and not to satisfy existing tastes. In the case of the Ifugao Rice Terraces, they were carved into the mountains by the Ifugaos to create areas to be planted to rice.

According to Pagiola (1996), two of the problems that commonly beset cultural heritage sites are: many of their services do not enter markets, or do so indirectly and imperfectly; and many benefits are intangible. The market may allow users of a heritage property to pay the property's owners on a voluntary basis (Wills and Eves n.d.), but this is often not the case and results in market failure. Furthermore, the benefits from many heritage properties accrue not only to the residents, but also to those who visit or know about them.

2.3. The Value of the Ifugao Rice Terraces

The **total economic value** (TEV) of a resource is the sum of its use value (UV) and non-use value (NUV). Just like other resources, the Ifugao Rice Terraces have both use and non-use values.

In this case, u**se values** arise from the actual use of the terraces, which can be further classified as:

- Direct use values (DUV) – actual uses like rice farming or timber extraction
- Indirect use values (IUV) – benefits that arise from an ecosystem's functions. For example, Banaue provides important watershed functions to the Magat Dam in Isabela because the headwater of the river feeding the Dam is in Banaue.
- Option values (OV) – express an individual's willingness to pay to protect or safeguard an asset for the option of using it in the future.

On the other hand, **non-use values** include:

- Bequest value (BV) – measures the benefits that accrue to an individual from knowing that a resource will provide benefits to the future generation. For example, Filipinos may have bequest values for the terraces because they would want their children and grandchildren to be able to visit the terraces in the future.
- Existence value (XV) –measures an individual's willingness to pay (WTP) for the assurance that the terraces will continue to exist, even if they will not actually visit or use them.

2.4. Payments for Environmental and Cultural Services

The literature review undertaken for this paper yielded only a few materials on financial mechanisms specifically for cultural and heritage areas. Hollands (2003) identified some of the possible fund sources as long-term support and short-term grants from international donors and organizations like the Global Environmental Facility and the United Nations, corporate donors and charitable institutions. He also cited ring-fencing the revenues to avoid their integrated into centralized revenues.

The literature on financing mechanisms for protected areas and environmental services is richer, especially with the growing recognition and implementation of payment for environmental services (PES) schemes. Payments for environmental services are hinged on the principle that resource users and communities that provide ES should be compensated for the costs of providing these by those who benefit from the ES (Mayrand and Paquin 2004). In other words, users of the ES should internalize the external benefit.

Wunder (2005) notes that PES has not been formally defined in the literature, but offers five criteria that describe the PES principle. These are that "a PES is (1) a voluntary transaction where (2) a well-defined ES (or a land-use likely to secure that service (3) is being "bought" by a (minimum one) ES buyer (4) from a (minimum one) ES provider (5) if and only if the ES provider secures ES provision (conditionality)."

PES programs, being market-based instruments, can be more efficient than command-and-control approaches because they concentrate on efforts with lower costs and higher benefits (Pagiola et al. 2002). Furthermore, PES has an inherent feedback mechanism because the payment to ES providers is based on the payment from ES users, and the latter will want to make sure that their payments are used effectively.

Francisco (2005) points out that for a PES scheme, it is important to link the "sellers" (in this case the parties involved in the production of environmental services) with the potential "buyers" (or those who will benefit from environment-friendly land use activities and natural resource management practices. These parties can be brought together by an intermediary or facilitator.

The four common ES types are carbon sequestration and storage, biodiversity protection, watershed protection, and landscape beauty (Wunder 2005). Mayrand and Paquin (2004) describe landscape beauty services to include "the protection of natural heritage sites, coral reefs, cultural sanctuaries, and even traditional livelihoods as part of a combined cultural environmental landscape protection approach." They also note that there are only a few PES schemes for this category because of the difficulty in quantifying and evaluating the services due to their cultural foundations. However, these services are increasingly being considered in PES schemes because of heightened cultural consciousness and the burgeoning global tourism industry.

