
**A REPORT ON THE
SURVEY OF TOURISTS AND RESORTS
AT HUNDRED ISLANDS NATIONAL PARK¹**



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and Natural Resources**

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**A REPORT ON THE
SURVEY OF TOURISTS AND RESORTS
AT HUNDRED ISLANDS NATIONAL PARK¹**

ENRAP IV TECHNICAL PAPER

by

ENRAP-PAWB-PPSO Team²

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Executive Summary

This study is a pilot testing activity of the proposed fees system guidelines drafted by the Protected Areas and Wildlife Bureau (PAWB) with assistance from the Environmental and Natural Resources Accounting Project (ENRAP). The objective of the study is to provide a basis for the review of park entrance fees and tariff in the use of lodging facilities operated by the Philippine Tourism Authority (PTA) at Hundred Islands National Park (HINP).

The study team composed of ENRAP and PAWB staff, in collaboration with PTA staff, surveyed tourists from November 1997 to March 1998. Socioeconomic, demographic, travel data, and perceptions of over 400 visitors were obtained using a survey questionnaire. Likewise, privately owned lodges and hostels were asked about room rates and quality of facilities.

The highlights of the study are as follows:

Socioeconomic Profile of Respondents

Most HINP visitors are young educated Filipinos, with average gross monthly incomes of PhP22,373, and belong to a typical Filipino size family of six members. There is a substantial number of *balikbayans* that frequent the place. However, very few foreigners come to HINP for recreation purposes. Its accessibility is what makes it popular among people living in neighboring towns and provinces, including Metro Manila. Many of those surveyed indicated "curiosity" or "recommended by friends/relatives" as their main reason for visiting. The park does not appeal to sports enthusiasts, and is mainly frequented by families that want to hold picnics and family gatherings on the beach. This observation is further supported by the substitute sites cited by the respondents, most of which were places for family-related activities.

Rating of Facilities

In general, respondents were satisfied with the current level of services and facilities offered by HINP. However, there was a high level of dissatisfaction with respect to sanitation facilities, e.g. toilets and water supply. Most respondents did not avail of the lodging facilities both at the Islands and at Lucap Point. Most of them, in fact, are day-tour visitors, and thus had no need for lodging facilities. Respondents seemed to enjoy the boat rides, as evidenced by the high rating of satisfaction accorded to this service.

Services at Lucap Point were hardly used by the respondents, although the survey may have underestimated this aspect. Most of the respondents had not used the services when surveyed, but they intended to use them before they leave the Park.

Preferred Types of Development

As a general observation, visitors would like to see additional facilities installed in the area. An overwhelming majority indicated that they would use most of the facilities suggested in the survey for development. Moreover, the average willingness to pay (WTP) was positive, although majority still believed that most proposed services and facilities should be provided for free.

Among the services proposed, the most preferred are those associated with safety and hygiene, i.e., provision of lifeguards, first aid kits, and shower rooms. The average WTP for the

first two types of services was PhP15 per day and PhP16 per use, respectively, although most of the respondents thought such services should be free of charge.

The next types of development favored were the provision of additional picnic tables and sheds, as well as water supply. This is indicative of the congestion problem in the islands especially during the peak season. Average WTP for picnic tables was more than double the current rate of PhP25 per day.

The third set of preferences was associated with food and accommodations. The respondents cited the need for more lodging rooms, restaurants on the islands, more barbecue pits and lockers. Campsites were also preferred by 60 percent of the respondents.

Diving and snorkeling were not popular among the respondents. The establishment of convenience stores was strongly opposed by those surveyed.

Proposed Entrance Fees

In estimating appropriate entrance fees for HINP, the WTP principle was used. Both the Contingent Valuation Method and the Travel Cost Model were employed to validate the results of the survey. For purposes of this study, determination of entrance fees was based on measures of central tendencies and frequency distributions, as well as on the estimation results from the tobit model for CVM and the truncated poisson model for TCM.

Survey results showed that there is a WTP for entrance fees at the current level of services higher than the current rates. There were even higher bids if the services at the Park were improved. The study results were overtaken by the recent decision of the PAMB to increase entrance fees from PhP5 to PhP10. However, the study indicates that PAMB can charge even higher. There is a willingness to pay PhP11.89 at the current level of services, and PhP25.25 with improved services. Given this, and in accordance with the proposed fee systems guidelines being piloted, the study recommends a three-tiered system for entrance fees:

<u>Type of Visitor</u>	<u>Off-Peak Season</u> (June-March)	<u>Peak Season</u> (April & May)
Locals		
Students	PhP 5	PhP 10
Adults	PhP 10	PhP 20
Foreigners	PhP 40	PhP 80

The peak season fees, which are double the off-peak season fees, are intended to reduce congestion in the islands.

The implementation of the above scheme requires proof that the visitor is a student to avail of the lower fees. It is further noted that the proposal does not specify the fees for minors who are not students. As of this writing, the current practice is not clear and the team does not make any recommendation in this respect.

Proposed Lodging Fees

For lodging fees, the principle of cost recovery was used in the simulations performed. Unfortunately, the data collected on expenditures were not specific enough to perform a comprehensive cost recovery analysis for PTA-HINP facilities. Nevertheless, some analysis were performed on both revenues and expenditures. Data on total revenues and expenditures for

PTA-HINP, including those for the facilities on the islands, were used. In general, there was a large budget deficit for both 1996 and 1997. It can thus be assumed that the revenues from all sources were not enough to cover the costs of maintaining them.

Four scenarios were examined. First, if room rates were fixed, the study tried to determine what the ideal room usage would be for revenues to equal expenditures. Second, if room usage were fixed, analysis was done to determine what the ideal room rates are for revenues to equal expenditures. Third, if both room rates and room usage were fixed, the study tried to find out what the ideal number of rooms would make revenues equal expenditures. This case was very crudely performed, given that there were no considerations done for construction and initial capital costs to put up additional rooms. Nevertheless, it was used merely for purposes of demonstration. Finally, the fourth case involved variations in all three factors: room rates, room usage, and number of rooms.

In all cases, there was a substantial increase in all factors necessary for the current level of expenditures to be offset by revenues from accommodation facilities at Lucap Point. If it can be safely assumed that the expenditure figures used are accurate, it will still be necessary to scale down the user fees to be applied. Otherwise, PTA-HINP facilities will prove to be uncompetitive with the other resorts in the area. This can result to even larger deficits. In this case, full cost-recovery cannot be used as the basis for applying user fees for man-made facilities. From the data on other resorts, PTA facilities are within the lower range of prices. Hence, it can still afford to charge higher prices. However, they will have to match the facilities and services being offered by these resorts.

The PTA can start out with approximating what would be a reasonable subsidy from the national government in maintaining HINP. From there, the figures can be worked out based on the various scales introduced in the study.

1. Introduction

The Hundred Islands National Park (HINP) is a group of about 100 islets located in the western part of the Lingayen Gulf in northern Philippines (*Figure 1*). Access to the park is primarily through *barangay* Lucap in the town of Alaminos. Visitors are taken around the islands through rented boats that dock primarily at Lucap Point. There are three big islets with relatively wide beachfronts. These are the Quezon, Children's, and Governor Islands. The Philippine Tourism Authority (PTA) operates picnic and lodging facilities in these three islands and in Lucap. Private lodging facilities have also been constructed in Lucap with a combined capacity far exceeding those of the PTA.

HINP may be considered a popular tourist destination. From 1989 to 1995, the yearly average tourist arrival reached a high of 72,191 visitors in 1995 and a low of 54,993 visitors in 1991. The peak season is between December to May during which tourist arrival averaged at 8,795 visitors per month. The low season occurs during the period June to November during which the tourist arrival averaged 2,224 visitors per month (*Table 1*).

The Philippine Tourism Authority (PTA) data showed that the Park attracts both local and foreign tourists, 90 percent of which stay only for a day (*Table 2*). Local tourists make up the great majority of the Park visitors, comprising around 95.4 percent of the yearly average tourist arrival while foreign tourists make up only 4.6 percent (*Table 3*). Foreign tourists are composed mostly of Asians, comprising about 46.16 percent of the average tourist arrival, with Koreans making up the majority (*Tables 4 and 5*).

2. Objectives

The survey of tourists and resorts at HINP is one of the initial activities in the pilot testing of the draft fee system guidelines (*Appendix A*). The primary objective is to estimate the value of recreational benefits derived from the park, which will serve as the basis for adjusting the current structure of park entrance fees and lodging tariff. In addition, the study aimed to provide information on the following: a) the socioeconomic and demographic profile of HINP visitors; b) costs incurred in visiting the park; and, c) preferred types of development in the park.

3. Framework

3.1 Legal Framework

In 1992, the Philippine Congress enacted Republic Act No. 7586 establishing the National Integrated Protected Areas System (NIPAS) for the Philippines. The NIPAS law mandates the creation of a system of protected areas to conserve biodiversity. Provision is made for the establishment of an Integrated Protected Area Fund (IPAF) to finance the projects of the system. All funds generated from the protected areas shall accrue to the IPAF. The IPAF Governing Board manages the central fund, while Protected Area Management Board (PAMB) will manage this at the Protected Area (PA) level.

The NIPAS law and its Implementing Rules and Regulations outline in detail the process in the formulation of market-based instruments in protected areas, which is one of the sources of funds of IPAF. It is the Secretary of the DENR that is empowered to "fix and prescribe reasonable NIPAS fees to be collected from government agencies or any person, firm

or corporation deriving benefits from the protected areas." Further, he is also empowered to "accept in the name of the Philippine Government and in behalf of NIPAS funds, gifts or bequests of money for immediate disbursement or other property in the interest of the NIPAS, its activities or its services".

3.2 Proposed Fee System Guidelines

To implement the above provision, guidelines for setting fees in protected areas were drafted. It identified the types of fees that may be charged to various users. Moreover, the type of uses of protected areas and its resources were also identified. Recreational uses are defined to "include but not be limited to:

- a) water-based activities such as snorkeling, scuba diving, swimming and boating;
- b) land-based activities such as mountain climbing, trekking, picnicking, and bird watching;
- c) either land- or water-based activities such as filming and photography; and,
- d) all other similar activities."

These activities are primarily nature-based. In some protected areas such as the HINP, man-made facilities such as picnic sheds and lodging facilities also serve to attract tourists. It is proposed that a separate fee be charged for the former as outlined by the following guidelines:

- a) Protected area entrance fees shall cover access to the natural attractions of the protected area. If applicable, an additional Protected Area User Fee shall cover access to and the use of man-made facilities in the protected area.
- b) For protected area entrance fees, the willingness-to-pay principle shall be the priority basis for computing fees. However, if information is not available, the cost-recovery principle shall be the basis of computation.
- c) For facilities user fees on man-made facilities managed by private entities, these shall be determined by the private entity but shall be comparable to fees for the use of similar facilities in a comparable location. All facilities user fees shall be determined in consultation with the PAMB.
- d) For facilities user fees on man-made facilities managed by the government, these shall be determined using the cost-recovery principle but shall be comparable to the fees for the use of privately-managed facilities.
- e) A three-tiered system of protected area entrance fees shall be developed: lower rates for local students and local senior citizens; normal rates for other local visitors; and higher rates for all foreign visitors.

In estimating both fees, the following principles are suggested.

- a) *Cost-recovery principle.* For protected area entrance fees, collected revenues shall cover, as much as possible, a reasonable proportion of all costs incurred in protecting, maintaining, and enhancing the natural attractions of the protected area. For facilities user fees, collected revenues shall cover, as much as possible, a reasonable proportion of all costs incurred in providing and maintaining the man-made facilities in the protected area.
- b) *Willingness-to-pay principle.* For protected area entrance fees, these shall be based on the willingness-to-pay estimates of the visitors based on appropriate surveys.

3.3 Approaches in Measuring Recreational Values

Outdoor recreation (e.g., swimming, trekking, and spelunking) has developed largely as a non-market commodity primarily because many kinds of activities cannot be packaged and sold by private producers to private consumers, and society has rejected many market outcomes (Knetch and Davis, 1966). Ordinarily, market prices would be a good indicator of value. However, its absence necessitates the imputation of values. There are two major approaches in deriving estimates of the marginal benefits from recreational activities. Conceptually, benefits are indicated by the visitors' willingness to pay (WTP) for outdoor recreation activities as though these are purchased in the open market (Clawson, 1958; Knetch and Davis, 1966). Further, as mentioned earlier, the marginal benefit curve may also be interpreted as the demand curve.

There are two major approaches in estimating recreational values. The first is through direct interviews that estimate WTP and make use of the Contingent Valuation Method (CVM). The second is through imputation of demand from travel cost data. Each method is briefly discussed below.

In a CVM survey, park visitors are asked the maximum price they are willing to pay to avoid being deprived of the opportunity to visit a protected area. The survey makes use of a properly constructed questionnaire. The typical questionnaire contains the following: a) a description of the situation; b) a description of the method of payment; c) a description of the constructed market; and, d) questions assessing the validity of the stated values. A number of authors (e.g., Hoevenagel, 1994) have provided detailed description of the CVM. The validity of the estimated price or WTP to recreate in the park hinges on two assumptions. The first is that a park visitor (or any other individual) attaches a value to a recreational activity that depends on the utility (satisfaction or welfare) derived from such an activity. The second is that the visitor makes a rational series of allocations of time and money to maximize utility. This implies that the visitor's WTP for the recreational activity maximizes utility.

In a travel-cost model (TCM), the assumption is that the frequency of visitation to a recreational site is determined by travel costs. The travel to a site may constitute a transaction whereby the cost of travel (TC) is incurred in exchange for access to the site (Freeman, 1993). Thus, costs incurred constitute a proxy to the price of recreation and may therefore be used to value recreational benefits from a protected area. Empirical models that estimate the demand for recreation were first developed by Clawson (1959) and Knetch (1963). The estimated equation is usually represented as in *Figure 2*. The recreational value of the site is the area under the curve.

The estimated recreational demand, combined with information on the carrying capacity of the site, provide a basis for the pricing of recreational benefits. The latter is indicated by the number of visitors that may be allowed per unit time. In *Figure 2*, it is projected upwards to the demand curve to determine the "price" of recreation.

Both of these approaches require extensive surveys of the users of the protected area. Survey data required for the TCM is more straightforward, since it requires information mainly on actual travel costs incurred by the respondent. It uses these market values to indirectly estimate the benefits derived from the site. The accuracy of the information derived from the TCM will depend on the time the survey is conducted. The closer it is to the actual site visit, the more accurate it becomes, as it allows for better memory recall. On the other hand, the CVM relies on what people say they would be willing to pay to access the site, contingent on

hypothetical situations introduced in the survey. The usual criticism on the CV model is focused on the hypothetical character of the questions, which generates hypothetical answers. Furthermore, the respondent has to be given enough information about the environmental issue at hand in order to properly make a valuation. When conducting personal interviews, there is no guarantee that proper valuation is accomplished, if the environmental issue is presented in different ways. In this aspect, the results of the TC model are said to be more accurate in describing and predicting the behavior of the users.

However, the CV model is often preferred because it is more flexible, it is theoretically simpler, and it is easier to estimate and apply (Mitchell and Carson, 1989). It is also the only available method that can estimate non-use benefits of a site, including existence, option and bequest values. It can also avoid modeling and econometric problems associated with other techniques.

3.4 Survey Approaches and Methods

The study team (*Appendix B* lists the team members) employed two approaches to measure recreational demand. The estimate in one method served to validate the estimate from the other, a "range" of estimates of recreational demand. For the TCM, the individual rather than the zonal model was more appropriate (Bennett, 1995) as HINP is used by a large proportion of its visitors on a recurrent basis.

The survey of visitors was conducted from December, 1997 to March, 1998 coinciding with the initial phase of the peak tourist season that begins in December and extends to May of each year. Due to time constraints, the entire peak season was not covered. Nonetheless, a statistically sufficient sample was covered.

Using a pre-tested questionnaire (*Appendix C*), personal interviews of visitors were done during the weekends of December to February, including the first week of March (*Figure 3*). Two enumerators were hired at the site; one of which was a contractual hired at the CENRO in Alaminos. Every two weeks, ENRAP representatives did on-site inspections to supervise the conduct of the survey.

The survey of facilities and resorts was conducted simultaneous with the survey of visitors. Almost all existing resorts in the area were covered, particularly those that had similar types of accommodations with the Philippine Tourism Authority (PTA). The PTA office in Manila provided most of the data on PTA facilities, although some information were provided by the PTA office in HINP.

Upon completion of over 450 questionnaires, the data were encoded, processed, and analyzed. MS Access and SPSS programs were used for data encoding and analysis for entrance fee estimation, while MS Excel was used for the estimation of user fees for PTA facilities at Lucap Point.

4. Protected Area Entrance Fee: Profile of Respondents and Preliminary Results

4.1 Socio-Economic Profile of Respondents

From the survey results, there were three types of tourists that visit HINP: locals, *balikbayans* (*returning resident*) and foreigners. On the average, local tourists were young, with a mean age of 37 years. Foreign visitors were almost of the same age, with an average age of 38

years. *Balikbayans* were older at 43 years of age. The average number of household members of local respondents was six, while *balikbayans* had fewer members at four, and foreigners at three persons. Both locals and *balikbayans* had an average of one (1) household member below 18 years old, while foreigners had none (Table 6).

The average individual gross monthly incomes of locals was PhP22,373. The incomes of *balikbayans* were almost five (5) times higher at PhP99,906, and foreigners had even higher incomes at PhP110,543. On the whole, HINP visitors had an average monthly income of PhP37,381. On the other hand, gross monthly household income averaged PhP35,593 for locals and PhP165,126 for *balikbayans*. Foreign visitors had much higher household incomes at PhP219,485. As a group, average household monthly income of HINP respondents was PhP62,061 (Table 6).

Most local and *balikbayan* respondents were married (63 percent and 79 percent, respectively), while most foreign respondents were single (59 percent). Majority of all respondents for all types of groups were male, and most of them were not enrolled in school, as can be concluded from the average age. (Table 6). Very few had memberships in organizations. Those that had were mostly in professional (28), religious (24), non-government (20) and civic organizations (17). These were equivalent to 6.3 percent, 5.4 percent, 4.5 percent, and 3.8 percent of the total sample. Very few were members of environmental organizations (4 out of 88, or 0.9 percent of the total sample), hence most visitors were not very familiar with the relationship between environmental management and increasing entrance fees for protected areas (Table 7).

Most of the respondents had at least a college degree: 81.5 percent for locals, 79.1 percent for *balikbayans*, and 70.6 percent for foreigners. Further, 3 percent of locals and *balikbayans*, and 6 percent of foreigners had post-graduate degrees (Table 8). This showed that most visitors to HINP are highly educated. A significant number of local and *balikbayan* visitors had degrees in accounting, business, finance and management/industrial engineering (19.3 percent of locals and 17.9 percent of *balikbayans*), followed by degrees in engineering (11.9 percent of locals and 13.4 percent of *balikbayans*). Foreigners were mostly in the fields of engineering (29.4 percent) and social sciences such as economics, political science, sociology and law (23.5 percent) (Table 9).

Most HINP respondents were employed in the fields of finance/ business, public administration and defense, and education. However, a significant number of respondents did not state their specific field of employment (137 out of 446). There were only 48 unemployed respondents which is equivalent to 10.8 percent of the sample (Table 10). It was also noted that there were more local visitors who owned businesses compared to those who were employees exclusively. *Balikbayans* and foreigners, though, were mostly employees, with roughly only a third from both groups owning businesses (Table 6).

Local visitors came mostly from the province of Pangasinan (44.8 percent), and about a quarter originated from Metro Manila (25.1 percent). The visitors surveyed came from 17 provinces, 15 of which are in the island of Luzon. With respect to *balikbayans*, majority of the respondents (34.3 percent) came from the United States, with 20.8 percent coming from either Canada or England (10.4 percent each). Similarly, *balikbayans* surveyed represented 17 countries, many of which were first world. Most of the *balikbayans* originated from neighboring provinces of HINP, such as Pangasinan, La Union, and Tarlac. This showed that HINP is indeed popular among people living in Pangasinan and its neighboring areas. Among the foreigners surveyed, 29.4 percent were German, 17.6 percent Canadian, and 23.6 percent were either English or American (11.8 percent each) (Table 11).

Table 12 contains the travel profile of sample HINP visitors. Consistent with the popularity of HINP as a tourist area, around 96 percent go to the islands for recreational purposes. Most of them (85 percent) stay for just a day, despite the long distance from their residences to the Park. More than half of the respondents were from areas more than 100 km away from the Park. Hence, it can be expected that most of them purposely travel to go to HINP; whereby 85 percent came directly from their residences, and over 80 percent will directly go back.

