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Estimating Demand for Turtle Conservation at the Rekawa Sanctuary in Sri Lanka

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Contents

Abstract

Turtles at the Rekawa sanctuary in Sri Lanka are under threat due to ongoing illegal activities such as killing turtles for meat, egg collection for sale, and the use of turtle shells to make products for markets. This study estimates the entrance fee that can be charged to visitors for 'turtle watching' to ascertain whether revenues from such fees can be used to compensate fishermen and reduce such illegal activities. We carried out a contingent valuation study at the Rekawa sanctuary and Bundala and Yala national parks to examine the foreign and local visitors' willingness to pay (WTP) for turtle conservation under two different management scenarios. Scenario 1 sought to ascertain visitor preferences if visitor services were improved, while Scenario 2 focused on both visitor services and potential conservation initiatives. The findings suggest that a majority (63%) of visitors are willing to pay an entrance fee, which can be used for protecting turtles and improving visitor facilities at Rekawa. The estimated mean WTP per visit for local visitors was LKR 93 (USD 0.73) and LKR 143 (USD 1.12) for Scenarios 1 and 2, respectively, while the mean WTP of foreign visitors was USD 15 and USD 19 for Scenarios 1 and 2, respectively. Further, if we implement scenarios 1 and 2, annual revenue would increase by LKR 70 million and LKR 50 million respectively. These results, which suggest potentially huge gains in revenue, can be used to re-design entry fees for the Rekawa sanctuary and secure the cooperation of low-income fishermen in turtle conservation.

Key words

Turtles, Willingness to pay, Revenue changes, Turtle watching, Conservation, Rekawa, Sri Lanka

Estimating Demand for Turtle Conservation at the Rekawa Sanctuary in Sri Lanka

1. Introduction

Marine turtles have been roaming the oceans for about 190 million years, although only seven species are known to be living today. Of these seven, Sri Lanka is host to five species. These turtles regularly nest on sandy beaches that stretch across Induruwa to Yala on the southwestern coast, and, Kandakuliya in Puttalam district, on the southeastern coast (IUCN, 2005) (see Figure 1)[1]. The sea turtle is an important key stone species, significant for maintaining marine ecological balance and for monitoring environmental changes (IUCN, 2005; Jin et al., 2010). For humans, turtles offer an additional benefit in the form of wildlife recreational value.

Biodiversity conservation and preservation of animal species requires protection of individual species as well as their habitats. Conservation is not easy because it can be costly to different stakeholders. Nonetheless, understanding and measuring the tangible costs of conservation, is relatively straight-forward (Chambers and Whitehead, 2003). What is more challenging is the estimation of benefits from endangered species conservation, particularly benefits such as ecological balance, nutrient cycling, etc. that are not traded in markets (Freeman, 2003).Yet, in order to ensure that any species protection program is successful, it is important to identify costs relative to economic benefits. In this context, our paper focuses on estimating the benefits of conserving the endangered marine turtles of Sri Lanka.

Since 1979, marine turtles as well as products made from turtle body parts have been fully protected under Sri Lanka's Fauna and Flora Protection Ordinance, with anyone found guilty of violation receiving a jail sentence in addition to a fine.[2] Further, Sri Lanka is signatory to CITES (Convention on International Trade in Endangered Species), which prohibits member nations from exporting or importing turtles or any products from turtle body parts (IUCN, 2005). Yet, because local Sri Lankans are dependent on turtles to meet livelihood needs, turtle conservation is difficult. For some low-income families of the fisher community, turtle meat, shells and eggs constitute their only sources of income, with members of the community either consuming or selling turtle meat and eggs (IUCN, 2005). Eggs are often sold to illegal turtle hatcheries and where turtles become over aged.[3] According to Wyneken (2000), for sea turtles, hatcheries are among the most commonly employed management tools throughout the world. In some cases, hatchlings are maintained in hatcheries/captivity for a period of time before being released into the sea because of human activities such as release programs (e.g., Hewavisenthi, 1993; Pilcher and Enderby, 2001). However, Okuyama et al. (2009) showed that the dispersal distance from shore by hatchlings decreases with age and the possibility of experiencing the original migration route becomes low when release is delayed. Thus, in cases their chance of survival decreases, and increases the chances to be caught by the predators.