The Ifugao Rice Terraces can be classified under the category of landscape beauty, having been declared a UNESCO World Heritage Site that showcases not only the terraces but also the culture and traditions of the Ifugaos. However, the Terraces also provide the other ES types, namely carbon sequestration and storage (especially in the woodlots that the Ifugaos maintain), biodiversity conservation, and watershed protection.

Applying the critical elements Francisco (2005) identified for PES, the following are also important in developing financing mechanisms for the conservation of the terraces:

1. A systematic information, education and communication campaign to inform the people about the importance of the Ifugao Rice Terraces and the threats they are facing;
2. Meetings with major stakeholders to explain the importance of saving the terraces and the need to draw up innovative financing mechanisms;
3. Research to gather information about the "buyers'" willingness to pay, and what their concerns about the conservation of the terraces are; and
4. The legislative support required to implement the financing scheme.

2.5. Collection of Payments from "Buyers"

Stakeholders, during a consultation meeting undertaken by the authors, identified the beneficiaries of the values that the Ifugao Rice Terraces produce, and the possibility of converting these values to payments. These are summarized in Table 1. These values can be captured through a mechanism that will be supported by contributions from the different sectors. These can be in the form of cash, inputs, labor or the performance of cultural practices, and will be used mainly to support the activities of rice farmers in the terraces.

Table 1. Beneficiaries of the values that the IRT produce, and the possibility of collecting fees.

Value	Beneficiaries	Possibility of Collecting Fees
Aesthetic value (tourism)	• Tourists	Yes
Environmental value (watershed protection, water supply)	• Local people • Resource users (water, timber) • Farmers • Tourists	No Yes No Yes
Technical value (engineering methods, agricultural designs, indigenous knowledge)	• Student visitors • Researchers • Local people • Tourists	Yes Yes No Yes
Cultural/anthropological value (rituals and ceremonies)	• Tourists • Local students • Student visitors • Researchers • Local people	Yes No Yes Yes No
Scientific value (ethno-botanical/ biodiversity value)	• Students • Researchers	Yes Yes
Economic value (livelihood, food, other products)	• Business sector • Tourists • Local people • Consumer of products	Yes Yes No Yes

Key informant interviews and focus groups also reveal a preference for the creation of a trust fund to be managed by a multi-sectoral council, over a system that will be managed by the government. Contributions to the fund can either be systematic (e.g. fees and charges or taxes) or voluntary (donations).

For the business sector and researchers, it is possible for the payments to be incorporated in the computation of fees in the application for business permits and local taxes. A percentage of the business firm's income may also be collected and be added to the funds for the IRT conservation. For tourists, student visitors and walk-in guests,

the collection of an environmental/consumer fee may be exacted by the tourism office through a deputized staff from the municipal treasurer's office.

2.6. Tourists' Willingness-to-Pay

Calderon et al. (2009) conducted a contingent behavior survey among local (300 respondents) and foreign (250 respondents) tourists to estimate their willingness-to-pay (WTP) for the conservation of the terraces. The contingent behavior survey is a variation of the contingent valuation (CV) survey. Due to time, financial and security constraints, it was not possible to interview the tourists when they were not yet in Banaue, e.g. when they were still at home, in their hotel at the city of entry, or at the airport for that matter. The respondents were thus asked to go back to the time when they were making a decision as to which places they would visit in the Philippines, and whether they would still have come had they known that they would be made to pay a certain amount in the form of an entrance fee or a business surcharge. Tuan and Navrud (2006) also used this approach to determine foreign tourists' WTP to visit the My Son world cultural heritage site in Vietnam. They noted that asking tourists about their WTP when they have already arrived in the country would have placed them in a *fait accompli* situation, with no options to look for substitute sites. This could sway the WTP estimate in the upward direction.

The CV question that was posed to the respondents was:

"*Suppose you are still in your country (province) of origin contemplating a visit to the Philippines (Cordillera Region). Would you have decided to visit the Ifugao Rice Terraces if you knew that you would be made to pay P____/visit, which will go to a fund for the conservation of the Terraces?"*

Figures 2 and 3 show the distribution of "yes" and "no" responses of local and foreign tourists, respectively. As expected, the highest proportions of "yes" responses were for the lowest bid amounts of P30/visit (local respondents) and US$10/visit (foreign respondents). There were 155 local and 93 foreign respondents who said "yes" to the WTP question across various bid amounts, representing 64% and 44% of the total, respectively.