4.1.1 Environmental Attitude of Respondents

Most of the respondents in the survey showed very strong support for actions that would improve the environmental conditions in the protected area. Eight activities taken from the initial protected area management plan were proposed in the survey. These are:

- a) Public education on the environment;
- b) Repair/ upgrade of septic systems;
- c) Construction of new tourist amenities;
- d) Better enforcement of existing regulations;
- e) Zoning;
- f) Entrance fees for protecting HINP;
- g) Dismantling of fishpens; and
- h) Restriction of fishing

The first four activities received strong support from more than 80 of the respondents, with hardly anyone posing any opposition. In fact, nobody opposed the first two activities. Although zoning got only 69.5 percent strong support, there was an additional 20 percent of the respondents that would support the activity at a different level. For the increase in entrance fees, almost 60 percent were strong supporters, with an additional 25 percent supporting the activity at a different level. However, 10 percent remained neutral to the proposition while 3 percent registered opposition. For the last two activities, it was noticeable that the large percentage of respondents remained neutral. This may have been due to the possibility that many of the respondents depended on fish culture and municipal/commercial fishing for their livelihood, either as their main or as an alternative source of income. Nevertheless, most of the activities were strongly supported by the respondents, showing a very positive environmental attitude and a high degree of environmental awareness in theory (*Table 13*).

In terms of practice, there were, however, a very few people involved in actual protection activities for the environment. There were only 17 people (4 percent) with involvement out of the total 429 respondents that answered this portion of the questionnaire. Out of 17 respondents, only 10 (59 percent) were involved in at least a monthly basis. In effect, 96 percent of the total number of respondents for this portion had no involvement in protection activities whatsoever (*Table 14*). Thus, in terms of environmental awareness, there was no bias in the respondents' values for their recreational benefits, as well as their willingness to pay for proposed development facilities and services in the area. These imply that the variations in valuation were not influenced by experiences in protecting the environment.

4.2 Visitors' Reasons for Choosing HINP

In the survey performed, visitors to the Hundred Islands National Park (HINP) were asked of their reason/s for visiting the Park (*Table 15*). Taking into account that each respondent may have more than one reason for their visit, it was found that curiosity was one of the major reasons that prompted many of the respondents, particularly locals and *balikbayans*, to

choose HINP for their visit. About 99 of the local respondents indicated curiosity as one of the major reasons that affected their decision. This accounted for 6.8 percent of the total local respondent's reasons for choosing the Park. This also indicated that many tourists are first time visitors to the Park. Interest in the natural attributes and uniqueness of the Park was the next major reason that affected the choice of many local visitors (3.7 percent), followed by site accessibility/location (3.4 percent), recommendation by friends/relatives (2.3 percent), and safety/peacefulness/ recreation (2.2 percent).

For *balikbayans*, the major reasons for choosing HINP for their visit were curiosity and recommendation by friends/relatives. About 8.8% of *balikbayans* indicated that curiosity was one of the main reasons that influenced their decision. Site recommendation was the second major reason at 5.9 percent, followed by natural attributes/uniqueness (4.6 percent), accessibility/location (2.9 percent), safety/peacefulness/ recreation (1.3 percent), and invitation by friends/relatives (1.3 percent).

For foreign respondents many valued the recommendation of the site and safe recreation more than curiosity. Recommendation came first (16.3 percent), followed by safety/peacefulness/recreation (9.3 percent), curiosity (7 percent), natural attributes/uniqueness (2.3 percent), invitation by friends/relatives (2.3 percent), and its being part of their tour (2.3 percent).

Overall, the major reasons given by the respondents for choosing to visit the Park were curiosity (7.1 percent), natural attributes/uniqueness (3.8 percent), accessibility/location (3.2 percent), site recommendation (3.1 percent), and safety/peacefulness/recreation (2.3 percent).

4.3 Activities Undertaken in HINP

The Hundred Islands National Park provides for a variety of activities. Swimming, sightseeing, snorkeling, picnicking, boating, and fishing are but some of the many recreational activities open to visitors.

Allowing for multiple responses, it was observed that picnicking, swimming/sunbathing, beachcombing, boating, and island hopping were the five major activities undertaken by visitors in the Park (*Table 16*). Around 443 visitors (98.7 percent) of the total number of visitors interviewed went on picnics, 432 visitors (96.2 percent) did swimming/sunbathing, 410 visitors (91.3 percent) did beachcombing, 352 visitors (78.4 percent) went on boating activities, and 152 visitors (33.9 percent) did island hopping.

4.4 Substitute Sites

The visitors interviewed in the survey were also asked the following hypothetical situation: If the respondents had not gone to the Hundred Islands National Park (HINP) or if HINP had not been accessible, what alternative sites would they go to? What activities would they engage in at their chosen substitute sites?

Most respondents indicated more than one substitute site to HINP. Of the top fifteen substitute sites indicated (*Table 17*), Baguio was favored by most of the respondents (240 or 53 percent of the total respondents), particularly by those who engaged in sightseeing activities. Of these, 204 (85 percent) would engage in sightseeing, while 61 visitors (25 percent) of the 240 visitors would go on picnics.

Tagaytay was the next popular site as indicated by 87 respondents (19 percent of the total respondents). Of this total, 66 (76 percent) would engage in sightseeing while 25 (29 percent) would go on picnics. Tagaytay is followed by San Fabian (17 percent), Batangas (16 percent), Laguna (16 percent), Cordillera Region (14 percent), La Union (11 percent), Cebu (10 percent), Dagupan (8 percent), Ilocos Norte (8 percent), Olongapo (8 percent), Lingayen Gulf (7 percent), Bolinao (7 percent), Boracay (7 percent), and Palawan (6 percent).

It is observed that there are three major activities, which the respondents collectively indicated they would engage in at their substitute sites: sightseeing, picnicking, and swimming (Table 18). Picnicking appeared as the most popular of these three activities. In fact, respondents went on a picnic at each of the 15 substitute sites mentioned above, as opposed to swimming activities wherein respondents went swimming in only 11 of the 15 substitute sites, namely: San Fabian, Batangas, Laguna, La Union, Cebu, Dagupan, Olongapo, Lingayen Gulf, Bolinao, Boracay, and Palawan. Further, respondents mentioned only 4 of the 15 substitute sites where they did sightseeing: Baguio, Tagaytay, Cordillera Region, and Ilocos Norte.

4.5 Rating of Facilities

The Hundred Islands National Park (HINP) offers many services to visitors. Facilities operated by the Philippine Tourism Authority (PTA) provide visitors with lodging services, water supply, sanitation and toilets, picnic tables and sheds, pavilions, and security. Private individuals and enterprises hire out boats as means of transportation for trips and tours around the Park. In the survey conducted, visitors were asked to rate these services.

4.5.1 At the Islands

The facilities and services at the islands, particularly at Quezon, Children's, and Governor's Islands include lodging, toilet facilities, picnic sheds/tables, pavilion, water supply, availability of litter bins, cleanliness, boat rides, visitor/personal safety, and peace and quiet (Table 19). The responses of the visitors interviewed indicated a relatively high level of dissatisfaction with toilet facilities (37 percent "poor" rating) and water supply (26.8 percent).

The respondents, however, were still generally satisfied with the other services offered in the islands as evidenced by the high percentages of "good" and "fair" ratings they gave to boat rides, peace and quiet, visitor/personal safety, availability of litter bins, and picnic sheds/tables. Notwithstanding the fact that boats are the main means of transportation around the Park, boat rides were quite popular among the respondents. Around 75.3 percent of the respondents indicated a "good" rating while quite a few (12.8 percent) even indicated an "excellent" rating; only 0.9 percent of the respondents gave boat rides a "poor" rating. For peace and quiet, 67.9 percent of the respondents indicated a "good" rating and 17.7 percent indicated a "fair" rating, while only 1.8 percent gave a "poor" rating. For visitor/personal safety: 63.3 percent of the respondents indicated a "good" rating and 23.5 percent indicated a "fair" rating, while only 5.4 percent gave a "poor" rating. The same trend can be observed for the availability of litter bins and picnic sheds/tables.

Of the picnic facilities put up in the islands, the pavilions were the least used. While the pavilions displayed the same general trend of having more "good" and "fair" ratings than "poor" ratings, it was observed that 60.1 percent of the respondents indicated a "not used/no opinion" rating. This implied that picnickers in the Park either use the picnic sheds and tables more or they just picnicked on the sand. This also implied that most visitors come to the Park either individually or in small groups. Thus, they do not typically require the large spaces that pavilions provide and what large groups would normally need.

Two things may also be observed from the responses of the interviewed visitors. A "not used/no opinion" rating for the lodging services was indicated by 87.4 percent of the respondents. The same rating was given by 63.8 percent for the water supply services. For the lodging services, this implied that the majority of the visitors stayed in the Park only for the day and hence had no need for the lodging facilities. For water supply, this implied that most visitors brought their own water for their visit to HINP, which is not at all surprising considering that the water supply was deemed to be of "poor" quality by 26.8 percent of the respondents.

4.5.2 At Lucap Point

The services and facilities offered by the Park and by private individuals at Lucap Point may be classified into the following: lodging, public toilet facilities, restaurants, water supply, litter bins, cleanliness, information center, personal safety, and peace and quiet (*Table 19*). It was observed that, while most of the respondents did not find the services offered by the Park to be excellent, a good majority of them were more than satisfied with peace and quiet, visitor/personal safety, cleanliness, and availability of litter bins in Lucap. Peace and quiet was rated "good" by around 80.9 percent of the respondents while it was rated "poor" by only 1.1 percent of the respondents. For visitor/personal safety, 80.7 percent of the respondents answered "good" while only 1.1 percent indicated "poor" rating. Cleanliness and the availability of litter bins were rated "good" by 78.2 percent and 73.5 percent of the respondents, respectively.

Most of the respondents either did not use or had no opinion concerning lodging, public toilet facilities, restaurant, and water supply services offered in Lucap. Around 79.9 percent of the respondents did not use or had no opinion concerning the lodging services while 50.8 percent did not use or had no opinion on public toilet services. For restaurant and water supply services, around 69.7 percent and 57.6 percent of the respondents, respectively, did not use the services or had no opinion. However, if the number of respondents who replied with ratings other than "did not use/no opinion" is an indication of visitor satisfaction with the concerned services, it may be said that these visitors availing of the lodging, public toilet, restaurant, and water supply facilities were satisfied with said services.

One implication of the high turnout of the reply "not used/no opinion" for lodging, public toilet facilities, restaurant, and water supply is that most HINP visitors do not stay in Lucap Point for long and hence, have no need to avail of said services. Instead, they spend most of their visit in the islands.

In general, HINP visitors appeared to be satisfied with the services offered at Lucap Point as indicated by the relatively high percentages of "good" ratings and by the low percentages of "poor" ratings. On the average, around 75.9 percent of the respondents were more than satisfied and rated litter bin availability, cleanliness, existence of information center, personal safety, and peace and quiet services as "good" while only an average of 1.5 percent considered the said services as "poor". For the lodging, public toilet, restaurant, and water supply services, an average of 22.2 percent of the respondents gave a "good" rating while only an average of 2.1 percent indicated said facilities and services as "poor".

4.6 Preferred Types of Development

As a general observation, visitors would like to see additional facilities installed in the area. An overwhelming majority indicated that they would use most of the facilities proposed for development. The average willingness to pay (WTP) for such facilities was positive,

although majority believed that most of the services should be provided for free (*Tables 20 and 21*).

Among the proposed types of development, the most preferred are those associated with safety and hygiene, i.e., provision of lifeguards, first aid kits, and shower rooms. Local visitors and *balikbayans* in particular had an overwhelming willingness to avail of such services. The average willingness to pay (WTP) for the first two types of services is PhP15 per day and PhP16 per use, respectively, although the mode WTP was zero (65.3 percent and 59.4 percent, respectively). For shower rooms, the mean WTP is PhP6 per use, which is higher than the current rate of PhP2 per use at Lucap Point.

The next types of development that respondents favored are the provision of more picnic tables/sheds and water supply. The need for more picnic tables and sheds is to be expected given the congestion problem that HINP experiences during the peak season. This facility was particularly popular among locals and *balikbayans*. Respondents were willing to pay PhP55 on the average per day for picnic tables which is more than double the current rate of PhP25 per day. Water supply is currently not available on the islands due to the prohibitive costs that will be incurred for installation of water supply connections. Respondents were willing to pay an average of PhP10 per gallon although almost half of the respondents preferred not to pay an amount for the use of water on the islands (46.6 percent).

The third set of facilities that were preferred by the respondents were those associated with food and accommodations, i.e., more lodging rooms, restaurants on the islands, additional barbecue pits, and lockers. The average WTP for lodging rooms is over PhP500 per person per night, which is higher than the current rates of lodging facilities on the islands. With respect to barbecue pits, respondents were willing to pay PhP6 per use on the average, although a majority (54.3 percent) preferred that they be provided for free. Lockers were another popular addition, and respondents were willing to pay an average amount of PhP8 per day for their use.

Camp sites were another preferred type of development wherein 60.8 percent of respondents indicated they would use such facilities. On the average, mean WTP is PhP41 per day.

A little less than half of the respondents (47.3 percent) would use diving and snorkeling equipment if provided, and the average WTP was PhP145 per day. Majority of *balikbayans* and foreigners indicated they would use such equipment.

The only type of development that was not preferred was the addition of convenience stores on the islands, with only 36.3 percent of respondents indicating use of such facilities if provided.

5. Protected Area Entrance Fee: Estimates of Appropriate Fees

5.1 Contingent Valuation Method

In Section 3.3, the CVM was described as one method in valuing outdoor recreation by asking respondents the maximum amount they are willing to pay to access a protected area. The CVM portion of the questionnaire was divided into three parts. The first part asked the maximum amount visitors were willing to pay at the current level of services. The next part introduced hypothetical improvements in existing services provided at the Park, and respondents were asked how much they were willing to pay given such improvements. The third part

introduced the possibility of providing new facilities at the Park, particularly new infrastructure and added services for safety and cleanliness. Here, the respondents were asked if they plan to use such facilities, and how much they were willing to pay for them (*Appendix C*). Analysis for the third part is discussed earlier under "Preferred Types of Development."

5.1.1 Specification of the CVM Model

The WTP for entrance fee increases at the current and improved level of services in HINP is hypothesized to be a function of the following:

- a) visitors' environmental awareness and appreciation (E_i), represented by the number of years of education;
- b) participation in activities at the site (B_{ij}); attributes of the park (A_{iu}) as inferred from visitors' behavior towards HINP such as degree of satisfaction with services at HINP, number of visits, length of stay, and their plan for another visit;
- c) perceived importance attributed to HINP (I_{im}), represented by the following proxy variables: concern about the protection of HINP, level of action supported by the respondents for activities affecting HINP water quality, and place of origin;
- d) ability to pay variables (P_{ip}), including income, household size, and employment status;
- e) socio-demographic characteristics (D_{iq}) such as age, gender and civil status; and,
- f) the CVM structural variable (S_{ir}), represented by a dummy variable for the interviewer, and the category of the visitor (whether Filipino or otherwise).

The empirical specification of the WTP function can be written as:

$$WTP_{ik} = f(E_i, B_{ij}, A_{iu}, I_{im}, P_{ip}, D_{iq}, S_{ir}) + \varepsilon_i \quad (1)$$

where: WTP_{ik} , the dependent variable, is the willingness to pay of respondent i for increased entrance fee in HINP at k level of services;
 $i = 1, 2, \dots, n$ observations;
 $k = 1, 2$ level of services (current and improved).
 ε = random disturbance term

The independent variables are specified as abovementioned.

Table 22 presents the expected or hypothesized signs of the marginal effect of explanatory variables included in the WTP model. Due to the subsistence nature of the economy under consideration, it is difficult to set a priori signs of the effects of the explanatory variables. However, based on published literature and common sense, the signs of the above-specified variables are determined. For example, WTP is higher for respondents with greater environmental awareness and appreciation. Thus, the number of years of education can be posited to positively influence WTP. Similarly, a higher WTP can be expected for respondents who participated in beachcombing activities considering that this is a major attraction of HINP.

It is also posited that satisfaction with HINP services can be expected to affect WTP positively. The effect of the duration of stay on WTP can be expected to be positive because this indicates that the respondents have experienced higher utility for the park. However, the number of visits to the park and the plan to come back in the future can be expected to influence WTP in either a positive or negative direction. People would tend to bid higher WTP if taking more visits and planning for other visits in the future are associated with a higher value for recreation.

On the other hand, a strategic behavior of the respondents might prevail which could result in respondents giving lower WTP bids since they will incur higher costs per visit as frequency of visit increases and it will be more expensive for them in the future if the entrance fee is increased.

With respect to the perceived importance attributed to HINP, respondents who are concerned about protecting HINP tend to put a higher value for the park and hence can be expected to positively influence WTP for increased entrance fees. A similar effect on WTP can be expected from the degree of actions affecting HINP water quality that are supported by the respondents. The effect of respondents' point of origin can affect WTP for entrance fee increase in two ways. First, those who live in Pangasinan are expected to bid higher WTP as they would consider HINP as their own, and would therefore have a higher value for the place. Conversely, respondents would tend to bid lower WTP if they think they are already being overburdened by their tax payments.

For the ability to pay variable, it is expected that the WTP for entrance fee increase can be positively influenced by household income, i.e. households with higher incomes are willing to pay higher amounts due to their economic ability to do so. Note that the income variable used is household income, since taking a trip to HINP is a household decision. Similarly, employed respondents are willing to pay a higher amount for the same reason that they can afford to do so. On the other hand, household size will have a negative effect on WTP due to budget constraints. Households with bigger numbers of family members will naturally incur greater costs than those with smaller household members when taking a trip to the park.

In terms of other socio-economic variables, the effect of age on WTP can go either way, depending on whether HINP appeals to older or younger people. Finally, the signs of the dummy variables for gender, civil status, interviewers, and visitors' category depend on the variation in WTP relative to the control dummy.

5.1.2 Willingness to pay Entrance Fees at current level of services

Table 23 shows the estimates of the factors affecting willingness to pay of visitors for entrance fee increase at current level of services of HINP. All variables specified in the WTP model above but one, have been included in the final analysis. The dummy variable for planning to come back to HINP was omitted because all observations have the same value of one. Furthermore, the test for multicollinearity problems (results not shown) indicated the absence of high correlation coefficients of any two independent variables. The variance inflation factors were found to be relatively small for possible serious multicollinearity problems to exist.

The Tobit model performs better than OLS in explaining variations in WTP responses to the contingent valuation question as evidenced by significant coefficients, signs, and the goodness of fit of the model (see *Appendix D* for an explanation of the econometric model used). As indicated in *Table 23*, the estimated likelihood ratio of 154.88 is greater than its critical chi-square value (or tabulated value) of 26.3 at the 95 percent confidence level. This suggests that the expected value of WTP is significantly explained by the explanatory variables under consideration.

The Tobit coefficients shown in *Table 23* are not directly interpretable as in the OLS regression model. However, the signs are immediately useful in providing the direction of the relationship between the dependent variable WTP, and the independent variables. The positive

sign of the coefficient denotes direct relationship while the negative sign, an inverse one. In general terms, results of the analysis showed that:

- a) Education does not seem to influence WTP for entrance fee increase.
- b) Participation in activities and WTP are positively correlated as expected: specifically, respondents who participated in beachcombing/walking activities at HINP tend to bid higher WTP.
- c) The degree of satisfaction with the services in HINP was not statistically significant.
- d) Number of visits and duration of stay per visit do not seem to have any influence on WTP.
- e) Concern about protecting HINP and the level of action supported affecting HINP water quality are not found to be statistically significant in influencing WTP.
- f) Respondents from Pangasinan tend to bid significantly lower WTP than other respondents, which implies that local visitors might feel overburdened by their tax payments: they may also think that outsiders should pay more for protecting HINP.
- g) Income and WTP are found to be significantly and positively correlated, i.e., WTP increases with income: this result also implies that the natural park is a normal good.
- h) As expected, visitors with larger household sizes tend to be significantly less willing to pay for an entrance fee increase than with smaller households.
- i) Employment status of respondents does not significantly affect WTP.
- j) Age of respondents influences WTP significantly, with older people tending to bid higher WTP than younger ones.
- k) Female respondents tend to bid significantly higher WTP than male counterparts.
- l) Marital status does not seem to have any influence on WTP.
- m) Interviewer does not seem to affect the value of WTP, which means that there was no interviewer bias.
- n) Filipino visitors tend to be significantly less willing to pay entrance fee increases at the current level of service of HINP than foreign visitors.

Marginal Effects of WTP at Current Level of Services of HINP

In the Tobit model, the marginal effect is the first derivative of the dependent variable with respect to any independent variable. This indicates the effect of one unit change in a particular independent variable on the dependent variable, holding all other variables constant. The marginal effects of the WTP bid, evaluated at the mean of all characteristics of the sample, at current level of services of HINP are given in *Table 24*. The first marginal effect (column 2) is the effect on the dependent variable of one unit change in the independent variable, *ceteris paribus*, for those respondents indicating a positive WTP. The second marginal effect (column 3) gives the change in probability of being above the limit (i.e., positive bid by zero bidders) given a one unit change in the independent variables. The last column gives the overall change in the WTP bid level for all (zero and non-zero bidders) respondents.

The interpretation of the marginal change in WTP due to a unit change in each continuous independent variable can be made in a similar fashion. For example, every one thousand peso increase in annual household income (holding all other variables constant), would a) increase the bid level of about PhP0.0047 for those respondents with a positive WTP representation; b) increase the probability of a positive bid by 0.035 percent; and, c) increase WTP over all respondents by PhP0.0063. Similarly, a one-year increase in the age of respondents would: a) increase the expected value of WTP for positive bidders by PhP0.06; b) increase the probability of a positive bid by 0.42 percent; and, c) increase the bid level for all respondents by PhP0.08. On the other hand, every person increase in the number of household members would a) decrease the expected value of WTP of positive bidders by PhP0.21; b)

decrease the probability of a positive bid by 1.58 percent; and, c) decrease the expected value of WTP for all respondents by PhP0.28.