Rekawa sanctuary on the southern tip of Sri Lanka is the prime turtle nesting habitat in the country (IUCN 2005). Thousands of turtles flock to Rekawa beach every year to lay their eggs and hatch their young ones come out from the hatched eggs. The Department of Wildlife Conservation (DWC) has declared this beach a sanctuary in order to facilitate this process of birth and growth. In addition, non-governmental organizations such as the "Turtle Conservation Project" (TCP) have started in situ conservation programs in the area. Further, tourism related to turtle-watching is growing in Rekawa. Yet, there are relatively few incentives for villagers, who depend on egg

[1] Turtle Species found in Sri Lanka are: Green Turtle (*Cheloniamydas*), Olive Ridley Turtle (*Lepidochelysolivacea*), Leatherback Turtle (*Dermochelyscoriacea*), Hawksbill Turtle (*Eretmochelysimbricata*) and Loggerhead Turtle (*Carettacaretta*).

[2] Protection is offered under Parts I and III of the Fauna and Flora Protection Ordinance No. 02 of 1937 and the Fisheries and Aquatic Resources Act No. 02 of 1996.

[3] For example, tourists pay hatcheries to release *over aged* baby turtles to the sea.

collection and flesh consumption, to participate in conservation. This makes Rekawa an interesting and important region for examining possibilities for conservation through the use of economic incentives.[4]

In this paper, we seek to understand how best tourism revenues can facilitate turtle conservation in and around Rekawa. The study employs a non-market valuation technique, viz., the Contingent Valuation Method (CVM), to estimate the benefits of sea turtle conservation. In order to understand visitor preferences, we develop two alternative turtle management scenarios. Scenario 1 focuses mainly on improving visitor services at Rekawa, while Scenario 2 focuses on both visitor services and potential conservation initiatives. Thus, the study asks: a) what are visitors willing to pay for conservation under different management scenarios? and, b) what are potential changes in the number of visitors and revenues under these different scenarios? We consider the possibility of charging an entrance fee in order to see if sufficient revenues can be generated to incentivize local communities to conserve turtles. We hope that this information will be useful to coastal managers in developing appropriate turtle conservation strategies.

2. Recreational Valuation: Review of Empirical Evidence

Welfare changes resulting from quality changes in recreational experiences have been frequently estimated through the use of revealed preference and stated preference valuation methods (Whitehead et al., 2000). The Contingent Valuation Method (CVM) (Cummings et al., (1995); Mitchell and Carson, 1989) is often employed because it enables the estimation of a (Hicksian) measure of Consumer Surplus (CS) under circumstances when an environmental quality change is hypothesized or being planned (Mitchell and Carson (1989), Hanemann, et al. (1991) and Hanemann (1984). This study employs the CVM to examine changes in demand (or tourists willingness to pay (WTP)) and therefore in welfare as a result of a proposed change in managing the Rekawa sanctuary.