The top reason given for saying "yes" was that they would like the terraces to be conserved. More than 50% also said that they would like to help the Ifugao farmers; they derived satisfaction knowing that they were contributing to a good cause; they would like their children and grandchildren to see the terraces; they cared a lot about the terraces; and they appreciated the efforts of our Ifugao forefathers in building the terraces. On the other hand, local and foreign respondents who answered in the negative mainly said that they could not afford the payment, and that it was the government's responsibility to conserve the terraces.

The average WTP for local and foreign tourists, corrected for protest and uncertainty, were P440 per person and US$71 per person, respectively. For local

tourists, the significant factors affecting WTP are gender (male), knowledge about the present condition of the terraces, and bid amount. This means that male tourists generally had a higher chance of saying yes to the WTP question than female tourists. For foreign tourists, the significant factors affecting WTP are age, knowledge as UNESCO World Heritage Site, and bid amount.

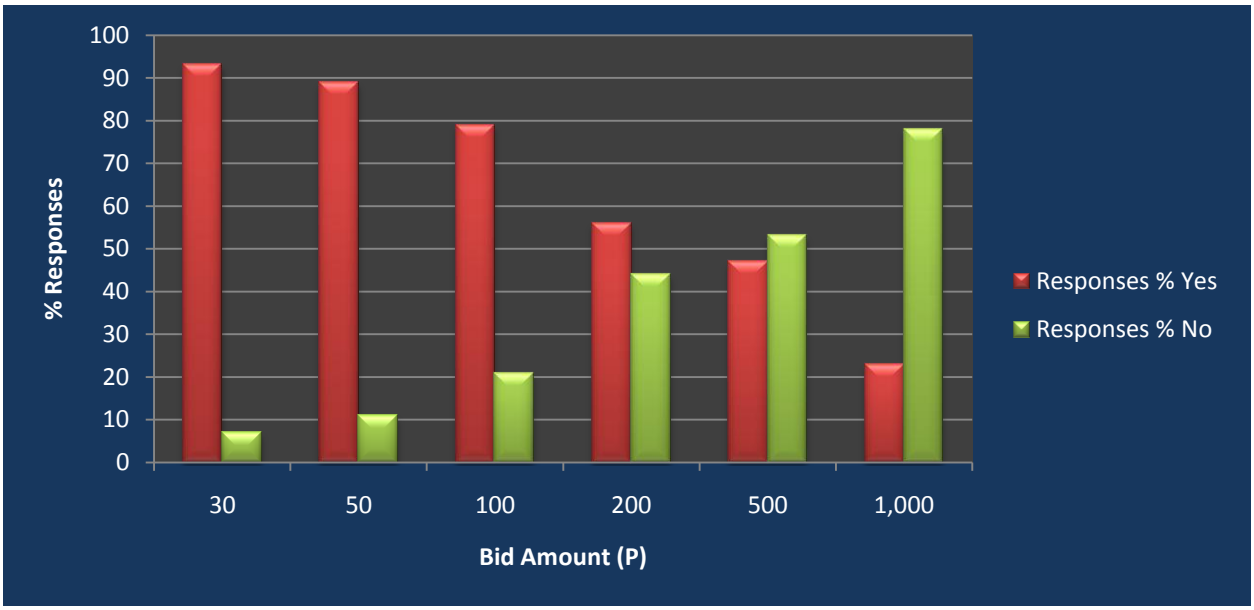

Figure 2. Local tourists' responses to the WTP question

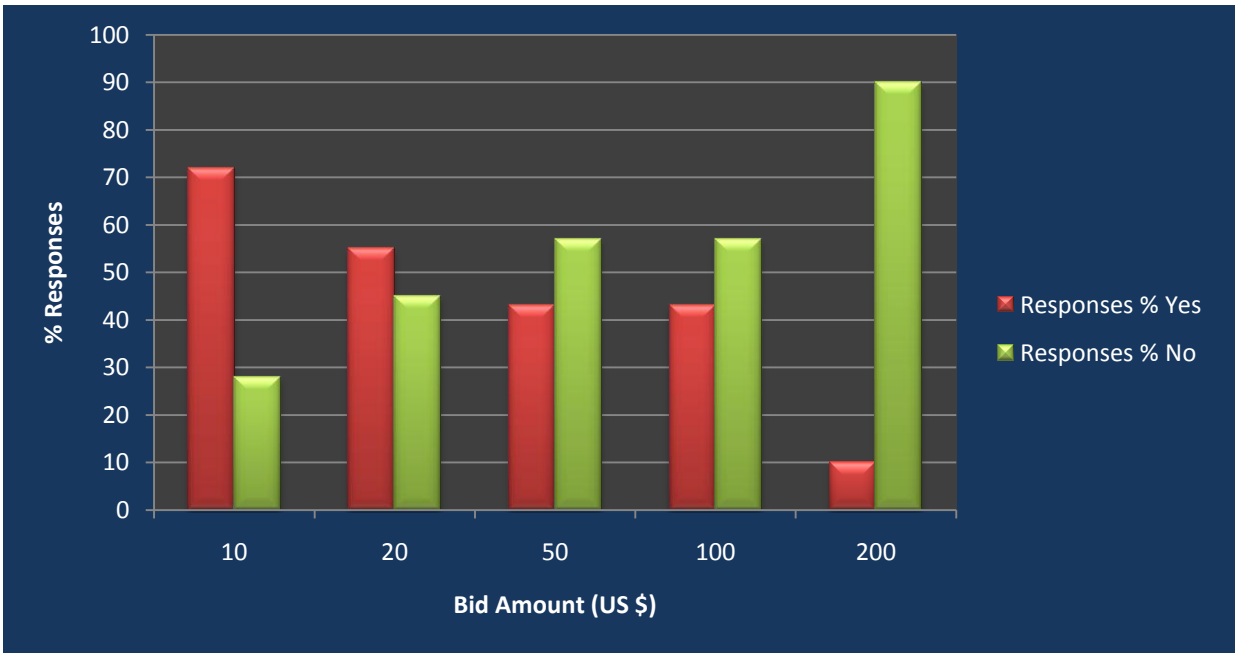

Figure 3. Foreign tourists' responses to the WTP question

2.7. Comparison of Actual Fees and Tourists' WTP

The current fees being collected by the local governments of Banaue, Hungduan and Kiangan, ranging from P10 to P30 per person, are very low compared to the estimated WTP of local and foreign tourists. Calderon et al. (2009) used regression models to generate bid-revenue schedules for local and foreign tourists (Table 2). The bid-revenue schedule shows the highest amount of total revenues that can be generated for a given bid or entry fee. The table shows that a uniform pricing policy that charges P10 per person (US$0.23 per person) for both local and foreign tourists results in revenue losses simply because tourists, whether local or foreign, are willing to pay more than this amount. Furthermore, foreign tourists are willing to pay more on average than Filipinos. Implementing a discriminatory pricing policy (i.e., charging different fees for local and foreign tourists) can increase revenues significantly. A conservative discriminatory pricing that will charge P30 per local tourist and US$10 per foreign tourist can generate an annual revenue of around P3.58 million, while a uniform pricing policy would only yield PP200,000, or a revenue loss of P3.38 million.

Bantayan et al. (2009) estimated the total cost of rehabilitating damaged terraces for all four heritage sites to be P10.02 million (low) and 1.122 billion (high). Thus, implementing a differential pricing scheme for tourists can help finance the cost of rehabilitation.