For the dummy variables, the basis for interpretation was in terms of the sample instead of by individual respondent, since the mean of a dummy variable is the proportion of the sample for which it has a value of one. For instance, increasing the mean percentage of visitors engaging in beach activities (beachcombing/walking) by one (1 percent) would increase the WTP of positive bidders by PhP4.36. Therefore, the probability of positive bids would increase by 32.51 percent, and the expected value of WTP over all respondents would increase by PhP5.82. The other dummy variables can be interpreted in a similar manner.

At the current level of services of HINP, the expected value of WTP for entrance fee increase for all (zero and non-zero bidders) respondents, at mean values of all independent variables, X_i , was estimated to be PhP5.32 using the Tobit model. For positive bidders only, the expected value of WTP was estimated at around PhP11.89. Overall, the predicted probability of WTP being above the limit evaluated at the mean of the sample characteristics (i.e., $Y > 0$ given average X_i) was about 0.447.

5.1.3 Willingness to Pay Entrance Fees at Improved Level of Services

The estimates of the factors affecting respondents' WTP for entrance fee increase at improved level of services of HINP are shown in *Table 25*. This result represents the best fit of the Tobit model specified above based on the likelihood ratio measure for goodness of fit. It can be seen from *Table 25* that the computed likelihood ratio (316.43) is greater than the critical chi-square (26.30) at the 95 percent confidence level. Hence, the model performs well in explaining variations in responses to the CVM question as indicated by signs, significant coefficient, and goodness of fit measure.

There are other explanatory variables that appeared to significantly influence WTP bids at the improved level of services vis-as-vis current level of services. These include:

- a) duration of stay per visit;
- b) level of actions supported by the respondents affecting water quality in HINP;
- c) visitors' point of origin (i.e., whether residents are from Pangasinan or outside Pangasinan);
- d) household annual income;
- e) gender;
- f) interviewer; and,
- g) visitor's category (i.e., whether Filipino or foreigner).

As expected, the results showed that visitors who have stayed longer at the site and expressed a higher degree of support for actions affecting HINP water quality are willing to pay higher entrance fees for the park. A positive coefficient for household income indicates that households with higher annual incomes are likely more willing to pay higher entrance fees. Based on economic theory, this result suggests that recreational services in HINP is a normal good since the willingness to pay for it increases with income.

It is important to note that local visitors from Pangasinan tend to have less willingness to pay compared with visitors from other places. Likewise, Filipino visitors tend to bid lower WTP than foreigners. These results may be due to the differences in their ability to pay.

Other results showed that female visitors tend to bid higher WTP. Finally, the interviewers involved in the survey seemed to have influenced significantly the WTP bid of the respondents, implying that an interviewer bias existed in the implementation of CVM for this portion of the survey instrument. It might have been because of the differences in the way the enumerators described the hypothetical improvements introduced in the study.

Marginal Effects of WTP for Increased Entrance Fee with Improved Level of Services of HINP

Table 26 shows the marginal effects of the WTP bid for an improved level of services, evaluated at the mean of all characteristics of the sample. The marginal effects for all significant continuous independent variables can be interpreted similarly as follows: each additional day of stay at the site would likely increase the level WTP bid by about PhP2.77 for all positive bidders and PhP3.65 for over all respondents. At the same time, this increases the probability of a positive bid by 5 percent.

Each unit increase in the index score (representing the degree of support for actions affecting HINP water quality) would give the following marginal change: a) the expected WTP bid for positive bidders and for all respondents would increase by PhP2.53 and PhP3.32, respectively; and, b) the probability for having a positive bid will increase by 4.5 percent.

Although household annual income had significant influence on WTP, its marginal effect was minimal. As can be observed in Table 26, the marginal increase in the expected WTP bid for positive bidders was only PhP3.7E-05 while for all respondents it was only PhP4.8E-05 for every peso increase in household annual income. Likewise, the probability of a positive bid increases by 6.60E-07 percent only for the same increase in annual income.

The expected value of WTP for positive bidders and for all respondents decreases by PhP5.27 and PhP6.93, respectively for every 1 percent increase in the mean percentage of visitors from Pangasinan. For the same increase, the probability of a positive bid decreases by 9.5 percent. The other dummy variables can be interpreted in a similar fashion.

Overall, the predicted probability of WTP being above the limit evaluated at the mean of the sample characteristics (i.e., $Y > 0$ given average X_i) was found to be 0.861 when the services of HINP are improved. The corresponding estimated expected value of WTP bid for entrance fee increases for all (zero and non-zero bidders) respondents at mean values of all independent variables. X_i was estimated to be PhP21.74. When only positive bidders were considered, the expected value of WTP increased to about PhP25.25.

5.2 Travel Cost Method

Another method of measuring the utility and consumer surplus of users from a recreation site is the travel cost method (TCM). This method estimates the consumer surplus through the link between environmental assets and markets for related goods using recreational trip expenditures as a proxy for willingness to pay in demand estimation. It is based on the relationship between visits to a site in some time period and a number of other variables determining these visits.

For this study, a single site individual travel cost method (ITCM) was used to measure the consumer surplus visitors obtained from each trip made to HINP. Data on travel costs and other relevant information for each sample-visitor included in the study were gathered at the site. This information was used in estimating the trip generation model.

5.2.1 Model Specification

The recreation demand function for HINP is specified as follows:

$$V_i = V(C_i, S_i, R_i, P_i) + \varepsilon_i \quad (2)$$

Where: $i=1,2,\dots,n$ observations (i.e., sample visitors);

V_i is the number of annual visits (1997) by visitor i to HINP;

C_i are the travel costs (round trip and on-site costs) of visitor i to HINP;

S_i are socio-economic features of visitor i

such as household income, employment status,
education, age, civil status and gender;

R_i is an index of the rating for facilities in HINP by visitor i ;

P_i is the perceived importance attributed by visitor i to HINP; and

ε_i is a random disturbance term.

Visitation rate is the dependent variable, which is a count data variable. Travel costs are the total expenses incurred by the respondent during the entire trip which includes fare, rental of facilities, food, and the like. The opportunity cost of time was excluded from the travel cost calculation due to the difficulty involved in measuring such. Travel cost may be considered the direct price of recreation and hence, it is expected to have an inverse relationship with the visitation rate. As usual, income is expected to have a positive effect on the number of trips, i.e., recreation is a normal good. Employment status is considered a proxy variable for the ability to undertake recreation activities. Employed visitors are assumed to have the ability to undertake recreation activities in terms of budget and are expected to have higher visitation rates.

Education, on the other hand, is expected to positively affect the frequency of visits since a more educated person may have a greater appreciation of nature. There is no a priori expectation for age, gender, and civil status. For the index representing rating of facilities in HINP, a higher number indicates a higher rating and is expected to positively affect visitation rates. A similar effect on visitation rates can be expected for the index representing the respondent's perceived importance of HINP.

The definition and descriptive statistics of actual variables used in estimating the recreational demand model are given in *Table 27*, while the breakdown of average expenses is given in *Table 28*.

5.2.2 Truncated Poisson Model Results

Table 29 presents the estimation results of the travel cost model for HINP. Although the truncated Poisson regression is of interest in this study, the results from OLS estimation are presented also for comparison purposes (see *Appendix D* for definition of the econometric procedure used). Based on the goodness of fit statistics and coefficient variables, the truncated Poisson regression seems to fit the count data better than OLS.

Results showed that coefficient on own cost (travel cost) is significantly different from zero (at the 1 percent level of significance). This confirms the expected negative effect of travel costs on the frequency of visit. In contrast to the expected outcome, the coefficient on household income is negative and is significant. Although this seems counter-intuitive, this has been "rationalized in the literature as arising from preference of higher-income persons for other

forms of recreation" (Grogger and Carson, 1991). This argument has been similarly validated by the negative coefficient on employment status dummy representing ability to undertake recreation activities.

Education had no significant effect on visitation rate, and this implies that recreation is for all levels of literacy. However, age had a significant coefficient, but is negatively related to visit frequency. This suggests that younger people tend to visit HINP more than older individuals. The positive and significant coefficient for gender suggests that females tend to visit the park more frequently than males. Civil status was found to be positively correlated with visitation rate, which implies that single visitors tend to visit HINP more often than married visitors. This finding is considered sensible from the viewpoint of budgetary constraints for married individuals since more visits would entail more expenses.

Finally, the rating for facilities was highly significant and was positively correlated with visit frequency as expected. Hence, visitors who gave a higher rating for the facilities in the park tend to make more visits, most probably because they are satisfied with the services offered by these facilities. However, the coefficient for the index on perceived importance of HINP, specifically on the degree of action supported by the respondents affecting HINP water quality, did not support the hypothesized result, i.e, it is counter-intuitive. One possible explanation for this finding is that the perceptions expressed by the respondents have yet to be realized into action in terms of frequent visits to the park.

5.3 Recommendations

The results of the study were overtaken by the recent decision of the PAMB to increase the entrance fees from PhP5 to PhP10. This decision is supported by the study, and is consistent with the estimated WTP for all visitors at PhP10.32 at the current level of services. The entrance fee may be increased further if the PAMB would like to address congestion during the summer months. Alternatively, it may impose two sets of fees for the off-peak and peak seasons to address congestion. Further, a three-tiered system may be devised in accordance with the proposed fees system guidelines whereby local students and children are charged lower fees compared to local adults and higher fees for foreigners. Lower fees for students may be justified on income considerations despite their expressed higher WTP.

Taking into consideration the results of the study and the proposed fee system guidelines, the following sets of fees are proposed:

<u>Type of Visitor</u>	<u>Off-Peak Season</u> (June – March)	<u>Peak Season</u> (April & May)
Locals		
Students	PhP 5	PhP 10
Adults	PhP10	PhP 20
Foreigners	PhP40	PhP 80

The peak season fees, which are double the off-peak season fees, are intended to reduce congestion in the islands.

The implementation of the above scheme requires proof that the visitor is a student to avail of the lower fees. It is further noted that the proposal does not specify the fees for minors

who are not students. As of this writing, the current practice is not clear and the team does not make any recommendation on this respect.

In 1997, PTA-HINP reported an income from entrance fees equal to PhP461,086.00, implying a total of around 92,217 visitors for the year at PhP5 per person. If we assume the same number of visitors for 1999, and the same ratio of peak to off-peak (4 to 1), the projected number of visitors for the peak season would total 40,985 and 51,232 for the off-peak season. Assuming a distribution of visitors at 92 percent local adults, 4 percent students (from the survey) and 4 percent foreigners (from historical data), off-peak revenues would total PhP563,548.7 and peak revenues would be equal to PhP901,671.29. Thus, 1999 revenues would be projected to be PhP1,465,219.99. This is three times higher than the revenues enjoyed in 1997. If such were the case, a greater amount of revenues can thus be enjoyed from entrance fees alone, allowing PTA to recover a bigger amount of its expenditures in maintaining and operating HINP.

6. Facilities User Fee: Profile of Resorts at HINP

6.1 PTA Facilities in HINP

The Philippine Tourism Authority (PTA) operates picnic and accommodation facilities in Lucap and in the three major islands with beachfronts, namely: Quezon, Children's, and Governor's Islands. Development in these islands has been kept at a minimum and consists mainly of picnic tables, picnic sheds, public comfort rooms, and nipa huts with simple facilities like trundle beds and kerosene lighting.

a) Lucap Point

The *barangay* of Lucap serves as both the entrance facility, charging visitors an entrance fee of five pesos (PhP5.00) each for access into the Park, and as the jump off point to the many islands inside the Park. Visitors are conveyed around the Park in hired motorized boats that dock at Lucap. Reservations and requests for boat trips are made through the Public Assistance Center.

Lucap Point has lodging facilities consisting of guestrooms and family rooms, which are available for overnight stays. An air-conditioned guestroom for three people costs PhP858.00 per overnight stay while an air-conditioned guestroom for six people goes for PhP1,149.00 per overnight stay. A non-air-conditioned guestroom can accommodate up to three people and costs PhP575.00 per overnight stay. Both air-conditioned and non-air-conditioned family rooms can accommodate up to eight people and cost PhP1,980.00 and PhP1,650.00 per overnight stay, respectively. Extra beds may be rented for PhP108.00 each (*Table 30*).

Showers and restrooms are also available at Lucap Point at the rates of PhP5.00 per person and PhP2.00 per person, respectively. A briefing room furnished with an air condition and a whiteboard is available as well for meetings and other purposes at PhP1,500.00 per day. An overhead projector, a TV with videoke, and a computer may be rented for use in the briefing room at the cost of PhP350.00 each.

b) Quezon Island

Quezon Island is mainly for whole day picnickers. The island has been equipped with free public comfort rooms, view decks for sightseeing, picnic tables and sheds, and two pavilions that contain up to 10 picnic tables each.

For visitors staying for the daytour, each picnic table, picnic shed, and pavilion is available for PhP25.00, PhP50.00 and PhP300.00, respectively. For the overnight crowd, each picnic table, picnic shed, and pavilion costs PhP50.00, PhP100.00 and PhP600.00, respectively.

c) Governor's Island

The island has been developed with a guesthouse and nipa huts for overnight visitors. The guesthouse has two bedrooms, a kitchen, and a comfort room; it also provides four drums of water and generator lighting. As such, it has a six- to eight-person capacity and costs PhP1,916.00 per overnight stay. Each nipa hut is furnished with one drum of water and kerosene lighting. It has a two-person capacity and costs PhP402.00 per overnight stay.

Governor's Island is also furnished with free public comfort rooms and picnic tables. Each picnic table goes for PhP25.00 for day-tour visitors and PhP50.00 for overnight visitors.

d) Children's Island

Children's Island has been designated and developed as a camping facility. The island has been furnished with two types of lodging facilities: nipa huts and scorpions. Each two-to-three-person capacity nipa hut that costs PhP559.00 per overnight stay has been furnished with two single beds, kerosene lighting, and a drum of water. Each scorpion features a veranda and a mini-kitchen, and has also been furnished with two single beds, generator lighting, and two to three water drums. This four-person capacity accommodation costs PhP1,435.20 per overnight stay.

Picnic tables, picnic sheds, four-table pavilions, and free public comfort rooms have also been made available for visitors. Each picnic table, picnic shed, and pavilion costs PhP25.00, PhP50.00 and PhP200.00, respectively for the day-tour and PhP50.00, PhP100.00 and PhP400.00 for overnight use.

6.2 Other Facilities in HINP

Aside from the PTA facilities, there are other facilities in HINP that are owned and operated by private individuals or enterprises. Collectively, these establishments have a combined capacity and offer services that exceed those of the PTA (*Table 31*).

a) Heiden Resthouse

The Heiden Resthouse offers the following accommodations: two single-bed rooms and two double-bed rooms. Each single-bed room costs PhP200.00 per overnight stay while each double-bed room goes for PhP300.00 per overnight stay.

The establishment also operates and rents out one 20-passenger capacity boat to tourists as a means of conveyance around the Park. The boat costs PhP400.00 per day to rent.

b) The Last Resort

The Last Resort offers accommodations and boat rentals to visitors of the Park. Lodgings available include both air-conditioned (3 single-bed, 3 twin-bed, 2 three-bed, 4 four-bed, 3 six-bed, and 2 eight-bed) and non-air-conditioned (3 four-bed) rooms. Air-conditioned rooms cost around PhP450.00 to PhP1,200.00 each depending upon the room size. The single-bed room, as well as the twin-bed room, cost PhP450.00 per overnight stay; while the three-bed, four-bed, six-bed, and eight-bed rooms cost PhP550.00, PhP650.00, PhP850.00, and PhP1,200.00 per overnight stay, respectively. For the non-air-conditioned rooms, The Last Resort offers only the four-bed room accommodation, which costs PhP550.00 per overnight stay.

A 120-person capacity conference room is available for meetings and other purposes. The establishment offers a package deal that includes a room and a four-course meal that costs PhP105.00 per person.

The Last Resort also rents out boats and snorkeling equipment to Park visitors. The establishment operates one small boat and two big boats. The small boat has a capacity of five to six passengers and costs PhP275.00 to PhP300.00 per day while each big boat has a capacity of fifteen to sixteen passengers and costs PhP550.00 to PhP600.00 per day. Snorkeling equipment and fins may be rented at PhP100.00 and PhP40.00, respectively.

c) Vista del Mar

Vista del Mar offers air-conditioned accommodations in the forms of 12 twin-bed rooms and 12 matrimonial rooms. Each type costs PhP1,500.00 per overnight stay. The establishment also offers a large open function room for conferences, meetings, and other purposes. This function room costs PhP1,000.00 per day.

d) Seaside Haven

Seaside Haven is a resort and restaurant establishment. It offers the following air-conditioned accommodations: 7 cottages, 4 twin-bed rooms, and 2 double-bed rooms. Each cottage costs PhP500.00 per overnight stay while the twin-bed and double-bed rooms go for PhP800.00 to PhP1,600.00 and PhP1,000 to PhP2,000.00 per overnight stay, respectively.

The establishment also has a restaurant that can be converted into a conference room for meetings and other purposes. Costs for the conference room are variable depending upon the arrangement and agreement between the management and the visitors.

e) Maxine by the Sea

Maxine By The Sea offers the following accommodations: a guesthouse, 17 air-conditioned rooms, and a couple of non-air-conditioned rooms. The guesthouse serves as the VIP room of the resort and costs PhP1,300.00 to PhP1,500.00 per overnight stay. The air-conditioned rooms are furnished with one double bed and one single bed each and cost PhP500.00 each per overnight stay except for the one near the kitchen which goes for PhP450.00 per overnight stay. The non-air-conditioned rooms are furnished with a single bed each and costs PhP300.00 per overnight stay.

A conference room that can accommodate up to a maximum of 150 people is available for meetings and other purposes. Costs for this room vary depending upon the arrangement between the management and the visitors.

The establishment also rents out eight boats to visitors as means of transportation around the Park. Each boat has a 20-passenger capacity and costs around PhP500.00 to PhP550.00 per day.

f) Hundred Islands View Resort and Restaurant

The Hundred Islands View Resort and Restaurant offers the following accommodations: a two-bedroom house with kitchen, an air-conditioned three-bedroom, an air-conditioned queen-bed room, 2 non-air-conditioned three-bed rooms, and 2 non-air-conditioned two-bed rooms. The house has been furnished with hot and cold shower and cable television and costs PhP4,500.00 per overnight stay. Both air-conditioned rooms cost PhP3,000.00 each per overnight stay, while the non-air-conditioned rooms cost PhP650.00 each per overnight stay.

The establishment has a conference room available for meetings and other purposes and offers a package that includes room and a three-course meal that costs PhP120.00 per person.

The establishment also operates and rents out three big boats to tourists as means of transportation around the Park. Each boat costs PhP650.00 per day to rent.

7. Facilities User Fee: Cost-Recovery Analysis

7.1 Data and Assumptions

To perform cost-recovery analysis for man-made facilities being managed by the government, revenue and expenditure data specific to each facility is required. Seven types of facilities were included in the analysis: bathhouse, souvenir stalls, pavilions, picnic tables, picnic sheds, lodging facilities at Lucap Hostel and lodging facilities at the Islands. For the lodging facilities, bathhouse, pavilions and souvenir stalls, specific revenue and expenditure data are available. Unfortunately, for picnic tables and sheds, specific data on expenditures were not available. Moreover, administrative and accounting costs were lumped together, and could not be distributed among the facilities at HINP.

Common expenditure items include:

- a) Salaries for Administrative Staff;
- b) Operating and Maintenance Costs of Administration Building;
- c) Depreciation Costs of Administrative Building;
- d) Salaries for Lucap Park Staff;
- e) Operating and Maintenance Costs of Lucap Park; and
- f) Depreciation Costs of Lucap Park.

To solve this problem, three distributions of common expenditure items are applied between Lucap Point and Island lodging facilities. These two items were the most labor and cost-intensive among all PTA-HINP facilities:

- a) Distribution 1 = 50 percent Lucap – 50 percent Islands
- b) Distribution 2 = 40 percent Lucap – 60 percent Islands

c) Distribution 3 = 30 percent Lucap – 70 percent Islands

Information on the number of rooms, the number of times these rooms were rented in 1998 (room occupancy), and the rates at which these rooms can be rented were used to compute for revenues. However, for the Lucap Hostel, room occupancy was not separated between air-conditioned guestrooms for three and for six people. For the family room, occupancy was not differentiated between the air-conditioned and the non-air-conditioned rooms. For both cases, the higher room rates were used for the analysis. The number of rooms, room rates, and room occupancy were obtained from PTA-HINP (*Table 32*). Together with the data on expenditures, the revenues needed to cover the costs of operating them were determined.

For the bathhouse, revenues from its use were obtained from the 1998 statement of PTA-HINP. These figures were then divided by the rental rates to obtain the rate of use during 1998. For souvenir stalls, the number of lessors in 1998 was fixed at seven.

For picnic tables and sheds, revenue figures were available for each type of facility, albeit there were no separate expenditures reflected in the PTA-HINP documents as mentioned earlier. It was thus assumed that 10 percent of total costs for island lodging facilities could be attributed to maintaining and operating picnic tables and sheds, with 6 percent attributed to picnic tables and 4 percent attributed to the sheds.