Several scholars have found economic valuation a useful tool for addressing wildlife management and conservation issues (Gregory et al., 1989; Hadker et al., 1997; Loomis and White, 1996; Stevens et al., 1991; Tisdell and Xiang, 1998; White et al., 2001; Whitehead, 1992), with some estimating demand for endangered species conservation using CVM (Loomis and White, 1996; Jackobsson and Dragun, 1996; Chambers and Whitehead, 2003; Bandara and Tisdell, 2004; Thuy, 2006; Jin et al., 2010). Bandara and Tisdell (2004), for example, have studied the net benefit of saving the Asian elephant in Sri Lanka through a contingent valuation study, which showed that urban residents' WTP for the conservation of elephants in Sri Lanka is sufficient to compensate farmers for the damage caused by elephants. Similarly, Chambers and Whitehead (2003) estimated potential payments for wolf management plan and wolf damage in Minnesota using Contingent Valuation. Thuy (2007), using CVM, estimated that Vietnamese households were, on average, willing to pay USD 2.50 per household for conservation of the Vietnamese Rhinoceros. An important study for our research is Jin et al. (2010), who adopted a cross-country perspective to estimate the WTP for marine turtle conservation. Applying a binary logit model to a large sample 3,680 individuals in Beijing (China), Davao City (Philippines), Bangkok (Thailand) and Ho Chi Minh City (Vietnam), they found that households were, on average, WTP values were USD 1.28, USD 0.32, USD 1.06 and USD 0.30 for Beijing, Davao City, Bangkok and Hochi Minh City respectively. Another useful comparative study for us is the work by Feck and Hamann (2013) on turtle conservation in turtle rehabilitation centers in Australia, which showed that visitors to rehabilitation centers were willing to donate annually to sea turtle conservation.

In order to assess WTP in a hypothetical scenario, we need to carefully describe the conditions of the market and what is to be valued. In this instance, our interest is in changes in fees that tourists may be willing to pay if there is a change in the recreational service provided. As available research (Clawson and Knetsch, 1966; Eagles et al. 2002; Laarman and Gregersen 1996;, Leuschner et al. 1987; Reiling et al., 1988; Lee 1997; Vogt and Williams 1999; Williams et al. 1999) shows, giving information to visitors on why a fee must be levied and, how the money will be utilized, will likely affect their support for the fee-paying option and increase demand for the recreational service.

The literature underscores the demographic and psychographic factors that affect people's demand for changes in recreational services. Variables such as income, age, attitude towards environmental protection, history of paying

[4] Records show that some 6970 visitors (of whom 65 percent were Sri Lankan) visited Rekawa in 2011, with entrance fees being charged to foreign visitors (TCP, 2011).

entrance fees and education are predicted to influence WTP (More and Stevens, 2000; Reiling et al., 1992; Williams et al., 1999; Bowker et al., 1999). According to Davis and Tisdell (1998), effects of gender, country of residence, and previous visits to the site and to natural attractions in general could be either positive or negative,requiring further testing. Moreover, as Schroeder and Louviere (1999) recognize, people are likely to pay more for entering a site if they have travelled a long distance to get there.

Mitchell and Carson (1989) have identified a behavioral dimension to WTP, which they call behavioral intention. The findings of Kerr and Manfredo (1991) from a study of backcountry hut users in New Zealand's parks suggest that previous fee-paying behavior affects paying intentions. In addition, membership in environmental organizations and attitude towards environment protection may also affect payment intentions (Carlsson and Johansson-Stenman, (2000) and Clinch and Murphy (2001). As Laarman and Gregersen (1996) point out, what consumers expect to pay is related to what they have paid before.

Keeping several of the insights provided by previous studies on WTP in mind, we adopt two scenarios to identify WTP for changes in recreation and conservation services associated with sea turtles at the Rekawa sanctuary. We discuss these scenarios in section 4.3 below.

3. Models and Estimation Methods

We employed CVM to estimate the WTP for turtle conservation while offering recreation as a value to visitors. To estimate the WTP, we follow the estimation approach given in Lopez-Feldman (2012). In this approach, WTP is modeled as a linear function.