Table 2. Bid-revenue schedules for local and foreign tourists

Local Tourists		**Foreign Tourists**	
Bid/ Entry Fee (P/person)	**Total Expected Gross Revenues (Million P)**	**Bid/ Entry Fee (US$/person)**	**Total Expected Gross Revenues (Million P)**
10	0.18	0.23	0.07
30	***0.54***	***10***	***3.04***
50	0.88	20	5.77
100	1.68	50	12.14
200	3.01	100	16.67
500	4.93	200	2.90
1000	1.19		

2.8. Payments to Beneficiaries under PECS

If a market would be created for the environmental and cultural services that the Ifugaos produce, it should be clear to the farmer-beneficiaries what they are expected to deliver in return for payments for the services that will result from the conservation of the Ifugaos' rice terrace-woodlot system. This will require close monitoring to ensure that the beneficiaries do their end of the payment scheme.

The appropriate arrangements between the fund manager and the beneficiaries (i.e. Ifugaos who own terraces and woodlots) should consider, among other things, the amount of payment, duration of the agreement, land use practices that will enhance the terraces' conservation, enforcement, sanctions against non-compliance, and recognition for good performance.

The criteria to consider in determining the degree of support to be given to farmers include the extent of damage and whether the farmers perform cultural practices. There is a need to develop work and cost standards. To ensure proper implementation and shared responsibility, support should be released only through recognized and functional farmers' organizations which will execute a Memorandum of Agreement with the implementing agency.

2.9. Legislative Requirements

In general, initiatives to collect fees begin with an ordinance that will emanate from the Barangay, which will be endorsed to the Sangguniang Bayan (SB). The SB, in turn, will endorse such ordinance to the Sangguniang Panlalawigan. The Provincial Government will then harmonize these different barangay/municipal ordinances, inasmuch as there are several barangays/municipalities that host the rice terraces.

The ordinance should include provisions for the collection of funds and the creation of a trust fund for the Ifugao Rice Terraces. An independent body in the form of a foundation or council may be created to manage the fund.

3. Conclusions and Recommendations

The need for a sustainable financing mechanism for the conservation of the Ifugao Rice Terraces has become even more critical because the rice terraces have been reclassified from the World Heritage List to the World Heritage in Danger List. This is the result of the growing problems confronting the terraces, such as abandonment of the terraces due to low rice harvests, low rice harvests due to poor irrigation facilities and damaged terrace walls, and reduced farm labor due to abandonment of the terraces.

Conserving the Ifugao Rice Terraces in general, and the rice terraces inscribed in the UNESCO World Heritage List in particular, requires substantial funds on a continuing basis. A big portion of these funds may need to be used to finance the rehabilitation of the irrigation system and provide subsidies to farmers, especially for terrace maintenance. Since the limited budget of the local government is not sufficient to finance these, it is recommended that a Payment for Environmental and Cultural Services scheme be institutionalized as a sustainable financing mechanism.

The PECS scheme, following the PES principles, can be developed, where the buyers of the environmental and cultural services (such as tourists and downstream

water users) will pay the sellers, which are the farmers. A contingent behavior study estimates the average WTP of local and foreign tourists to be P440 per person and US$71 per person, respectively. Furthermore, adopting a discriminatory pricing policy that will charge a higher fee for foreign tourists can significantly increase tourism revenues. Such a policy is justified based on the survey results showing that foreign tourists have higher WTP.

The farmer sellers should understand their responsibilities under a PECS scheme. Furthermore, a multi-stakeholder council may be created to represent the interests of the buyers, and ensure the responsible and efficient use of funds. The council, acting in behalf of the buyers, and the farmer-sellers should execute a Memorandum of Agreement to see to it that the parties concerned comply with the terms of the contract. This should specify the amount of payment, duration of the agreement, land use practices to be undertaken, sanctions for non-compliance, and recognition for good performance.

The institutionalization of the conservation fund will require the passage of an ordinance that will emanate from the barangay and endorsed to the municipal or even provincial level. The fund, as well as the council, may be created at these levels.

The development of a PECS scheme for the conservation of the Ifugao Rice Terraces will require a series of consultation workshops, legislative work, and IEC. Throughout all these processes, the involvement of various sectors, e.g. local and foreign tourists, business sector, researchers, local residents, and other stakeholders will be critical.

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