Finally, for the pavilions, specific data on revenues were obtained from PTA-HINP records. These were then divided by the rental rate to derive the frequency of use in 1998.

For Lucap Hostel, three types of rooms were used in the analysis: air-conditioned guestrooms, non-air-conditioned guestrooms, and family rooms. For the air-conditioned guestrooms and family rooms, it was assumed that each of these rooms accounted for 40 percent of the total costs for the Hostel and the remaining 20 percent was for the non-air-conditioned guestroom. For the last category, two types of accommodation were included: the nipa huts at Children's Island and the VIP Guesthouse at Governor's Island. These were the only facilities at the islands that were operational (hence earned lodging revenues) in 1998. It was assumed that each facility accounted for 45 percent of costs for the island facilities.

For the picnic tables and sheds, as mentioned earlier, there was no separate data that could be attributed solely to these facilities. It was assumed that of the total expenditures for the islands, maintenance of picnic tables accounted for 6 percent while picnic sheds accounted for the remaining 4 percent.

7.2 Computational Procedure

In determining the appropriate fees for each facility, cost recovery analysis was used. As stated in the fee system guidelines (*Appendix A*), facilities user fees shall be set such that: "...collected revenues shall cover, as much as possible, a reasonable proportion of all costs incurred in providing and maintaining the man-made facilities in the protected area." Hence, cost recovery requires that a sizeable proportion, if not all, of the costs incurred by the government in managing the facilities should be covered by the revenues generated from their use. To do this, monthly expenditures for each type were computed. For lodging facilities, monthly expenditures were estimated for each of the three distributions mentioned earlier. *Table 33* contains the details of the monthly expenditures for each facility.

Two sets of expenditures were used in the analysis. The first set contained the actual expenditures incurred in maintaining the Park in 1998. The rental rates and occupancy rates

necessary for full cost recovery were computed. The second worked with a different set of expenditures for the lodging facilities, whereby the total cost of maintaining the facilities was net of the revenues earned from increased entrance fees, keeping the number of yearly visitors in 1998 constant.

For each set, given the actual number of times the facilities were used in 1998 and keeping the rate of use constant, the rental rates required for full cost recovery were computed. Such rates were then compared with the average rental rates of private facilities operating at Lucap Point, and, where applicable, with the average responses given during the survey of visitors' willingness to pay for new or improved facilities on the islands. On the other hand, if actual rental rates applied in 1998 are kept constant, the required occupancy rate or rate of use of each facility in a year to attain full cost recovery was likewise estimated.

7.3 Results

7.3.1 Full Cost Recovery

Table 33 contains the average monthly expenditures incurred for the maintenance and depreciation of PTA-HINP facilities for rent in 1998. On the other hand, *Tables 34 and 35* contain the results of the analysis done for estimating full cost recovery of these monthly expenditures. The various distributions refer to expenses common among all facilities, most of which are administrative and accounting expenses for and by PTA-HINP staff (see Section 7.1). Off-hand, PTA-HINP personnel were asked which distribution would be closest to reality. According to them, Distribution 2 is the most probable, whereby 60 percent of administrative costs would most likely be accounted for by island lodging facilities. However, for purposes of exposition, sensitivity analysis was done using a 50-50 and a 30-70 distribution of administrative and accounting expenses.

For the use of the bathhouse, it turned out that the average monthly expenditures incurred were fully covered by the revenues generated by the facility. It follows that the number of users is more than enough to cover for the costs in maintaining and operating the bathhouse, and that the user fee is set at the appropriate amount of PhP5.00 per use of the shower.

For souvenir stalls, actual rental rates were around PhP350.00 per stall. However, for full cost recovery, rental rates should be around PhP130 more, or equal to PhP482.20 per stall, if the number of stalls is fixed at its present number (7). If the rates are kept the same at PhP350, the number of stalls should be increased to eight for all expenditures to be covered by the revenues.

For picnic tables, the necessary rental rates for full cost recovery ranged from PhP38 to PhP47 per use. However, these rates are still low compared with the average WTP of sample visitors at HINP (PhP55). Otherwise, if rental rates are kept constant at PhP25, rates of use should increase from the current 32 percent to at least 50 percent for the whole year to recover its operating costs.

Rental rates for picnic sheds should increase to at least PhP105 to PhP130, or rates of use should increase from 18 percent to between 39 percent to 48 percent for full cost recovery.

For pavilions, rental rates should be at least PhP733 per use. Otherwise, rate of use should increase from 15 percent to 37 percent for the whole year.

For lodging facilities at Lucap Hostel, there were only 262 users for the whole year of 1998. For air-conditioned guestrooms, a total of 166 visitor nights were recorded for the whole year. There were 56 visitor nights for non-air-conditioned guestrooms, and 40 visitor nights for family rooms. Assuming constant room occupancy in 1998, the rate for the air-conditioned guestrooms should range from PhP2,960 to PhP4,173 per night depending on the assumption of the distribution of administrative expenses (*Table 34*). This is equivalent to 2.6 to 3.6 times the current rate of this type of room. Moreover, these rates are much higher than those of comparable private facilities operating at Lucap Point (*Table 31*), which average at PhP432 per person or PhP2,600 for six people. On the other hand, if the rate was fixed to be constant at their 1998 levels, the average occupancy rate for the air-conditioned guestrooms should range from 59 percent to 82 percent for full cost recovery (*Table 35*). This figure is more than twice the 1998 occupancy rate of 23 percent (*Table 32*).

For non-air-conditioned guestrooms, either the rate should range from PhP4,387 to PhP6,185 or occupancy rate should range from 59 to 82 percent. The rates are 7.6 to 13.8 times the current rate for these rooms. However, it does not make sense for the non-air-conditioned rooms to be more expensive than the air-conditioned ones. For the air-conditioned family rooms, the rates should be between PhP12,285 to PhP17,317 per night, or an average occupancy rate of 35 to 48 percent. The rates are equal to 6.2 to 8.7 times the current rate of air-conditioned family rooms.

For lodging facilities at the Islands, nipa hut rates should range from PhP2,554 to PhP3,163 per night, equivalent to 4.4 to 5.5 times the current rate. Furthermore, such rates are way above the average WTP of sample visitors, which was equal to PhP1,000 per night, or PhP500 per person per night. If room rates were held constant at their 1998 level, it would be impossible to achieve full cost recovery, given that the occupancy rate needed would be between 117 percent to 144 percent. The same holds true for the VIP guesthouse, whereby the rates are almost double the average WTP of sample visitors (PhP4,000). Full cost recovery would require the room rate to be between PhP7,917 to PhP9,804 per night, holding occupancy rate constant. This is equal to 4.1 to 5.1 times the current rate. On the other hand, holding the room rate constant at PhP1,916, the average occupancy rate should be between 135 percent to 168 percent of its capacity, which is again impossible to achieve.

7.3.2 Full Cost Recovery: 1998 Expenditures Less Revenues from Entrance Fees

Simulation was done with the assumption that entrance fees would be increased from PhP5 to PhP10, and that the average number of visitors in 1998 would remain constant. These revenues would then be assumed to cover part of the expenses incurred in maintaining and operating PTA-HINP lodging facilities. *Table 36* presents the new monthly expenditure figures for lodging facilities at the Islands and Lucap Hostel that need to be recovered by revenues from rent thereof.

Using the same procedure followed above, air-conditioned guestrooms at Lucap will have to be rented out at PhP2,198 to PhP3,113 per night (*Table 37*). The lower range is now lower than the average rate of private facilities in the area. On the other hand, assuming constant 1998 rental rates, the rooms should be occupied at an average rate of 43 to 61 percent (*Table 38*). For non-air-conditioned guestrooms, rates should range between PhP3,258 and PhP4,614 assuming constant 1998 occupancy rates. Further, constant 1998 room rates should translate to an average occupancy rate of 43 to 61 percent per year. Family rooms should be rented out at PhP9,122 to PhP12,920 per night, or should have an average occupancy rate of 25 percent to 36 percent. For the latter two rooms, the rates are still well above the average rates of similar rooms run by the private sector.

For lodging on the islands, nipa hut rates should range from PhP1,906 to PhP2,348 per night, or 3.3 to 4.1 times its current rate. Otherwise, occupancy rates should increase to 87 percent to 107 percent on the average. Obviously, the higher occupancy rates are still impossible to achieve. The VIP guesthouse should be rented out at PhP5,907 to PhP7,280 or an increase in occupancy rates to between 102 percent to 125 percent. Hence, full cost recovery for island lodging facilities cannot be achieved solely by relying on higher occupancy rates.

7.4 Recommendations

From the results of the study, it can be seen that a full cost recovery for lodging facilities is not feasible. Assuming the same number of visitor nights in 1998, the rates will have to increase by more than double for some rooms and almost nine times for the others. If rates are kept constant, occupancy rates will have to increase tremendously, sometimes even more than the total capacity of the rooms, rendering it impossible for some facilities to be able to recover all costs.

For the bathhouse and souvenir stalls, full cost recovery is attainable. In fact, the revenue and expenditure figures for the bathhouse showed that there were enough collections to recover all costs in maintaining and operating the facility. For the souvenir stalls, the rates can be increased to the prescribed amount of PhP480 per stall to allow for total cost recovery in leasing them out.

For picnic tables, there is room for increasing rates considering that the rate for full cost recovery is still below the average amount that visitors are willing to pay. For picnic sheds and pavilions, rates can still be increased to approximate the needed revenues for recovering their costs. In fact, the PTA for HINP has decided to increase the rates for these facilities to more than double the old rates. The study, thus, recommends that the new PTA rates for picnic tables, sheds, and pavilions be adopted.

For lodging facilities at Lucap Hostel, the study recommends that the PTA increase their room rates, using the average rates of private facilities at Lucap Point as the maximum rate (*Table 39*). Hence, air-conditioned guestrooms should be priced at PhP2,600 per night; non-air-conditioned rooms should be rented out at PhP700; and the air-conditioned family room should be priced at PhP3,500. Although full cost recovery requires that still higher rates be adopted, PTA facilities will become uncompetitive if they go beyond these prescribed rates. Although some private facilities are priced higher than the recommended rates, these establishments offer more services and amenities. PTA will not be able to compete with them, given that their rooms have fewer amenities.

For the lodging facilities on the islands, the study recommends that rates consistent with the average willingness to pay of visitors should be adopted. Hence, the nipa huts can be rented out at PhP1,000 per night. The VIP guesthouse can be priced at PhP4,000 per night, given that it has a maximum capacity of eight people (*Table 39*), and provided that the services are improved, e.g., adequate water supply and washrooms. Unfortunately, full cost recovery cannot be achieved because the rates needed to do so are higher than the amount visitors are willing to pay to make use of such facilities.

Finally, the earlier part of this study recommended that the entrance fee be increased to PhP10 per visitor per day during off-peak season. Given the following - this new entrance fee; the PTA-prescribed rates for picnic tables, sheds and pavilions and the bathhouse; and the study recommendations for higher rental rates for souvenir stalls and lodging facilities - the revised

annual revenues were computed. *Table 40* contains the projected annual revenues using the same number of users and occupancy rates in 1998. With the new rates, revenues can increase by 245 percent relative to the revenues generated in 1998. This will definitely ease the burden of subsidy that the national government is currently experiencing with respect to government-run facilities all over the country in general, and HINP in particular. In 1998, 76 percent of total expenditures for HINP were funded by national government subsidy. A doubling of revenues would definitely be helpful for the national treasury. It is noted, though, that the analysis is static, and more accurate projections should take demand elasticity into consideration. However, no data for such analysis is available at this point in time. This can be a subject of further refinements of cost recovery analysis for HINP facilities in the future.

More importantly, it is strongly recommended that the PTA and PAMB embark on an aggressive advertising campaign of its facilities. There is not enough information made available to potential visitors, particularly those coming from Metro Manila. An increase in occupancy rates and rates of use of PTA-HINP facilities, coupled with higher rental rates, would increase revenues by more than double. The management should consider a marketing scheme that will target a substantial increase in the number of visitors who will patronize PTA facilities. This will further ease the burden for the national government in subsidizing most of their expenses.

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Table 1 Peak and Low Seasons of Tourist Arrivals at HINP

Year	Season	Daytour	Overnight	Total	Monthly Average
1989		64,885	2,192	67,077	5,590
	Peak	48,280	1,790	50,070	8,345
	Low	16,605	402	17,007	2,835
1990		67,044	3,123	70,167	5,847
	Peak	57,471	2,613	60,084	10,014
	Low	9,573	510	10,083	1,681
1991		51,929	3,064	54,993	4,583
	Peak	43,389	2,584	45,973	7,662
	Low	8,540	480	9,020	1,503
1992		56,313	4,329	60,642	5,054
	Peak	44,495	3,954	48,449	8,075
	Low	11,818	375	12,193	2,032
1993		64,871	4,478	69,349	5,779
	Peak	51,150	3,735	54,885	9,148
	Low	13,721	743	14,464	2,411
1994		64,263	4,110	68,373	5,698
	Peak	49,205	3,295	52,500	8,750
	Low	15,058	815	15,873	2,646
1995		68,267	3,924	72,191	6,016
	Peak	54,190	3,248	57,438	9,573
	Low	14,077	676	14,753	2,459

Source:
 Evaluation of Economy-Environment Interactions in the Lingayen Gulf Basin:
 A Partial Area-Based Environmental Accounting Approach
 (J.E. Padilla, L. Castro, A. Morales and C. Naz, September 1997).

Table 2 Tourist Arrivals by Month, 1989 - 1995

Month	1989		1990		1991		1992	
	Daytour	Overnight	Daytour	Overnight	Daytour	Overnight	Daytour	Overnight
January	5,238	108	6,196	100	4,973	75	4,623	150
February	4,073	66	5,360	185	3,409	104	3,740	303
March	11,576	585	6,590	368	9,900	701	5,508	661
April	13,856	436	23,299	1,161	10,622	863	14,993	1,611
May	9,243	485	11,851	713	9,751	766	9,636	1,012
June	3,876	85	2,875	180	2,925	190	3,315	158
July	2,378	51	1,303	158	1,049	78	1,955	45
August	2,203	43	599	3	839	11	1,260	17
September	1,690	20	707	24	672	36	688	-
October	2,845	89	1,942	68	1,241	87	1,837	54
November	3,613	114	2,147	77	1,814	78	2,763	101
December	4,294	110	4,175	86	4,734	75	5,995	217
Total No. of Tourists	64,885	2,192	67,044	3,123	51,929	3,064	56,313	4,329
Percentage	96.7	3.3	95.5	4.5	94.4	5.6	92.9	7.1

Table 2 (continued)

Month	1993		1994		1995		AVERAGE	
	Daytour	Overnight	Daytour	Overnight	Daytour	Overnight	Daytour	Overnight
January	7,011	194	5,868	182	7,401	375	5,901.4	169.1
February	4,707	202	4,419	86	6,039	242	4,535.3	169.7
March	5,872	499	6,639	575	6,106	410	7,455.9	542.7
April	16,747	1,358	16,305	1,606	18,216	1,373	16,291.1	1,201.1
May	11,815	1,344	10,151	715	10,102	591	10,364.1	803.7
June	3,938	261	3,782	182	2,791	169	3,357.4	175.0
July	1,942	157	1,849	283	2,972	96	1,921.1	124.0
August	1,825	65	2,192	29	2,471	83	1,627.0	35.9
September	1,483	67	1,984	35	1,284	29	1,215.4	30.1
October	1,896	147	2,786	215	2,170	218	2,102.4	125.4
November	2,637	46	2,465	71	2,389	81	2,546.9	81.1
December	4,998	138	5,823	131	6,326	257	5,192.1	144.9
Total No. of Tourists	64,871	4,478	64,263	4,110	68,267	3,924	62,510.3	3,602.9
Percentage	93.5	6.5	94.0	6.0	94.6	5.4	94.6	5.4

Source: Philippine Tourism Authority

Table 3 Local/Foreign Breakdown of Tourist Arrivals at HINP

Month	1993		1994		1995		1996		Average	
	Local	Foreign	Local	Foreign	Local	Foreign	Local	Foreign	Local	Foreign
January	6,474	731	5,583	467	7,241	535	6,804	414	6,525.5	536.8
February	4,419	490	4,181	324	5,889	392	4,606	199	4,773.8	351.3
March	6,059	312	6,804	410	6,270	246	6,279	225	6,353.0	298.3
April	17,632	473	17,591	320	19,176	413	15,046	345	17,361.3	387.8
May	12,981	178	10,677	189	10,513	180	12,381	226	11,638.0	193.3
June	3,943	256	3,825	139	2,867	93	4,951	147	3,896.5	158.8
July	1,866	233	1,949	183	2,833	235	2,595	107	2,310.8	189.5
August	1,644	246	1,939	282	2,251	303	2,219	173	2,013.3	251.0
September	1,377	173	1,823	196	1,197	116	2,232	178	1,657.3	165.8
October	1,824	219	2,734	267	2,253	135	3,060	182	2,467.8	200.8
November	2,424	259	2,391	145	2,336	134	3,284	153	2,608.8	172.8
December	4,877	259	5,623	331	6,222	361	6,706	384	5,857.0	333.8
Total No. of Tourists	65,520	3,829	65,120	3,253	69,048	3,143	70,163	2,733	67,462.8	3,239.5
Percentage	94.5	5.5	95.2	4.8	95.6	4.4	96.3	3.7	95.4	4.6

Source: Hundred Islands National Park visitor records

Table 4 Tourist Arrivals in HINP, by Nationality Groups

Nationality Group	1990		1991		1992		1993		1994		1995		AVERAGE	
	Number	%	Number	%										
Asian	2,113	42.60	1,604	41.24	1,820	46.13	1,885	49.23	1,501	46.14	1,623	51.64	1,757.7	46.16
European	1,730	34.88	1,006	25.87	937	23.75	1,001	26.14	976	30.00	913	29.05	1,093.8	28.28
North American	802	16.17	631	16.23	641	16.25	570	14.89	416	12.79	338	10.75	566.3	14.51
Middle Eastern	311	6.27	644	16.56	543	13.76	371	9.69	355	10.91	269	8.56	415.5	10.96
South American	2	0.04	-	-	4	0.10	-	-	2	0.06	-	-	1.3	0.03
African	2	0.04	4	0.10	-	-	2	0.05	3	0.09	-	-	1.8	0.05
Total	4,960	100	3,889	100	3,945	100	3,829	100	3,253	100	3,143	100	3,836.5	100

Source:

Evaluation of Economy-Environment Interactions in the Lingayen Gulf Basin: A Partial Area-Based Environmental Accounting Approach (J.E Padilla, L. Castro, A. Morales and C. Naz, September 1997).

Table 5 Asian Tourist Arrivals at HINP, Top Six Nationalities (1990 - 1995)

Nationality	1990		1991		1992		1993		1994		1995		Average	
	Number	%	Number	%										
Korean	348	16.5	504	31.4	623	34.2	974	51.7	782	52.1	586	36.1	636	37.0
Chinese	535	25.3	330	20.6	224	12.3	310	16.4	208	13.9	227	14.0	306	17.1
Japanese	489	23.1	243	15.1	257	14.1	242	12.8	195	13.0	195	12.0	270	15.0
Indian	143	6.8	51	3.2	113	6.2	63	3.3	122	8.1	89	5.5	97	5.5
Taiwanese	65	3.1	92	5.7	56	3.1	51	2.7	22	1.5	43	2.6	55	3.1
Thai	20	0.9	56	3.5	36	2.0	7	0.4	-	-	-	-	20	1.1

Source of basic data: Hundred Islands national Park visitor records

Table 6 Socio-Economic Profile of Sample HINP Visitors, December 1997 to March 1998

Item	Type of Visitor			
	Local	Balikbayan	Foreigner	All Visitors
Averages:				
Age (yrs.)	37	43	38	38
No. of Household Members	6	4	3	5
No. of Household Members Below 18 yrs.	1	1	0	1
Own Income (Php/ mo.)	22,373	99,906	110,543	37,381
Household Income (Php/ mo.)	35,593	165,126	219,485	62,061
Frequencies:				
Civil Status				
Single	124	12	10	146
Married	228	53	6	287
Widowed	8	1	0	9
Separated	2	1	1	4
Gender				
Male	183	35	13	231
Female	179	32	4	215
Business Ownership				
Yes	192	23	5	220
No	170	44	12	226
Enrollment Status				
Yes	17	1	0	18
No	345	66	17	428

Table 7 Membership in Organizations of Sample HINP Visitors, December 1997 to March 1998

Organization Type	Type of Visitor							
	Local		Balikbayans		Foreigners		All Visitors	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1. Professional	25	6.9	3	4.5	-	-	28	6.3
2. Religious	19	5.2	5	7.5	-	-	24	5.4
3. Non-government organization (NGO)	16	4.4	2	3	2	11.8	20	4.5
4. Civic	14	3.9	3	4.5	-	-	17	3.8
5. Geographical	5	1.4	3	4.5	-	-	8	1.8
6. Sports	5	1.4	-	-	-	-	5	1.1
7. Government	4	1.1	-	-	-	-	4	0.9
8. Environmental	3	0.8	-	-	1	5.9	4	0.9
9. Business	3	0.8	-	-	-	-	3	0.7
10. School	3	0.8	-	-	-	-	3	0.7
TOTAL	72		13		3		88	

Table 8 Educational Attainment of Sample HINP Visitors, December 1997 to March 1998

Educational Attainment	Type of Visitor							
	Local		Balikbayans		Foreigners		All Visitors	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Elementary	-	-	2	3	-	-	2	0.4
High School	45	12.4	8	11.9	2	11.8	55	12.3
Vocational	6	1.7	2	3	2	11.8	10	2.2
College	295	81.5	53	79.1	12	70.6	360	80.7
Masteral	6	1.7	2	3	-	-	8	1.8
PhD/ MD	5	1.4	-	-	1	5.9	6	1.3
TOTAL	357		67		17		446	

Table 9 Educational Profile of Sample HINP Visitors by Field of Discipline
December 1997 to March 1998

Degree	Type of Visitor							
	Local		Balikbayans		Foreigners		All Visitors	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Type I:	70	19.3	12	17.9	-	-	82	18.4
Type II:	6	1.7	-	-	1	5.9	7	1.6
Type III:	5	1.4	2	3	1	5.9	8	1.8
Type IV:	2	0.6	1	1.5	-	-	3	0.7
Type V:	43	11.9	9	13.4	5	29.4	57	12.8
Type VI:	1	0.3	1	1.5	1	5.9	3	0.7
Type VII:	11	3	2	3	-	-	13	2.9
Type VIII:	9	2.5	2	3	-	-	11	2.5
Type IX:	9	2.5	1	1.5	-	-	10	2.2
Type X:	34	9.4	6	9	2	11.8	42	9.4
Type XI:	8	2.2	3	4.5	4	23.5	15	3.4
Type XII:	47	13	2	3	1	5.9	50	11.2
Type XIII:	6	1.7	1	1.5	-	-	7	1.6
Type XIV:	1	0.3	1	1.5	-	-	2	0.4
TOTAL	252		43		15		310	

Legend:

Type I: Accounting, Business Ad/Commerce, Finance, Industrial Engineering, Management Engineering

Type II: Agronomy, Animal Husbandry, Animal Science, Biology, Farming, Science

Type III: Aircraft Engineering, Automotive Mechanics, Electronics, Radio Engineering, Ship Mechanic, Transportation

Type IV: Architecture

Type V: Chemical Eng'g, Civil Eng'g, Electrical Eng'g, Eng'g, Geodetic Eng'g, Marine Eng'g, Mathematics, Mechanical Eng'g

Type VI: Communication Arts, Music Education, Photography

Type VII: Computer Electronics, Computer Eng'g, Computer Programming, Computer Science, Computer Technology

Type VIII: Cosmetology, Master Cutter, Midwifery, Secretarial

Type IX: Criminology, Customs Administration, Maritime Technology, Nautical, Police, Public Service, Supervisory Master

Type X: Dentistry, Medical Technology, Medicine, Nursing, Nutrition, Pharmacy, Physical Therapy, Veterinary Medicine

Type XI: Economics, Political Science, Social Science, Sociology, Law

Type XII: Education, General

Type XIII: Hotel and Restaurant Management, Tourism

Type XIV: Missionary, Priest

Table 10 Employment Profile of Sample HINP Visitors
December 1997 to March 1998

Industry	Frequency		
	Full-time	Part-time	Total
1. Education service	36	1	37
2. Manufacturing	13	2	15
3. Agriculture	1	3	4
4. Transport and communication	15	-	15
5. Electricity, gas and water	12	-	12
6. Financing/ business services	53	2	55
7. Social services	9	-	9
8. Public ad and defense	54	1	55
9. Recreational and cultural services	19	1	20
10. Construction	9	-	9
11. Medical/ dental/ vetmed services	25	2	27
12. Household/ personal services	3	-	3
13. Not specified	131	6	137
14. Unemployed	-	-	48
TOTAL	380	18	446

Table 11 Sample HINP Visitors by Origin
December 1997 to March 1998

Type of Visitor	Place of Origin	Frequency	
		Number	Percent
Local	Pangasinan	162	44.8
	Metro Manila	91	25.1
	Tarlac	21	5.8
	Baguio	19	5.2
	Bulacan	13	3.6
	La Union	11	3
	Cavite	8	2.2
	Nueva Ecija	7	1.9
	Laguna	4	1.1
	Pampanga	3	0.8
	Zambales	3	0.8
	Ilocos Sur	3	0.8
	Bicol	2	0.6
	Ilocos Norte	1	0.3
	Samar	1	0.3
	Mindanao	1	0.3
Nueva Vizcaya	1	0.3	
TOTAL		351	100
Balikbayans	USA	23	34.3
	Canada	7	10.4
	England	7	10.4
	Switzerland	6	9
	Japan	5	7.5
	Netherlands	3	4.5
	Austria	2	3
	Australia	2	3
	Guam	2	3
	Taiwan	2	3
	Korea	1	1.5
	Spain	1	1.5
	Denmark	1	1.5
	Sweden	1	1.5
	Malaysia	1	1.5
	Italy	1	1.5
	Hongkong	1	1.5
TOTAL		66	100
Foreigners	Germany	5	29.4
	Canada	3	17.6
	England	2	11.8
	USA	2	11.8
	Netherlands	1	5.9
	Korea	1	5.9
	Thailand	1	5.9
	France	1	5.9
	Saudi Arabia	1	5.9
TOTAL		17	100

Table 12 Travel Profile of Sample HINP Visitors, December 1997 to March 1998

Item	Type of Visitor							
	Locals		Balikbayans		Foreigners		All Visitors	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Purposes of Visit ^a								
Recreation	350	96.7	62	92.5	17	100	429	96.2
Visit Family & Friends	9	2.5	4	6	-	-	13	2.9
Business	6	1.7	-	-	-	-	6	1.3
Cultural	2	0.6	1	1.5	-	-	3	0.7
Research/Study	1	0.3	-	-	-	-	1	0.2
Length of Stay								
One day	308	85.1	59	88.1	13	76.5	380	85.2
Two days	43	11.9	8	11.9	3	17.6	54	12.1
More than two days	11	3.0	-	-	1	5.9	12	2.7
Travel Route								
Direct from Residence	317	87.6	59	88.1	4	23.5	380	85.2
Direct to Residence	307	84.8	53	79.1	5	29.4	365	81.8
Distance of HINP to Residence								
Less than 100 kms.	183	50.6	35	52.2	1	5.9	219	49.1
100 to 200 kms.	49	13.5	10	14.9	1	5.9	60	13.5
200 to 300 kms.	111	30.7	19	28.4	-	-	130	29.1
More than 300 kms.	19	5.2	3	4.5	15	88.2	37	8.3
Means of Transportation ^b								
Own Car	189	52.2	43	64.2	5	29.4	237	53.1
Hired Vehicle	98	27.1	15	22.4	5	29.4	118	26.5
Jeep/Bus/Tricycle	80	22.2	11	16.5	4	23.5	95	21.3
Airplane	2	0.6	2	3	15	88.2	19	4.3
Others	2	0.6	-	-	-	-	2	0.6

Table 12 (continued)

Item	Type of Tourist							
	Locals		Balikbayans		Foreigners		All Tourists	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Group Members ^c								
Relatives	272	61.0	55	12.3	7	1.6	334	75
Friends	179	49.4	19	28.4	14	82.4	212	47.5
Office Peers	20	5.5	-	-	-	-	20	5.5
No. of Visits to HINP in 1997								
Once	235	64.9	57	85.1	15	88.2	307	68.8
Twice	72	19.9	8	11.9	2	11.8	82	18.4
More than 2x	55	15.2	2	3.0	-	-	57	12.8
Plans to Visit HINP in the Future	360	99.4	65	97	16	94.1	441	98.9
No. of Recreational Travels in One Year								
Once	2	0.6	-	-	-	-	2	0.4
Twice	54	14.9	18	26.9	4	23.5	76	17
Three Times	133	36.7	19	28.4	7	41.2	159	35.7
More than Three Times	173	47.8	30	44.8	6	35.2	209	46.9

Notes:

^a Percentages do not add up to 100 because of multiple purposes of visit of some visitors

^b Percentages do not add up to 100 due to multiple means of transportation used by some visitors

^c Numbers and percentages do not add up to total because of multiple types of members per group

Table 13 Support of Sample HINP Visitors for Environmental Actions in HINP

Activity	Frequency (%)					
	Strongly Support	Support	Neutral	Oppose	Strongly Oppose	No Opinion
Public education on the environment	87.9	10.8	0.4	0	0	0.9
Repair/upgrade of septic systems	84.1	10.1	4.5	0	0	1.3
Construction of new tourist amenities	80.3	12.1	4.7	1.6	0.9	0.4
Better enforcement of regulations	78.7	13.5	7	0.2	0.2	0.4
Zoning	69.5	19.7	7.2	2.9	0.4	0.2
Entrance fees for protecting HINP	59.6	25.3	10.5	2	1.3	1.1
Dismantling of fishpens	45.1	24.2	20.2	3.4	2.5	4.7
Restriction of fishing	43.3	23.3	21.7	4.5	3.1	4

Table 14 Frequency of Involvement of Sample HINP Visitors in
Environmental Protection Activities, December 1997 to March 1998

Item	Frequency	
	Number	Percent of Total Visitors
Involvement	17	3.8
More than once a week	4	0.9
Once a week	1	0.2
More than once a month	1	0.2
Once a month	4	0.9
More than once a year	5	1.1
Once a year	2	0.4
No Involvement	429	96.2

Table 15 Reasons for Choosing IHNP for Current Visit by Sample Visitors, December 1997 to March 1998

Item	Type of Visitor							
	Locals		Balikbayans		Foreigners		All Visitors	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1. Natural attributes/ unique/ interesting	54	3.7	11	4.6	1	2.3	66	3.8
2. Accessible/ location	49	3.4	7	2.9	-	-	56	3.2
3. Affordable	-	-	1	0.4	-	-	1	0.1
4. Good for parties/ meetings	12	0.8	-	-	-	-	12	0.7
5. Safe/ relaxing/ peaceful/ recreation	32	2.2	3	1.3	4	9.3	39	2.3
6. Boat rides	3	0.2	-	-	-	-	3	0.2
7. Research/ work	3	0.2	-	-	-	-	3	0.2
8. Second time/ multiple visits	13	0.9	1	0.4	-	-	14	0.8
9. Show off	26	1.8	2	0.8	-	-	28	1.6
10. Resident of area	1	0.1	1	0.4	-	-	2	0.1
11. Curiosity	99	6.8	21	8.8	3	7	123	7.1
12. Recommended	33	2.3	14	5.9	7	16.3	54	3.1
13. Popular	21	1.4	1	0.4	-	-	22	1.3
14. Invited	13	0.9	3	1.3	1	2.3	17	1
15. Part of tour	-	-	2	0.8	1	2.3	3	0.2
TOTAL SAMPLE	359		67		17		443	

Table 16 Activities Undertaken by Sample HINP Visitors
December 1997 to March 1998

Activity	Frequency	
	Number	Percent of Total Visitors
Picnicking	443	98.7
Swimming/ Sunbathing	432	96.2
Beachcombing/ Walking	410	91.3
Boating	352	78.4
Island Hopping	152	33.9
Snorkeling/ Scuba Diving	21	4.7
Game Fishing	16	3.6
Jetskiing	1	0.2

Note: Multiple responses allowed.

Table 17 Substitute Sites for HINP Visitors
December 1997 to March 1998

Site	Activity	Frequency	
		Number	Percent
1. Baguio		240	53
	Sightseeing	204	85
	Picnicking	61	25
2. Tagaytay		87	19
	Sightseeing	66	76
	Picnicking	25	29
3. San Fabian		77	17
	Picnicking	75	97
	Swimming	74	96
4. Batangas		74	16
	Swimming	70	95
	Picnicking	70	95
5. Laguna		70	16
	Picnicking	54	77
	Swimming	52	74
6. Cordillera Region		65	14
	Sightseeing	56	86
	Picnicking	17	26
7. La Union		51	11
	Picnicking	46	90
	Swimming	46	90
8. Cebu		45	10
	Swimming	38	84
	Picnicking	37	82
9. Dagupan		35	8
	Swimming	34	97
	Picnicking	34	97
10. Ilocos Norte		35	8
	Sightseeing	21	60
	Picnicking	16	46
11. Olongapo		35	8
	Picnicking	34	97
	Swimming	33	94
12. Lingayen Gulf		32	7
	Picnicking	31	97
	Swimming	31	97
13. Bolinao		32	7
	Swimming	29	91
	Picnicking	28	88
14. Boracay		30	7
	Swimming	29	97
	Picnicking	28	93
15. Palawan		26	6
	Picnicking	21	81
	Swimming	21	81

Table 18 Activities in Substitute Sites for HINP Visitors
December 1997 to March 1998

Activity	Site	Frequency	
		Number	Percent
1. Sightseeing			
	Baguio	204	85
	Tagaytay	66	76
	Cordillera Region	56	86
	Ilocos Norte	21	60
2. Picnicking			
	Baguio	61	25
	Tagaytay	25	29
	San Fabian	75	97
	Batangas	70	95
	Laguna	54	77
	Cordillera Region	17	26
	La Union	46	90
	Cebu	37	82
	Dagupan	34	97
	Ilocos Norte	16	46
	Olongapo	34	97
	Lingayen Gulf	31	97
	Bolinao	28	88
	Boracay	28	93
	Palawan	21	81
3. Swimming			
	San Fabian	74	96
	Batangas	70	95
	Laguna	52	74
	La Union	46	90
	Cebu	38	84
	Dagupan	34	97
	Olongapo	33	94
	Lingayen Gulf	31	97
	Bolinao	29	91
	Boracay	29	97
	Palawan	21	81

Table 19 Rating of Park Surroundings and Services by Sample HINP Visitors
December 1997 to March 1998

Service	Frequency (%)				
	Excellent	Good	Fair	Poor	Not Used/ No Opinion
At the Islands					
Lodging	0.9	7.6	3.4	0.7	87.4
Toilet Facilities	0.7	11.4	23.1	37.4	27.4
Picnic Sheds/ Tables	5.4	41.8	32.4	7.6	12.8
Pavilion	0.7	20.9	14.2	4.1	60.1
Water Supply	0.4	2.7	6.3	26.8	63.8
Availability of Litter Bins	2.2	47.9	32.7	15.2	2.0
Cleanliness	2.7	39.5	42.8	14.3	0.7
Boat Rides	12.8	75.3	10.5	0.9	0.4
Personal Safety	6	63.3	23.5	5.4	1.8
Peace and Quiet	10.3	67.9	17.7	1.8	2.2
At Lucap Point					
Lodging	4.7	10.7	4.3	0.4	79.9
Public Toilet Facilities	3.6	29.7	12.1	3.8	50.8
Restaurants	5.4	20.7	3.6	0.7	69.7
Water Supply	2.9	27.6	8.3	3.6	57.6
Availability of Litter Bins	5.2	73.5	13.5	2	5.8
Cleanliness	6.3	78.2	11.7	1.6	2.2
Information Center	8.8	66	6.8	1.6	16.9
Personal Safety	7.9	80.7	7.9	1.1	2.5
Peace and Quiet	9.4	80.9	6.3	1.1	2.2

Table 20 Average WTP for Suggested New Facilities on the Islands of HINP, December 1997 to March 1998

Item	Type of Visitor															
	Local				Balikbayan				Foreigner				All Visitors			
	WTP		Will		WTP		Will		WTP		Will		WTP		Will	
	Use	Mean	Median	Mode	Use	Mean	Median	Mode	Use	Mean	Median	Mode	Use	Mean	Median	Mode
More Lodging Rooms (per night)	285	493	500	500	58	824	550	500 ^{a/}	13	946	1000	1000	356	564	500	500
Shower Rooms (per use)	343	5	2	0	64	8	0	0	16	13	7.5	0	423	6	2	0
Lockers (per day)	256	7	0	0	47	13	0	0	11	7	5	0	314	8	0	0
Restaurants	267	-	-	-	59	-	-	-	14	-	-	-	340	-	-	-
Convenience Stores	139	-	-	-	19	-	-	-	4	-	-	-	162	-	-	-
More Picnic Tables/Sheds (per day)	311	51	30	25	58	79	50	100	11	67	50	50	380	55	30	25
Water Supply (per gallon)	304	10	0	0	53	12	0	0	15	20	0	0	372	10	0	0
More Camping Sites (per day)	213	37	10	0	47	53	10	0	11	59	50	100	271	41	10	0
More Barbecue Pits (per day)	282	6	0	0	47	7	0	0	8	18	5	0	337	6	0	0
Diving/snorkeling Equipment (per day)	165	142	100	100	36	148	100	100	10	183	175	200	211	145	100	100
First Aid Kit (per use)	347	15	0	0	65	21	0	0	15	17	0	0	427	16	0	0
Lifeguard (per day)	350	14	0	0	65	21	0	0	14	17	0	0	429	15	0	0
Total Sample	362				67				17				446			

^{a/} Multiple modes exist (500 and 1000). Smallest value is shown.

Table 21 Average WTP For New Facilities on the Islands of HINP (in Percent), December 1997 to March 1998

Item	Type of Visitor							
	Local		Balikbayan		Foreigner		All Visitors	
	Will Use	Mode WTP	Will Use	Mode WTP	Will Use	Mode WTP	Will Use	Mode WTP
More Lodging Rooms	78.7	22.9	86.6	14.9	76.5	47.1	79.8	21.1
Shower Rooms	94.8	44.8	95.5	53.7	94.1	29.4	94.8	45.5
Lockers	70.7	42.3	70.1	37.3	64.7	29.4	70.4	41
Restaurants	73.8	-	88.1	-	82.4	-	76.2	-
Convenience Stores	38.4	-	28.4	-	23.5	-	36.3	-
More Picnic Tables/Sheds	85.9	28.7	86.6	19.4	64.7	23.5	85.2	25.6
Water Supply	84	45.9	79.1	49.3	88.2	52.9	83.4	46.6
More Camping Sites	58.8	25.7	70.1	28.4	64.7	29.4	60.8	25.8
More Barbecue Pits	77.9	55.8	70.1	53.7	47.1	23.5	75.6	54.3
Diving/snorkeling Equipment	45.6	18	53.7	16.4	58.8	17.6	47.3	17.5
First Aid Kit	95.9	58	97	65.7	88.2	64.7	95.7	59.4
Lifeguard	96.7	61.6	97	67.2	82.4	58.8	96.2	62.3

Table 22 Hypothesized Direction of Effects of Explanatory Variables on the WTP Bid

Independent Variable	Direction of Change	Theoretical basis
E1 (Education)	+	$\partial WTP/\partial E1 > 0$
B1 (Participation in beach activities at HINP)	+	$\partial WTP/\partial B1 > 0$
A1 (Level of satisfaction with HINP)	+	$\partial WTP/\partial A1 > 0$
A2 (No. of visits)	+/-	$\partial WTP/\partial A2 \gtrless 0$
A3 (Duration of stay)	+	$\partial WTP/\partial A3 > 0$
A4 (Planning for another visit dummy)	+/-	$\partial WTP/\partial A4 \gtrless 0$
I1 (Concern about HINP protection dummy)	+	$\partial WTP/\partial I1 > 0$
I2 (Index score for level of action supported)	+	$\partial WTP/\partial I2 > 0$
I3 (Place of origin dummy)	+/-	$\partial WTP/\partial I3 \gtrless 0$
P1 (Household annual income)	+	$\partial WTP/\partial P1 > 0$
P2 (Household size)	-	$\partial WTP/\partial P2 < 0$
P3 (Employment dummy)	+	$\partial WTP/\partial P3 > 0$
D1 (Age)	+/-	$\partial WTP/\partial D1 \gtrless 0$
D2 (Gender dummy)	?	$\partial WTP/\partial D2 = ?$ (depends on the control dummy)
D3 (Civil status dummy)	?	$\partial WTP/\partial D3 = ?$ (depends on the control dummy)
S1 (Interviewer dummy)	?	$\partial WTP/\partial S1 = ?$ (depends on the control dummy)
S2 (Visitor's category dummy)	?	$\partial WTP/\partial S2 = ?$ (depends on the control dummy)

Table 23 Estimates of the Factors Affecting Park Visitors' WTP for Entrance Fee Increase at Current Level of Services at HINP, 1998

Variable	OLS		TOBIT	
	Coefficient	T-ratio	Coefficient	T-ratio
CONSTANT	* 13.378	1.636	-16.766	-1.013
E1 (EDUCYRS)	0.225	0.852	0.74	1.418
B1 (BEACH)	**** 4.616	2.645	**** 12.999	3.141
A1 (INDEX2A)	0.703	0.718	-0.019	-0.01
A2 (VISIT97)	0.082	0.305	0.028	0.052
A3 (DAYS97)	0.537	0.648	0.993	0.616
I1 (CONCERN)	2.446	1.331	2.253	0.616
I2 (INDEX3)	-0.253	-0.228	2.074	0.938
I3 (ADRESVAL)	**** -2.687	-2.629	**** -6.261	-2.971
P1 (HHINC)	8.18E-06	1.665	* 0.409E-04	1.554
P2 (NO_HH)	* -0.285	-1.542	** -0.629	-1.735
P3 (EMPLOY)	-0.657	-0.399	-0.264	-0.076
D1 (AGE)	0.05	1.115	** 0.168	1.863
D2 (GENDER)	*** 2.220	2.375	*** 4.515	2.411
D3 (CSTAT)	-1.548	-1.321	-3.392	-1.42
S1 (INTERVAL)	-1.038	-1.035	-2.557	-1.283
S2 (TOURDUM)	**** -18.813	-7.615	**** -24.502	-5.542
σ (Sigma)	-	-	**** 15.815	17.55
F-value (16,399)	**** 8.500	-	-	-
R ²	0.254	-	-	-
Log-Likelihood function (unrestricted)	-	-	-915.979	-
Log-Likelihood function (restricted)	-	-	-993.42	-
Likelihood ratio	-	-	154.882	-
Critical Chi-square (DF=9; $\alpha=5\%$)	-	-	26.296	-

**** = significant at 99% confidence level ; *** = significant at 95% confidence level
 ** = significant at 90% confidence level ; * = significant at 85% confidence level

Table 24 Marginal Effects of WTP for Entrance Fee Increase
at Current Level of Services, HINP, 1998

Variable	Marginal Effects		
	$\partial E(Y^*)/\partial X_i$	$\partial F(z)/\partial X_i$	$\partial E(Y)/\partial X_i$
E1 (EDUCYRS)	0.2484	0.0185	0.3313
B1 (BEACH)	4.3623	0.3251	5.8165
A1 (INDEX2A)	-0.0066	-0.0005	-0.0088
A2 (VISIT97)	0.0093	0.0007	0.0124
A3 (DAYS97)	0.3332	0.0248	0.4443
I1 (CONCERN)	0.7561	0.0563	1.0081
I2 (INDEX3)	0.696	0.0519	0.9281
I3 (ADRESVAL)	-2.101	-0.1566	-2.8015
P1 (HHINC)	4.70E-06	3.50E-07	6.30E-06
P2 (NO_HH)	-0.2114	-0.0158	-0.2819
P3 (EMPLOY)	-0.0886	-0.0066	-0.1181
D1 (AGE)	0.0565	0.0042	0.0754
D2 (GENDER)	1.5152	0.1129	2.0203
D3 (CSTAT)	-1.1384	-0.0848	-1.518
S1 (INTERVAL)	-0.8581	-0.0639	-1.1442
S2 (TOURDUM)	-8.2224	-0.6127	-10.9635

E(Y) at mean values of all X_i = 5.32
E(Y*) at mean values of all X_i = 11.89

Table 25 Estimates of the Factors Affecting Park Visitors' WTP for Entrance Fee Increase at Improved Level of Services, HINP, 1998

Variable	OLS		TOBIT	
	Coefficient	T-ratio	Coefficient	T-ratio
CONSTANT	17.286	16.756	11.329	0.666
E1 (EDUCYRS)	-0.019	0.54	0.136	0.249
B1 (BEACH)	0.948	3.575	1.582	0.433
A1 (INDEX2A)	1.217	2.006	0.906	0.447
A2 (VISIT97)	0.241	0.552	*** 0.065	0.115
A3 (DAYS97)	*** 3.882	1.7	4.237	2.47
I1 (CONCERN)	-0.954	3.764	-1.073	-0.282
I2 (INDEX3)	3.242	2.275	** 3.859	1.675
I3 (ADRESVAL)	**** -7.470	2.096	**** -8.050	-3.791
P1 (HHINC)	**** 5.5E-05	1.01E-05	**** 5.6E-05	5.513
P2 (NO_HH)	-0.419	0.379	-0.395	-1.031
P3 (EMPLOY)	-4.128	3.374	-4.449	-1.299
D1 (AGE)	0.074	0.093	0.082	0.873
D2 (GENDER)	* 2.784	1.917	*** 3.292	1.696
D3 (CSTAT)	-1.339	2.404	-1.102	-0.451
S1 (INTERVAL)	**** 10.628	2.057	**** 11.082	5.321
S2 (TOURDUM)	**** -28.298	5.061	**** -28.433	-5.576
σ (Sigma)	-	-	**** 18.816	28.088
F-value (16,398)	12.90	****	-	-
R ²	0.34	-	-1747.41	-
Log-Likelihood function (unrestricted)	-	-	-1905.63	-
Log-Likelihood function (restricted)	-	-	316.43	-
Likelihood ratio	-	-	26.3	-
Critical Chi-square (DF=16; $\alpha=5\%$)	-	-	-	-

**** = significant at 99% confidence level : *** = significant at 95% confidence level
 ** = significant at 90% confidence level : * = significant at 85% confidence level

Table 26 Marginal Effects of WTP for Entrance Fee Increase
at Improved Level of Services, HINP, 1998

Variable	Marginal Effects		
	$\partial E(Y^*)/\partial X_i$	$\partial F(z)/\partial X_i$	$\partial E(Y)/\partial X_i$
E1 (EDUCYRS)	0.089	0.002	0.117
B1 (BEACH)	1.036	0.019	1.362
A1 (INDEX2A)	0.593	0.011	0.78
A2 (VISIT97)	0.043	0.001	0.056
A3 (DAYS97)	2.773	0.05	3.647
I1 (CONCERN)	-0.702	-0.013	-0.923
I2 (INDEX3)	2.526	0.045	3.322
I3 (ADRESVAL)	-5.27	-0.095	-6.93
P1 (HHINC)	3.70E-05	6.60E-07	4.80E-05
P2 (NO_HH)	-0.258	-0.005	-0.34
P3 (EMPLOY)	-2.912	-0.052	-3.83
D1 (AGE)	0.054	0.001	0.071
D2 (GENDER)	2.155	0.039	2.834
D3 (CSTAT)	-0.721	-0.013	-0.948
S1 (INTERVAL)	7.254	0.13	9.54
S2 (TOURDUM)	-18.613	-0.335	-24.478

E(Y) at mean values of all $X_i = 21.74$
E(Y*) at mean values of all $X_i = 25.25$

Table 27 Descriptive Statistics of Variables Used in the WTP Model
for Entrance Fee Increase at Current Level of Services, HINP, 1998

Variable	Mean	Std. Dev.	Min.	Max.
E1 (EDUCYRS)	13.5	1.8	6	22
B1 (BEACH)	0.9	0.3	0	1
A1 (INDEX2A)	3.5	0.5	2.1	5
A2 (VISIT97)	1.7	1.9	1	25
A3 (DAYS97)	1.2	0.6	1	7
I1 (CONCERN)	0.9	0.3	0	1
I2 (INDEX3)	5.5	0.4	4	6
I3 (ADRESVAL)	0.4	0.5	0	1
P1 (HHINC)	62,727.3	103,588.9	800.0	759,834.0
P2 (NO_HH)	5.3	2.6	0	20
P3 (EMPLOY)	0.9	0.3	0	1
D1 (AGE)	38.0	12.5	0	77
D2 (GENDER)	0.5	0.5	0	1
D3 (CSTAT)	0.3	0.5	0	1
S1 (INTERVAL)	0.5	0.5	0	1
S2 (TOURDUM)	1.0	0.2	0	1

Table 28 Average Costs Per Person for the Components of Travel Expenses
By Zone of Origin, Local HINP Visitors, December 1997 to March 1998

Components	All Zones		Zone 1: <= 100 kms.		Zone 2: > 100 kms.	
	Average	% to Total	Average	% to Total	Average	% to Total
Trip Expenses						
Gas	20.00	8.25%	9.31	5.06%	30.93	10.23%
Toll Fees	0.63	0.26%	0.00	0.00%	1.26	0.42%
Accommodations During the Trip	0.78	0.32%	0.00	0.00%	1.57	0.52%
Vehicle Rental	17.97	7.41%	16.58	9.02%	19.39	6.41%
Public Utility Fare	11.06	4.56%	3.14	1.71%	19.17	6.34%
Food During the Trip	12.52	5.16%	3.09	1.68%	22.18	7.33%
Total	62.96	25.97%	32.12	17.47%	94.50	31.25%
On-site Expenses						
Entrance Fees	4.90	2.02%	4.92	2.68%	4.97	1.64%
Accommodations	7.28	3.00%	2.78	1.51%	11.89	3.93%
Picnic Sheds/Tables	2.60	1.07%	2.16	1.17%	3.05	1.01%
Boat Rental	44.62	18.41%	40.21	21.87%	49.14	16.25%
Snorkeling Equipment Rental	0.29	0.12%	0.58	0.32%	0.00	0.00%
Other Facilities	0.02	0.01%	0.00	0.00%	0.03	0.01%
Food Consumed On-site	119.75	49.40%	101.09	54.98%	138.83	45.91%
Total	179.46	74.03%	151.74	82.53%	207.91	68.75%
TOTAL	242.42	100.00%	183.86	100.00%	302.41	100.00%

Table 29 Results of the Estimation of the Travel Cost Model, HINP, 1998

Variables	OLS		TRUNCATED POISSON		
	Coefficient	T-ratio	Coefficient	T-ratio	$\partial E(Y)/\partial X_i$
CONSTANT	** 2.5242	1.67	0.986	1.104	0.8139
TEXPPMAN	-2.00E-05	-0.699	**** -4.6E-04	-2.718	-3.80E-04
HHINCYR	-1.10E-07	-1.412	**** -1.9E-07	-2.626	-1.60E-07
EMPLOY	* -0.4842	-1.578	**** -0.4331	-2.832	-0.3575
EDUCYRS	-0.0279	-0.53	-0.0257	-0.818	-0.0213
AGE	**** -0.0245	-2.753	**** -0.0281	-5.106	-0.0232
GENDER	** 0.3235	1.78	**** 0.4092	3.769	0.3378
CSTAT	*** 0.4668	2.4	**** 0.5448	5.335	0.4497
INDEX2A	0.2318	1.227	*** 0.2817	2.542	0.2325
INDEX3	-0.1356	-0.645	* -0.1788	-1.442	-0.1476
F-value (9, 431)	*** 2.08			-	
R ²	0.0417			-	
Log Likelihood function (unrestricted)	-			-567.38	
Log Likelihood function (restricted)	-			-730.9964	
Chi-squared (df=9; α =5%)	-			**** 327.2328	

**** = significant at 99% level of confidence: ** = significant at 90% level of confidence
 *** = significant at 95% level of confidence: * = significant at 85% confidence level
 E(Y) at mean values of all X_i = 1.7083

Table 30 Philippine Tourism Authority (PTA) Facilities at HINP
Rates as of March 1998

Park Facility/Service	Park Rates	
	Day Tour	Overnight
Lucap Point		
Entrance Fee	P5.00/pax	
Shower	P5.00/pax	
Restroom	P2.00/pax	
Briefing Room (48 pax; with aircon and whiteboard)	P1,500.00/day	
Additional: Overhead Projector	P350.00	
TV with videoke	P350.00	
Computer	P350.00	
Guestroom (Aircon; 3 pax)		P858.00
(Aircon; 6 pax)		P1,149.00
(Non-aircon; 3 pax)		P575.00
Family Room (Aircon; 8 pax)		P1,980.00
(Non-aircon; 8 pax)		P1,650.00
Extra Bed		P108.00
Quezon Island		
Pavilion (10 picnic tables)	P300.00	P600.00
Picnic Table	P25.00	P50.00
Picnic Shed	P50.00	P100.00
Public Comfort Room		Free
Governor's Island		
Guesthouse (8 pax; 2 bedrooms, kitchen, 4 drums of water, generator lighting, and comfort room)		P1,916.00
Bahay Kubo (2 pax; kerosene lighting and 1 drum of water)		P402.00
Picnic Table	P25.00	P50.00
Public Comfort Room		Free
Children's Island		
Nipa Hut (2-3 pax; 2 single beds, kerosene lighting, 1 drum of water)		P559.00
Scorpion (4 pax; 2 single beds, mini-kitchen, veranda, 2-3 drums of water, and lighting)		P1,435.20
Pavilion (4 picnic tables)	P200.00	P400.00
Picnic Table	P25.00	P50.00
Picnic Shed	P50.00	P100.00
Public Comfort Room		Free

Table 31 Other Resorts at HINP, Rates as of March 1998

Resort/Item	Accommodations			Equipment		Boat			Conference Facilities	
	Type	Number	Rate	Type	Rate	Type	Number	Rate	Type	Rate
Heiden Resthouse	single bed	2	P200.00			20 pax	1	P400.00		
	two beds	2	P300.00							
The Last Resort	Aircon:			snorkeling	P100.00	small	1	P275.00-P300.00	120 pax	P105.00/pax
	single bed	3	P450.00	fins	P40.00	big	2	P550.00-P600.00	(with 4-course meal)	
	twin bed	3	P450.00							
	3 beds	2	P550.00							
	4 beds	4	P650.00							
	6 beds	3	P850.00							
	8 beds	2	P1,200.00							
	Non-Aircon:									
	4 beds	3	P550.00							
	Vista del Mar	matrimonial	12	P1,500.00						big open space
twin bed		12	P1,500.00						room	
Seaside Haven	Aircon:								restaurant func-	variable
	twin beds	4	P800.00-P1,600.00						tion room	
	double beds	2	P1,000.00-P2,000.00							
	cottages	7	P500.00							
Maxine by the Sea	VIP Room	1	P1,300.00-P1,500.00			20 pax	8	P500.00-P550.00	150 pax	variable
	aircon single & double bed room	16	P500.00							
	aircon	1	P450.00							
	non-aircon with single bed	2	P300.00							
Hundred Islands View Resort and Restaurant	house w/ kitchen	1	P4,500.00			big	3	P650.00	conference room	P120.00/pax
	Aircon:								(with 3-course meal)	
	3 beds	1	P3,000.00							
	queen bed	1	P3,000.00							
	Non-Aircon:									
	3 beds	2	P650.00							
	2 beds	2	P650.00							

Table 34 PTA-HINP Facility Rates Needed for Full Cost Recovery

Facility	Rental Rates			Comparable Rates Thru Survey
	Distribution 1: 50% Lucap 50% Islands	Distribution 2: 40% Lucap 60% Islands	Distribution 3: 30% Lucap 70% Islands	
Lucap Point				
Bath house (per use)	4.80	4.80	4.80	none
Souvenir Stalls (per month)	482.20	482.20	482.20	none
Lucap Hostel (per night)				
Aircon Guestroom (6 pax)	4,172.76	3,566.49	2,960.23	2,600.00
Non-aircon Guestroom (3 pax)	6,184.63	5,286.05	4,387.48	700.00
Family Room (8 pax)	17,316.96	14,800.95	12,284.94	3,500.00
Islands				
Pavilions (per day)	732.74	732.74	732.74	none
Picnic Tables (per day)	38.11	42.65	47.19	55.00
Picnic Sheds (per day)	105.04	117.56	130.08	none
Lodging Facilities				
Nipa Huts (2 pax)	2,554.01	2,858.37	3,162.73	1,000.00
VIP Guesthouse (8 pax)	7,917.45	8,860.95	9,804.46	4,000.00

Assumptions:

1. Constant Rate of Use Per Facility in 1998
2. Hostel room expenditures distributed according to the ff:
 - a. aircon guestroom = 40%
 - b. non-aircon guestroom = 20%
 - c. family room = 40%
3. Island expenditures distributed according to the ff:
 - a. Nipa huts = 45%
 - b. VIP Guestroom = 45%
 - c. Picnic tables = 6%
 - d. Picnic sheds = 4%
4. For Lucap Point facilities: comparable rates are average rates of private facilities in the area
5. For Island facilities: comparable rates are WTP figures from the survey of visitors

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Table 35 PTA-HINP Facilities Rate of Use/Occupancy Rate per Year Needed For Full Cost Recovery

Facility	Rate of Use/ Occupancy Rate		
	Distribution 1: 50% Lucap 50% Islands	Distribution 2: 40% Lucap 60% Islands	Distribution 3: 30% Lucap 70% Islands
Lucap Point	29,642	29,642	29,642
Bath house (no. of bathers)	8	8	8
Souvenir Stalls (no. of stalls)			
Lucap Hostel	82%	71%	59%
Aircon Guestroom for 6 pax (occupancy rate)	82%	71%	59%
Non-aircon Guestroom for 3 pax (occupancy rate)	48%	41%	35%
Family Room for 8 pax (occupancy rate)			
Islands	37%	37%	37%
Pavilions (occupancy rate)	50%	56%	61%
Picnic Tables (occupancy rate)	39%	43%	48%
Picnic Sheds (occupancy rate)			
Lodging Facilities	117%	131%	144%
Nipa Huts for 2 pax (occupancy rate)	135%	151%	168%
VIP Guesthouse for 8 pax (occupancy rate)			

Assumptions:

1. Constant Rental Rates for 1998 Used
2. Hostel room expenditures distributed according to the ff:
 - a. aircon guestroom = 40%
 - b. non-aircon guestroom = 20%
 - c. family room = 40%
3. Island expenditures distributed according to the ff:
 - a. Nipa huts = 45%
 - b. VIP Guestroom = 45%
 - c. Picnic tables = 6%
 - d. Picnic sheds = 4%

Table 36 Monthly Expenditures for PTA-HINP Lodging Facilities, 1998
 Less Revenues from Entrance Fees (PhP 10.00 per day visitor)

Item/ Expenditure	Monthly Expenditures		
	Distribution 1: 50% Lucap 50% Islands	Distribution 2: 40% Lucap 60% Islands	Distribution 3: 30% Lucap 70% Islands
1998 Monthly Expenditures			
Lucap Hostel	144,308.04	123,341.27	102,374.51
Islands	158,348.93	177,219.02	196,089.10
Total	302,656.97	300,560.29	298,463.61
Share to Total			
Lucap Hostel	0.48	0.41	0.34
Islands	0.52	0.59	0.66
Revenues from Increased Entrance Fees	76,850.00	76,850.00	76,850.00
Adjusted Expenditures^{1/}			
Lucap Hostel	107,665.66	91,804.25	76,014.58
Islands	118,141.31	131,906.04	145,599.03
Total	225,806.97	223,710.29	221,613.61

^{1/} Adjusted Expenditures = Total Expenditures less Revenues from Increased Entrance Fees
 Assumption: constant no. of visitors at 1998 base figures

Table 37 PTA-HINP Lodging Rates Needed For Cost Recovery
(Lodging Expenditures Less Revenues from Increased Entrance Fees)

Facility/ Lodging Rate	Lodging Rates		
	Distribution 1: 50% Lucap 50% Islands	Distribution 2: 40% Lucap 60% Islands	Distribution 3: 30% Lucap 70% Islands
Lucap Hostel			
Aircon guestroom (per night)	3,113.22	2,654.58	2,198.01
Non-aircon guestroom (per night)	4,614.24	3,934.47	3,257.77
Hostel family room (per night)	12,919.88	11,016.51	9,121.75
Islands			
Nipa Huts (per night)	1,905.51	2,127.52	2,348.37
VIP Guesthouse (per night)	5,907.07	6,595.30	7,279.95

Assumptions:

1. Constant Rate of Use Per Facility in 1998
2. Hostel room expenditures distributed according to the ff:
 - a. aircon guestroom = 40%
 - b. non-aircon guestroom = 20%
 - c. family room = 40%
3. Island expenditures distributed according to the ff:
 - a. Nipa huts = 45%
 - b. VIP Guestroom = 45%
 - c. Picnic tables = 6%
 - d. Picnic sheds = 4%

Table 38 PTA-HINP Lodging Facilities' Occupancy Rate Per Year Needed For Cost Recovery (Lodging Expenditures less Revenues from Increased Entrance Fees)

Facility/ Occupancy Rate	Occupancy Rate		
	Distribution 1: 50% Lucap 50% Islands	Distribution 2: 40% Lucap 60% Islands	Distribution 3: 30% Lucap 70% Islands
Lucap Hostel			
Aircon guestroom	61%	53%	43%
Non-aircon guestroom	61%	53%	43%
Hostel family room	36%	31%	25%
Islands			
Nipa Huts	87%	97%	107%
VIP Guesthouse	102%	112%	125%

Assumptions:

1. Constant Rental Rates for 1998 Used
2. Hostel room expenditures distributed according to the ff:
 - a. aircon guestroom = 40%
 - b. non-aircon guestroom = 20%
 - c. family room = 40%
3. Island expenditures distributed according to the ff:
 - a. Nipa huts = 45%
 - b. VIP Guestroom = 45%
 - c. Picnic tables = 6%
 - d. Picnic sheds = 4%

Table 39 Recommended Rates for PTA-HINP Lodging Facilities

Lodging Facility	Rate per night (Php)
Lucap Hostel	
Aircon guestroom (6 pax)	2,600.00
Non-aircon guestroom (3 pax)	700.00
Hostel family room (8 pax)	3,500.00
Islands	
Nipa Huts (2 pax)	1,000.00
VIP Guesthouse (8 pax)	4,000.00

Basis:

1. For facilities at Islands: Mean WTP of respondents
2. For Lucap Hostel: Average rates of privately owned Lucap facilities

Table 40 Projected Annual Revenues With Increased Rates
 (Assumption: Constant Number of Users, Based on 1998 Figures)

Facility	Rate (PhP)	No. of Users	Revenues (PhP)
Lucap Facilities			
Bath house	10.00	30,869	308,690.00
Souvenir Stalls	480.00	7	3,360.00
Hostel			
Aircon guestroom	2,600.00	166	431,600.00
Non-aircon guestroom	700.00	56	39,200.00
Family Room	3,500.00	40	140,000.00
Islands			
Pavilion	500.00	165	82,500.00
Picnic Tables	75.00	3,319	248,925.00
Picnic Sheds	150.00	804	120,600.00
Lodging			
Nipa Huts	1,000.00	368	368,000.00
VIP Guesthouse	4,000.00	119	476,000.00
Entrance Fees	10.00	92,220	922,200.00
TOTAL			3,141,075.00
<i>Increase over 1998 Revenues</i>			<i>245%</i>

Note: As of April 1999, PTA has already increased rates for bath house, pavilion, picnic tables, picnic sheds and entrance fees accordingly.

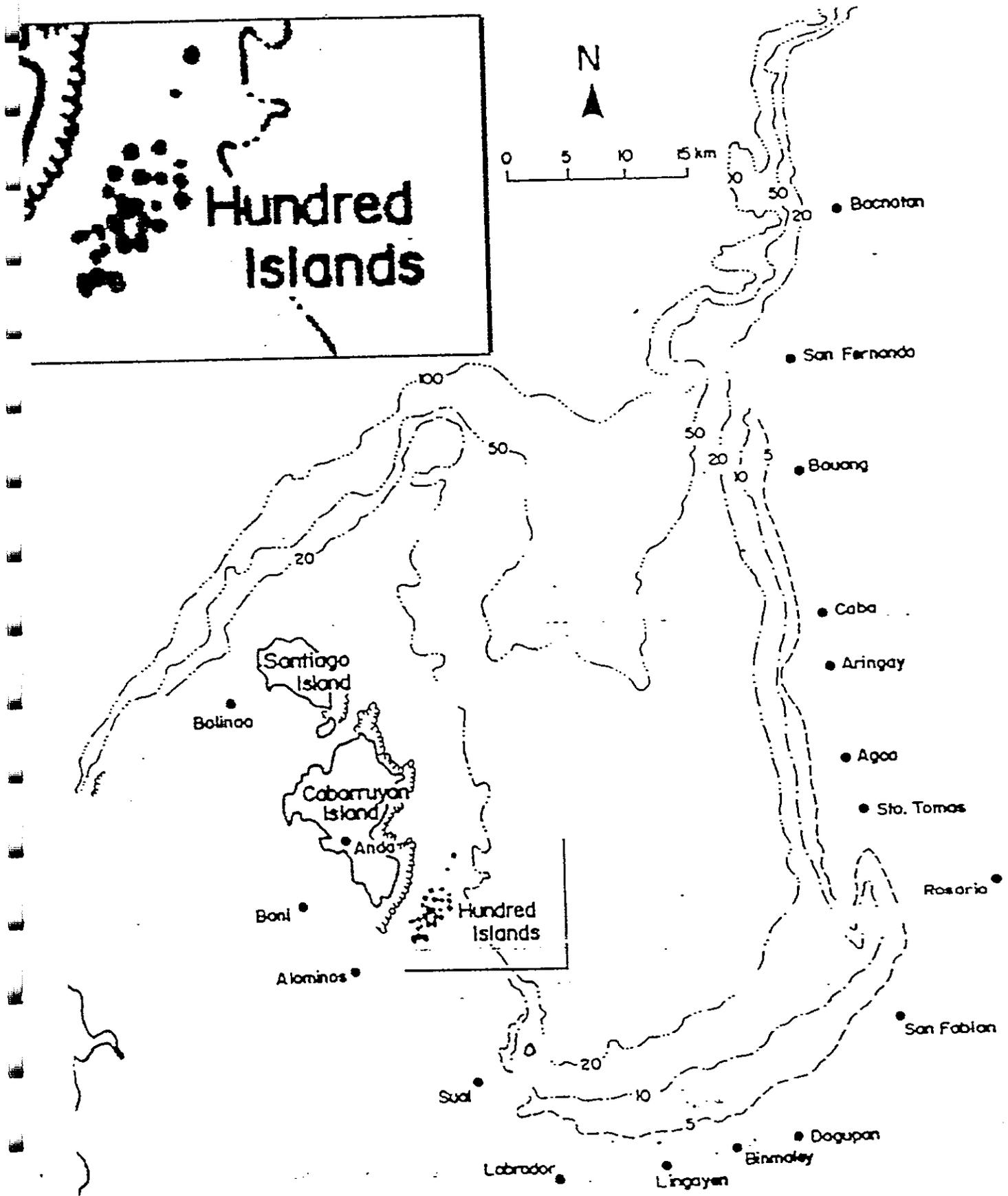


Figure 1. Lingayen Gulf Map

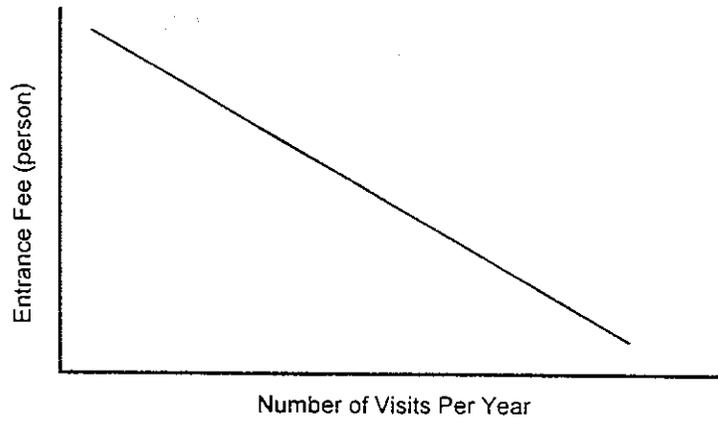


Figure 2 Recreational Demand Curve



Figure 3. Interviewing Visitors at HINP

Appendix A

PROPOSED FEES SYSTEM GUIDELINES

SUBJECT : GUIDELINES AND PRINCIPLES IN DETERMINING FEES FOR ACCESS TO AND SUSTAINABLE USE OF RESOURCES IN PROTECTED AREAS

Pursuant to the provisions of Republic Act 7586 otherwise known as the National Integrated Protected Areas System (NIPAS) Act of 1992 and its Implementing Rules and Regulations, and in order to provide guidelines and principles in accessing and sustainably using resources in protected areas, this Order is hereby issued for the guidance of all concerned.

SECTION 1. TITLE - This Administrative Order shall be known as "Guidelines and Principles in Determining Fees for Access to and Sustainable Use of Resources in Protected Areas"

SECTION 2. OBJECTIVES - It shall be the objective of this Order to set forth the procedure which DENR through the Protected Areas and Wildlife Bureau (PAWB) and the Protected Area Management Boards (PAMBs) shall follow in determining fees for access to and sustainable use of resources located in protected areas for recreational, commercial, subsistence and all other purposes.

SECTION 3. SCOPE - This Order shall cover identified major uses of all resources and facilities in areas comprising the National Integrated Protected Areas System (NIPAS).

SECTION 4. DEFINITION OF TERMS - For the purpose of this Order, the following terms shall mean as follows:

- a. **Resources** - include all living and non-living, renewable or non-renewable, terrestrial, aquatic or both, surface or subsoil resources found within protected areas.
- b. **Development of Land and Other Resources** - involves all forms of improvement or enhancement of land and other resources within a protected area for any purpose.
- c. **Extractive Use** - is the use of resources involving gathering, tapping, diverting, or any form of removal of resources within the designated multiple use zone, sustainable use zone and buffer zone.
- d. **Recreational Use** - is the use of resources for the primary purpose of personal enjoyment but which does not entail any form of extraction, except, for example, in recreational or sports fishing where a regulated number of fish may be taken.

- e. **Subsistence Use** - is the use of resources to satisfy the minimum basic requirements of households of indigenous cultural communities and tenured migrants including but not limited to food, dwelling, clothing, medical assistance and recreation.
- f. **Commercial Use** - is the use of resources in excess of subsistence use.
- g. **Indigenous Cultural Communities/ Indigenous People (ICCs/IPs)** - refer to a group of people or homogenous societies identified by self-ascription and ascription by others, who have continuously lived as organized community on communally bounded and defined territory, and who have, under claims of ownership since time immemorial, occupied, possessed and utilized such territories, sharing common bonds of language, customs, traditions and other distinctive cultural traits, or who have, through resistance to political, social and cultural inroads of colonization, non-indigenous religions and cultures, became historically differentiated from the majority of Filipinos. ICCs/IPs shall likewise include peoples who are regarded as indigenous on account of their descent from the populations which inhabited the country, at the time of conquest or colonization, or at the time of inroads of non-indigenous religions and cultures, or the establishment of present state boundaries, who retain some or all of their own social, economic, cultural and political institutions, but who may have been displaced from their traditional domains or who may have resettled outside their ancestral domains (RA 8371).
- h. **Tenured Migrants** - or communities within protected areas are those who have actually and continuously occupied such area five (5) years before the designation of such as protected area in accordance with the NIPAS Act and are solely dependent on the resource for subsistence. (RA 7586)
- i. **Marketed Resources** - are resources whose use entail voluntary exchange involving monetary transaction or non-monetary transaction as in the case of barter.
- j. **Non-marketed Resources** - are resources whose use do not entail market transaction.
- k. **Fishing** - is the taking of fishery species from their wild state or habitat, with or without the use of fishing vessels.
- l. **Final consumption** - refers to the use of resources where the resource is no longer used as input to production of other goods or services.
- m. **Carrying capacity** - refers to the ability of the natural or environmental resource to absorb stress without experiencing unacceptable instability and degradation.

SECTION 5. TYPES OF USES – The following are the types of uses of resources in protected areas on which fees shall be assessed or may be applied.

- 5.1 Subsistence uses shall include but not be limited to hunting of wildlife for household consumption, gathering of forest products for house construction, agriculture or fish culture to raise crops or fish for household consumption. Subsistence uses shall apply to indigenous cultural communities and tenured migrants only.

- 5.2 Recreational uses shall include but not be limited to: a) water-based activities such as snorkelling, scuba diving, swimming, boating; b) land-based activities such as mountain climbing, trekking, picnicking, and bird watching; c) either land- or water-based activities such as filming and photography; and d) all other similar activities.
- 5.3 Extractive uses shall include but not be limited to: a) extraction or diversion of water for irrigation or domestic uses; b) collection or gathering of forest products such as vines, rattan, bamboo, resin, ornamental plants, bird nest, guano; c) collection of wildlife such as monkeys, wild pigs, butterfly, honey; d) extraction of flora and fauna and its by-products, parts and derivatives, including, but not limited to leaves, blood and samples; e) fishing either in small-scale or commercial scale.
- 5.4 The development of land and other resources for commercial uses shall be categorized in terms of capital investment of each development project into the following in accordance with Department of Trade and Industry (DTI) guidelines: small-scale; medium-scale; and others. The current estimate of investment required for each development are as follows: 150,000 pesos and below for micro-scale; 150,000 pesos to 1.5 million pesos for cottage; above 1.5 million pesos to 15 million pesos for small; above 15 million pesos to 60 million pesos for medium; and above 60 million pesos for others.

The development of land and other resources shall include but not be limited to the following: kiosks for vending food and souvenir items; restaurants; shops for rental of recreational equipment such as boats; fishpens and fishcages; tapping of geothermal energy or impounding of water for electric power generation and for any other purpose; construction of tourist facilities with lodging facilities; construction of highways, relay stations and similar communication or transportation structure.

SECTION 6. TYPES OF FEES

- 6.1 Protected Area Entrance Fee - is a fee paid to enter a protected area for recreational purposes.
- 6.2 Protected Area User Fee - is a fee paid for the privilege of using man-made facilities inside a protected area.
- 6.3 Resource User Fee - is a fee paid for the sustainable commercial use of a specified quantity of resources within a protected area over a specified period of time.
- 6.4 Concession charge - is a fee paid for the use of land or other resources or the privilege of undertaking micro-scale and cottage-scale development. The concession charge is for a specified period of time and for a specific nature of development. The concession is granted to a person or entity.
- 6.5 Development Fee - is a fee paid for the use of land or other resources or the privilege of undertaking small-scale, medium-scale and other bigger scale development in protected areas for whatever purpose. The fee is for a specified

period of time and for a specific nature of development. The privilege is granted to a person or entity.

- 6.6 Royalty may be defined as a fee paid based on the gross output value or gross sales from products out of resources derived from a protected area.

SECTION 7. OVERRIDING PRINCIPLES IN THE UTILIZATION OF RESOURCES IN PROTECTED AREAS.

- 7.1 Sustainability is the overriding consideration in determining all types and rates of use of all resources in protected areas. Sustainable use shall be operationalized as follows:
- a. For the extraction of renewable resources such as forest flora and fauna and other forest products, surface and ground water, fisheries, geothermal energy and similar resources, sustainable use shall be the rate of extraction that is lower than either the rate of regeneration or the rate that shall not endanger life forms inside the protected area. The rate of use shall be within the carrying capacity of the protected area and its immediate surroundings when taken individually or collectively or in relation to other uses of the area.
 - b. Any development of land and other resources in a protected area shall not alter the landscape and shall not significantly disrupt normal ecological functions and processes.
 - c. The recreational use of resources for tourism, for filming or photography, shall preserve the natural landscape and shall not put significant stress on living resources by considering the carrying capacity of the protected area. Any form of use shall preserve the socio-economic and cultural aspect of the area.
 - d. In the process of resource utilization, the introduction of substances or chemicals harmful to the environment shall not be allowed.
- 7.2 Subsistence use of resources by IPs and tenured migrants shall be exempt from the payment of user fees.
- 7.3 Pending the issuance of certification by the National Commission on Indigenous People (NCIP) in accordance to the Indigenous Peoples Rights Act (IPRA), IPs in protected areas shall be given preferential access to and be levied lower fees for the commercial extraction of allowable resources in protected areas.
- 7.4 Prior to the full implementation/operation of the IPRA Law, free and informed prior consent from indigenous people shall be sought in the gathering of biological and other resources within protected areas.
- 7.5 The collection and research of biological and genetic resources in protected areas for scientific and/or related purposes shall be governed by the provisions of Executive Order No. 247 and its implementing rules and regulations.

SECTION 8. SPECIFIC GUIDELINES AND PRINCIPLES IN DETERMINING FEES - One or more guidelines and/or principles may be employed in determining fees based on the following: a) capability to approximate closely the correct fee; b) availability of data as basis for computations; and c) costs to be incurred in estimating the fee.

8.1 Protected Area Entrance Fees and User Fees

Guidelines

- a. Protected Area Entrance Fees shall cover access to the natural attractions of the protected area. If applicable, an additional Protected Area User Fee shall cover access to and the use of man-made facilities in the protected area.
- b. For Protected Area Entrance Fees, the willingness-to-pay principle shall be the priority basis for computing fees. However, if information is not available, the cost-recovery principle shall be the basis of computation.
- c. For Protected Area User Fees on man-made facilities managed by private entities, these shall be determined by the private entity but shall be comparable to fees for the use of similar facilities in a comparable location. All Protected Area User Fees shall be determined in consultation with the PAMB.
- d. For Protected Area User Fees on man-made facilities managed by the government, these shall be determined using the cost-recovery principle but shall be comparable to the fees for the use of privately managed facilities with similar characteristics.
- e. A three-tiered system of Protected Area Entrance Fees shall be developed: lower rates for Filipino students and senior citizens; normal rates for other Filipino visitors; higher rates for all foreign visitors.

Specific Principles

- a. Cost-recovery principle. For Protected Area Entrance Fees, collected revenues shall cover, as much as possible, all costs incurred in protecting, maintaining and enhancing the natural attractions of the protected area. For Protected Area User Fees, collected revenues shall cover, as much as possible, a reasonable proportion of all costs incurred in providing and maintaining the man-made facilities in the protected area.
- b. Willingness-to-pay principle. For Protected Area Entrance Fees, these shall be based on the willingness-to-pay estimates of the visitors based on appropriate surveys.

8.2 Resource User Fees, Development Fees and Concession Charges

Guidelines and Principles

- a. The PAMB shall, to the extent feasible, enter into co-production, joint venture or production-sharing agreements with interested parties in the commercial extraction and/or development of resources in protected areas.
- b. The government share of the protected area in these agreements shall be a reasonable proportion of the excess profits derived from the commercial extraction of resources.
- c. All types of development are required to undergo the EIA system as prescribed by PD 1586 and other pertinent laws and regulations.

8.3 Royalty

Guideline and Principle

For any use of resources that results in the sale of goods or services where the value of total sales can be easily monitored, the resource fee may be based on royalty.

SECTION 9. OTHER PROVISIONS

- 9.1 The computation of the excess profit shall be guided by the formula specified in the technical annex. The corresponding government share from the excess profit shall be determined consistently with the appropriate instrument agreed upon by the contracting parties.
- 9.2 The rate of subsistence use shall be specified for each resource and where possible, for each household of indigenous people and tenured migrants. Such rate shall be in accordance with the rural annual per capita threshold income by region which is determined by the National Economic and Development Authority (NEDA). The subsistence rate of use shall be indicated explicitly in the rights of indigenous peoples and in the tenure instruments granted to tenured migrant communities in protected areas and shall be updated in accordance with the NEDA guidelines.
- 9.3 The classification of development projects in protected areas in terms of investments shall be updated in accordance with DTI guidelines.
- 9.4 The guidelines and principles enumerated herein shall be elaborated and operationalized in a handbook that shall be developed after pilot-testing in a sufficient number of protected areas.

SECTION 10. RESPONSIBILITIES OF PAWB AND PAMB

10.1 PAWB shall:

- a. take the lead in pilot-testing these guidelines and principles in key resources and uses in collaboration with the PAMBs and DENR field offices;

- b. develop a manual to be used by PAMBs in the implementation of the guidelines and principles after pilot testing in a sufficient number of areas;
- c. assist the PAMBs to operationalize the manual; and
- d. assist in providing experts required by the PAMBs in the implementation of the guidelines and principles.

10.2 PAMB shall:

- a. collaborate with PAWB in the pilot testing of the guidelines and principles;
- b. be guided by the manual developed by PAWB in implementing the guidelines and principles;
- c. approve all types of uses of resources in a protected area through a Memorandum of Agreement with the concerned entity;
- d. conduct public consultations/ dialogues with interested parties on proposed fees;
- e. formulate and pass all resolutions required to enable and facilitate the collection of fees; and
- f. determine through consultations with indigenous people the traditional uses of resources within protected areas.

This Order shall take effect fifteen (15) days after publication and revokes, supersedes, and amends any order and/or instructions inconsistent herewith.

ANTONIO CERILLES
Secretary

TECHNICAL ANNEX

A. COMPUTATION OF EXCESS PROFIT

The excess profit per year that arises from a natural resource-based activity shall be computed using the following formula.

$$\begin{aligned} \text{Excess Profit} = & \text{gross sales (GS) of natural resource-based product or service} \\ & \text{less cost of production} \\ & \text{less margin for profit} \\ & \text{less margin for risk} \end{aligned}$$

where: GS = (quantity of product or service) x (farm-gate price)

Cost of Production includes:

- payment for wages;
- material costs, e.g., gasoline;
- rentals for equipment, buildings, etc.;
- depreciation; and
- payments for taxes normally paid by any business enterprise (e.g., income taxes, permit fees, etc.).

Margin for Profit = normal return to entrepreneurial capital,
usually determined through prevailing conditions in the financial market

Margin for Risk = a premium to cover losses from natural calamities and other causes

The margin for profit and risk shall be set at a maximum of 30% of the total cost of production.

B. COMPUTATION OF WILLINGNESS-TO-PAY

The willingness-to-pay for a natural resource good or service shall be computed from appropriate surveys employing accepted economic tools such as travel cost method or the contingent valuation method. These surveys shall arrive at an estimate of the willingness-to-pay for a natural resource good or service taking into account factors such as income, education, occupation, and nationality, among others.

Study Team for the Field Surveys

Protected Areas and Wildlife Bureau

- | | |
|-----------------------|--|
| 1. Angie Meñado | Officer-in-Charge, Biodiversity Division |
| 2. Teresita Blastique | Senior Environmental Management Specialist |
| 3. Sarah Jane Cabrera | Computer Programmer II |

Planning and Policy Studies Office-DENR Central Office

- | | |
|--------------|--------------------------------|
| 4. Ruby Buen | Development Management Officer |
|--------------|--------------------------------|

Environmental and Natural Resources Accounting Project Phase IV-B

- | | |
|--------------------------|------------------------|
| 5. Jose E. Padilla | Deputy Project Leader |
| 6. Rina Maria P. Rosales | Research Associate |
| 7. Sarkhan Baun | Research Assistant |
| 8. Magdalena Mendoza | Contractual enumerator |
| 9. Isabel Mendoza | Contractual enumerator |
| 10. Bernardo Batayola | Driver |

SURVEY OF TOURISTS AT HUNDRED ISLANDS NATIONAL PARK

BACKGROUND:

The National Integrated Protected Areas System, or NIPAS ACT, was passed as a law by Congress on June 1, 1992. Hundred Islands National Park (HINP) is one of the identified initial components of NIPAS. HINP is currently managed by the Philippine Tourism Authority (PTA). Recently, the Protected Area Management Board (PAMB), composed of government and non-government representatives, was organized to make policies for managing the protected area.

Section 10 of the NIPAS Act states that the DENR Secretary can fix and prescribe NIPAS fees from people deriving benefits from protected areas. In turn, the funds will be used for the operational and monitoring activities in the protected area.

The Environmental and Natural Resources Accounting Project (ENRAP) is conducting a survey to determine the willingness of tourists to pay for accessing the beach and coral reefs of Hundred Islands National Park.

The objective of the survey is to include public opinions in decisions to manage the Hundred Islands National Park.

1. Please check the activities that you participate in and around every tourist spot in the Philippines:

ACTIVITY	Hundred Islands National Park	<u>Substitute Site 1</u>	<u>Substitute Site 2</u>	<u>Substitute Site 3</u>	<u>Substitute Site 4</u>	<u>Substitute Site 5</u>
Game Fishing						
Island Hopping						
Swimming/Sunbathing						
Beachcombing/Walking						
Picnicking						
Snorkeling/Scuba Diving						
Jetskiing						
Boating						
Other Activities, specify						

Why did you choose HINP over other sites for this visit?

II. RATING OF FACILITIES

A. Please indicate the degree of satisfaction with the services within the Park during the present trip.

<i>Service</i>	<i>Degree of Satisfaction</i>					<i>Comments/ Suggestions</i>
	<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>	<i>Not Used</i>	
Lodging						
Toilet Facilities						
Picnic Sheds/Tables						
Pavilion						
Water Supply						
Availability of litter bins						
Cleanliness						
Boat rides						
Personal safety						
Peace and quiet						
Others (specify)						

B. Please indicate the degree of satisfaction with the services at Lucap Point during the present trip.

Service	Degree of Satisfaction					Comments/ Suggestions
	Excellent	Good	Fair	Poor	Not Used	
Lodging						
Public Toilet Facilities						
Restaurants						
Water Supply						
Availability of litter bins						
Cleanliness						
Information Center <ul style="list-style-type: none"> • service • availability of information 						
Personal safety						
Peace and quiet						
Others (specify)						

III. PROTECTION OF HUNDRED ISLANDS NATIONAL PARK

› The NIPAS Act mandates the collection of entrance fees for access to and use of facilities inside protected areas in the country. The fees will be used for the operation expenses, improvement of services and protection of the area.

1. a) Are you involved in any monitoring or protection activities for HINP or any other protected area in the country? *Yes* *No*

b) If yes, how often do you participate in these activities?

more than once a week

once a week

more than once a month

once a month

more than once a year

once a year

2. How concerned are you about protecting the Hundred Islands National Park?

no opinion *not concerned* *a little concerned* *very concerned*

3. The following actions would affect water quality in HINP. Please indicate how strongly you support or oppose each action, by circling a number for each one.

1 = strongly support

3 = neutral

5 = strongly oppose

2 = support

4 = oppose

NA = no opinion

Better enforcement of existing regulations	1	2	3	4	5	NA
Zoning to guide present use and future development	1	2	3	4	5	NA
Construct new amenities for tourists	1	2	3	4	5	NA
Require repair or upgrade of septic systems in the area	1	2	3	4	5	NA
Restrict fishing in the HINP area	1	2	3	4	5	NA
Dismantling of all fishpens in the HINP area	1	2	3	4	5	NA
Introduce entrance fees to support programs for protecting Hundred Islands National Park	1	2	3	4	5	NA
Public education to teach people how to reduce their impacts on the environment	1	2	3	4	5	NA

IV. MEASUREMENT OF WILLINGNESS-TO-PAY

1. Current Level of Services and Facilities

- a) Assume that the Park services and facilities remain at their current level. If the PTA needs to increase the entrance fees paid by both local and foreign visitors, are you willing to pay the increased entrance fee per person per day?

YES, I am willing to pay a maximum of PhP .
At this rate, how many times will you visit HINP in 1998? times

NO, the entrance fee should remain the same because

2. Improvement of Facilities and Services

- a) Assume that the PTA and PAMB plan to make improvements in the following:
Collection of litter and general cleanliness in the Park
Maps and information
Upgrading of facilities
Enforcement of environmental rules and regulations

To make these improvements, the authorities need to increase the Park entrance fees. Would you be willing to pay the increased entrance fee, and if so, what is the maximum amount you would be willing to pay per person per day?

YES, I am willing to pay a maximum of PhP .
At this rate, how many times will you visit HINP in 1998? times

NO, the entrance fee should remain the same because

- 3. Assume that the PTA and PAMB are planning to provide new facilities on the islands. To do this, they may have to implement user charges for these facilities. Please indicate which of the following facilities you intend to use and if you would be willing to pay user fees for them.

Facilities	Will Use	Maximum Amount You Are Willing to Pay	Not Willing to Pay
More lodging rooms			
Shower rooms			
Lockers			
Restaurants			
Convenience stores			
More picnic tables/ sheds			
Water Supply			
More camping sites			
More barbecue pits			
Diving/snorkeling equipment			
First Aid			
Lifeguard			

V. TRAVEL INFORMATION

1. What is the purpose of your visit to the Hundred Islands National Park?

beach/diving/recreation cultural visit research/study
 visit family & friends business others (specify) _____

2. How long are you staying? ___ days

3. a) Are you here on package tour? ___ Yes ___ No
 b) If yes, how much does the package cost per person? *Php* _____

4. a) Did you come straight from your residence? ___ Yes ___ No
 b) If no, where did you come from? Please list down all places from the time you left your residence.

Location: _____ *No. of days:* _____

c) Are you planning to go to another place aside from your residence right after here?
 ___ yes ___ no

d) If yes, where and how long? Please list down all places until the time you go back to your residence.

Location: _____ *No. of days:* _____

5. a) What is the approximate distance from your place of residence to Hundred Islands National Park? ___ km.

b) How long will it take you to get here? ___ hours ___ minutes

6. What means of transportation did you use? **Please check all that apply.**

Own car *Airplane* *Bus* *Tricycle*
 Boat *Jeep* *Hired vehicle*

7. Are you with (indicate **no. of persons including yourself**):

whole family *some family members* *extended family*
 friends *office peers*

8. How much did you spend for a one-way trip from your residence? **Please indicate amount per item.**

gasoline *vehicle rental*
 toll fees *plane/bus fare*
 accommodations *food*
 others (please specify)

9. Who paid for the trip expenses? **Please indicate either amount or percentage of total expenses in item 8.**

yourself *spouse* *office* *friend/s*
 parents *children* *relative/s* *others (pls. specify)*

10. Which facilities do you intend to use and pay for? **Please indicate the maximum amount you intend to spend for each category.**

Park entrance fees *boat*
 overnight accommodations *snorkeling equipment*
 one-day picnic sheds *others (specify facility/ies)*

11. Who will pay for the use of the facilities? **Please indicate either amount or percentage of total expenses for use of the facilities.**

yourself *spouse* *office* *others*
 parents *friend/s* *relative/s*

12. a) Did you bring your own food? *yes* *no*

b) If yes, how much did you spend for food? *PhP* _____

c) If no, how much do you intend to spend for food at the site? *PhP* _____

d) Who paid/ will pay for the food expenses? **Please indicate either amount or percentage of total expenses for use of the facilities.**

yourself *spouse* *office* *others*
 parents *friend/s* *relative/s*

13. a) How many times did you visit Hundred Islands from January 1997, including this trip? _____ *times*

b) How long did you stay for each trip? _____ *days*

14. a) Do you plan to come back to Hundred Islands? _____ *yes* _____ *no*

b) If yes, how many times within:

_____ *next month* _____ *w/in 3 months* _____ *w/in 6 months*
_____ *next year* _____ *later*

15. How often do you travel to beach resorts in the Phil. or abroad within a year?

_____ *never* _____ *once* _____ *twice* _____ *three times* _____ *more than 3X*

VI. PROFILE OF THE RESPONDENT

• Do you: _____ *own your home?* _____ *rent?*

• Where is your home located? _____

• How long have you lived at your present residence? _____ *yrs.* _____ *mos.*

• Are you: _____ *male* or _____ *female?*

• What is your civil status?

_____ *Single* _____ *Married* _____ *Widowed* _____ *Separated*

• Including yourself, how many people live in your household? _____

• How many people under age 18 live in your household? _____

• How old are you? _____ *Years*

• What is the highest level of education you have attained? _____

What is your field of discipline? _____

• Are you employed? _____ *Yes* _____ *No*

If yes: _____ *full* or _____ *part-time?*

In what industry? _____

If no: are you currently enrolled in school? _____ *Yes* _____ *Level;* _____ *No*

• Do you own your business? _____ *Yes* _____ *No*

• What is your *monthly income before taxes*? *PhP* _____

- | | |
|-----------------------|-----------------------|
| _____ Below 3,000 | _____ 16,001 - 20,000 |
| _____ 3,000 - 5,000 | _____ 20,001 - 25,000 |
| _____ 5,001 - 8,000 | _____ 25,001 - 35,000 |
| _____ 8,001 - 12,000 | _____ 35,001 - 50,000 |
| _____ 12,001 - 16,000 | _____ Above 50,000 |

• Including yourself and all other income earners in the household, what is the *total household monthly income before taxes*? *PhP* _____

- | | |
|-----------------------|-----------------------|
| _____ Below 3,000 | _____ 16,001 - 20,000 |
| _____ 3,000 - 5,000 | _____ 20,001 - 25,000 |
| _____ 5,001 - 8,000 | _____ 25,001 - 35,000 |
| _____ 8,001 - 12,000 | _____ 35,001 - 50,000 |
| _____ 12,001 - 16,000 | _____ Above 50,000 |

• Are you a member of any organization? _____ *Yes* _____ *No*

• If yes, which one/s? _____

• Do you have any more suggestions for improvement of facilities and/or services at HINP?

• Do you have any other comments?

THANK YOU VERY MUCH FOR YOUR TIME.

To be answered by the Interviewer After the Interview:

Name of Interviewer: _____

Date of Interview: _____

Time of Interview: _____

1. Please indicate the degree of cooperation of the interviewee:

_____ *Very Cooperative*

_____ *Cooperative*

_____ *Indifferent*

_____ *Not Cooperative*

2. Were other people answering together with the interviewee?

_____ *Yes*

_____ *No*

3. Other comments/notes of the interviewer:

Econometric Models in Estimating WTP

I. Contingent Valuation Method: Estimating the WTP Function

In most CVM studies using an open-ended format, the WTP responses are usually confronted with a censored data problem. This type of data precludes the use of Ordinary Least Squares (OLS) procedure because OLS does not account for qualitative differences between those observations at the limit ($Y=0$) and the unlimited ones ($Y>0$) (Greene, 1993). The recommended analytical approach of analyzing censored data is the use of the Tobit model (Halstead et al. 1991). This model is considered more theoretically correct in analyzing WTP data sets with large number of zero bids, or when the dependent variable is censored, i.e., no bids below 0 are allowed in this case. The maximum likelihood estimation of the Tobit model provides unbiased and consistent parameter estimates than OLS estimation when the dependent variable is censored (Tobin, 1958; Maddala, 1983). Thus, this approach is employed to estimate the WTP function in general, and to test the factors that are hypothesized to affect WTP for entrance fee increase at current and improved level of services of HINP in particular.

The Tobit model is given as:

$$\begin{aligned}
 Y_i &= X_i\beta && \text{if } X_i\beta + u_i > 0 \\
 &= 0 && \text{otherwise if } X_i\beta + u_i \leq 0
 \end{aligned} \tag{2}$$

$i = 1, 2, \dots, n$

where Y_i is the dependent variable (WTP); X_i is a vector of explanatory variables; β is a vector of unknown coefficients; u_i is an independently distributed error term assumed to be normal with zero mean and a constant variance σ^2 ; N is the number of observations. Thus, the model assumes that there is an underlying stochastic index equal to $(X_i\beta + u_i)$ which is observed only when it is positive, and hence qualifies as an unobserved, latent variable.

The expected value of Y in the Tobit model is (Tobin, 1958)

$$E(Y) = X\beta F(z) + \sigma f(z), \tag{3}$$

where $z = X\beta/\sigma$ is the normalized Tobit index; $f(z)$ is the unit normal density function of a normal, random variable; $F(z)$ is the cumulative normal distribution function; σ is the standard error of Tobit regression. The unknown β , and σ parameters were estimated using the maximum likelihood estimation procedure.

Furthermore, the expected value of Y for observations above the limit, Y^* , is simply $X\beta$ plus the expected value of the truncated normal error term (Amemiya, 1973):

$$E(Y^*) = X\beta + \sigma f(z)/F(z) \tag{4}$$

The Tobit coefficients cannot necessarily be treated as estimates of the change in the dependent variable from a unit increase in the independent variable. In censored regression models, however, the marginal effect in Y for any given change in X was determined using the equation (Maddala, 1983; Greene, 1993):

$$\partial E(Y/X)/\partial X = \Phi(X\beta/\sigma)\beta = F(z)\beta \quad (5)$$

Thus, in order to interpret the estimated coefficients, they need to be transformed. The coefficients need to be multiplied by the cumulative normal distribution function [$F(z)$ or $F(X\beta/\sigma)$] to give the total change [$\partial E(Y)/\partial X_i$] indicating the effect of a unit change in any independent variable on the dependent variable, *ceteris paribus*.

The above marginal effect, which is referred to as the slope, is decomposed into two components as suggested by McDonald and Moffitt (1980) to obtain: (1) the change in Y of those above the limit, weighted by the probability of being above the limit; and (2) the change in probability of being above the limit, weighted by the conditional mean. For this study, the marginal effect is disaggregated into the marginal change in the WTP given a one unit change in the independent variable for those respondents indicating a positive WTP bid (i.e., above the limit) represented by the coefficient $\partial E(Y^*)/\partial X_i$, and the percentage change in probability of a positive WTP bid (by zero bidders) given a change of one unit in the explanatory variables, which is equivalent to $f(z)\beta/\sigma$. The decomposition of slope is derived from the following equation:

$$\partial E(Y)/\partial X_i = F(z)(\partial E(Y^*)/\partial X_i) + E(Y^*)(\partial F(z)/\partial X_i) = F(z)\beta \quad (6)$$

These derivatives were evaluated at the mean of all characteristics of the sample. The relative magnitude of these two quantities is an important indicator with substantive implication for environmental quality protection.

Tobit Model Estimation and Evaluation

Tobit regression analysis was done through the maximum likelihood estimation technique using LIMDEP 7 for Windows 95 (Greene, 1998). Prior to estimation of the willingness to pay model, the data was examined for multicollinearity problems. A simple linear correlation analysis among independent variables was done to measure for the severity of multicollinearity. If the correlation coefficient between the values of two variables is greater than 0.8, then a serious multicollinearity problem exists (Judge et al., 1988). Another method used to detect multicollinearity was through the variance inflation factors. The variance inflation factors are the diagonal elements of the $(X'X)^{-1}$. If any variable is orthogonal to all other explanatory variables, then its inflation factor is 1.0. Multicollinearity exists in some degree if the value of the inflation factor is greater than 1.0, which means that the variable in question is not orthogonal to the rest. According to Judge et al. (1988) an inflation factor of 5.0 or more is an indication of a severe multicollinearity problem.

The model was also evaluated in terms of goodness of fit measures using the likelihood ratio test. This test is used to test the hypothesis that the variables in the model have no effect upon the value of the dependent variable. In other words, the likelihood ratio test whose statistic follows a chi-square distribution is used to test the null hypothesis that all estimated coefficients, excluding the intercept, are zero. Statistically, the null (H_0) and alternative (H_a) hypotheses are denoted as:

Ho: $\beta_1 = \beta_2 = \dots \beta_k = 0$
 Ha: some $\beta_i \neq 0; i = 1, 2, \dots, k$

The test statistic for the above hypothesis is $-2*(L_0 - L_1) \approx \chi^2$ where: L_0 is the value of the maximum likelihood function for the null hypothesis (restricted model), and L_1 is the value of the maximum likelihood function for the full model (unrestricted model). The test statistic follows a χ^2 distribution with k degrees of freedom, where k is the number of parameters in the equation excluding the constant (Pindyck and Rubinfeld, 1981). If the approximated χ^2 value exceeds the critical value for the chi-square distribution with the appropriate degrees of freedom, then Ho is rejected.

Sample Used in Tobit Regression Analysis

Randomly chosen site visitors were interviewed to serve as sample respondents in the study. Of the total 447 respondents, there were about 259 zero bidders and the rest offered positive WTP bids. For the total zero bidders, only 12 respondents are considered protest bidders while the remaining are valid bidders. Since protest bids are thought of as irrelevant in demand estimation, we therefore exclude them in the final sample used in regression analysis. We also exclude those cases (respondents) with listwise missing values for some variables. Thus, the final sample used in regression analysis for HINP at the current level of services was 416 observations. At improved level of services, however, only 415 respondents are included in the final sample because there was an outlier in the WTP bid.

II. Travel Cost Model: Visit Demand Estimation

The sample data in TCM survey were derived from HINP visitors during the conduct of the study. Each visitor was asked the number of visits made to the site for year 1997. An individual may make any number of visits in a year, but most made either one or two, with a few making visits on a weekly or daily basis. Because of this situation, the ITCM dependent variable is considered discrete or count. Since there is no observation available for individuals who do not make any visit, the sample is said to be truncated³. As a result, the dependent variable for the ITCM is truncated to one, i.e., zero visit individuals are necessarily omitted or excluded from the sample. Given the sample included in the study and the type of data gathered from the survey, we used the Truncated Poisson Regression Model to fit the data.

The model is formulated as follows: Define a 'latent' variable, Y , which is the underlying Poisson variable with the following probability (Poisson) distribution:

$$\begin{aligned}
 f_p(Y_i = y_i | \lambda_i) &= \frac{\exp(-\lambda_i)(\lambda_i)^{y_i}}{y_i!} \text{ for } \lambda_i > 0 \\
 &= 0 \text{ otherwise.}
 \end{aligned} \tag{9}$$

where Y_i is the i th observation on the count variable of interest, $y_i = 0, 1, 2, \dots$ are the possible values of Y_i , λ_i is the Poisson parameter to be estimated, and $i = 1, 2, \dots, n$ observations. This has a

³ A truncated sample is one in which the values of the explanatory variables are observed only if the value of the dependent variable is observed (Judge et al, 1988). For ITCM, the data were gathered only on individuals who actually visit the site in a given time period.

one-parameter distribution with mean and variance of Y_i equal to λ_i . In a count regression model, let the expected count, $E(Y_i) \equiv \lambda_i$, to vary according to:

$$\lambda_i = \exp(\beta'x_i) \Rightarrow \ln\lambda_i = \beta'x_i \quad (10)$$

where x_i and β are conformable vectors of exogenous variables and parameters, respectively. The log-likelihood function, reduced to sufficient statistics, for this standard Poisson regression model can be written as:

$$\ln L = \sum \{-\lambda_i + y_i(\beta'x_i)\}, \quad (11)$$

where \sum is the summation from $i = 1$ to n . However, for count data truncated on the left at the value of zero, the common statistical structure of truncated estimators is the probability of observing Y_i , given that it exceeds a truncation point, say, c (Grogger and Carson, 1991; Gomez and Ozuna, 1993). This concept can be written in terms of probability distribution functions as:

$$f_c(Y_i) = \frac{f_p(Y_i)}{1 - F_p(c)}, \quad (12)$$

where $f_c(Y_i)$ is the truncated probability function above the truncation point c , $f_p(Y_i)$ is the probability function and $F_p(c)$ represents the distribution function evaluated at the truncation point c .

Following Grogger and Carson (1991), the maximum likelihood estimator can be obtained by applying a suitable discrete probability function to the condition probability found in equation (9). For the case of Poisson distribution truncated at zero, the probability function can be expressed as:

$$f_{cp}(Y_i = y_i | \lambda_i, Y_i > 0) = \frac{\exp(-\lambda_i)(\lambda_i)^{y_i}}{y_i!} [1 - F_p(0)]^{-1} \quad (13)$$

where $i = 1, 2, \dots, m$ observations ($m < n$), $y_i = \min[y, t]$ is the observed variable composed of positive integer values larger than 0 and $F_p(0)$ is the probability distribution of the basic Poisson model evaluated at zero. The first part on the right hand side of equation (13) is the probability density function of the standard Poisson model and the second part accounts for the unobserved zeroes.

Greene (1998) also shows the general probability function for a truncated distribution from below, for instance, at a value c and that the distribution of y_s applies only to values above c . Thus, equation (13) can also be written as:

$$\text{Prob}[Y_i = y_i | y_i > c] = \frac{\exp(-\lambda_i)\lambda_i^{y_i} / y_i!}{\text{Prob}[y_i > c]}, \text{ for } y_i = c + 1, c + 2, \dots \quad (14)$$

where c is a known integer, which is zero in this case. For computational purposes, the distribution function is reduced to $\text{Prob}[y_i > c] = 1 - \text{Prob}[y_i \leq c]$.

The log-likelihood for this model (reduced to sufficient statistics) is simply:

$$\ln L = \sum \{y_i(\beta'x_i) - \ln[\exp(\beta'x_i) + 1]\}, \quad (15)$$

where \sum is the summation from $i = 1, 2, \dots, m$ observation (i.e., truncated sample). Consistent parameter estimates for equation (15) can be obtained through the use of Newton's method of approximation.