$$WTP_i(z_i,u_i) = z_i\beta + u_i \quad (1)$$

where z_i is a vector of explanatory variables, β is a vector of parameters and u_i is an error term. In our study, following are the explanatory variable:

educ: Education in number of years

age: Age of respondents in years

gender: Respondents' gender (1= male and 0 = female)

hhinc: Household income (LKR/USD)

marital: Marital status (1= married, 0 = others)

entow: Working in tourism or environment-related field (1= yes, 0 = no)

turtseen: Seen turtles (1= yes, 0 = no)

nestseen: Seen turtle nesting (1= yes, 0 = no)

site_dum: Survey site (1= Rekawa, 0 = Yala and Bundala)

rekawavi: Knowledge of Rekawa or visited Rekawa (1= yes, 0 = no)

grsize: Group size

Each individual is offered a single bid value (t_i) and is expected to answer yes or no. Denote $y_i = 1$ if the answer is yes and $y_i = 0$ if the answer is no. The individual would answer yes when his/her WTP is greater than the offered bid amount ($WTP_i > t_i$). The probability of $y_i = 1$ is a function of the explanatory variables and can be written as:

$$\Pr(y_i = 1 \mid z_i) = \Pr(WTP_i > t_i) \quad (2)$$

$$\Pr(y_i = 1 \mid z_i) = \Pr(z_i\beta + u_i > t_i)$$

$$\Pr(y_i = 1 \mid z_i) = \Pr(u_i > t_i - z_i\beta) \quad (3)$$

Researchers commonly use probit and logit models when the dependent variable is binary (Capps and Cramer, 1985; Bishop and Heberlein, 1979; Seller, Stoll, and Chavas, 1985). In this study, the outcome is binary and we apply the probit model for data analysis. Hence, weassume that the error term u_i has a normal distribution $N(0, \sigma^2)$. In this case, Equation (3) can be written as:

$$\Pr(y_i = |z_i) = \Phi\left(\frac{z_i\beta}{\sigma} - \frac{t_i}{\sigma}\right) \quad (4)$$

where Φ (.) denotes the standard cumulative normal distribution function. Note that, in Equation (4), the probit model has t_i in addition to z_i as explanatory variables. There are two ways in which one could estimate this model. The first one is to use Equation (4) and apply maximum likelihood estimation to solve for β and σ. The other option, which we use in this study, is to directly estimate the probit model with z_i and t_i as explanatory variables, which can be estimated in STATA. In this case, we obtain estimates of β/σ and $-1/\sigma$ after estimating the probit model. For the results of probit model, denote $\hat{\alpha} = \hat{\beta} / \hat{\sigma}$ (the vector of coefficients associated to each one of the explanatory variables) and $\hat{\delta} = 1/\hat{\sigma}$ (the coefficient for the variable capturing the amount of bid).

The expected value of WTP can be estimated for individuals with certain characteristics or at the average of explanatory variables as:

$$E(WTP \mid \tilde{z}) = \frac{\tilde{z}\,\hat{\alpha}}{\hat{\delta}} \quad (5)$$

where, $\tilde{z}$ is a vector with the values of interest for the explanatory variables.

The estimated number of visitors to Rekawa sanctuary from each site (Rekawa, Yala and Bundala) under a particular scenario at a proposed bid value is estimated as follows:

Est. number of visitors = Prob. of visiting at proposed fee x total number of visitors (6)

Then, the total revenue under a particular scenario at a proposed bid value is estimated as follows:

Total revenue = Number of visitors x Proposed bid value as entrance fee (7)

The probability of visitation at a proposed fee is computed using the results of the above probit model. The total number of visitors at Rekawa, Yala and Bundala are reported next in subsection 4.1.

4. Data

4.1 Study Area

The Rekawa beach, approximately 4 km long and located on the southern coastline of Sri Lanka, was declared a sanctuary in 2006. It is visited by five different species of turtles which lay their eggs in the sand every night throughout the year.

Rekawa is situated in close proximity to the Yala and Bundala national parks (see Figure 2 for location map). According to the visitor statistics maintained by the DWC, Sri Lanka, the three sites together attracted 155,541 visitors in 2011, which included 101,762 local visitors (65.4%) and 53,779 foreign visitors (34.6%). Out of the 101,762 local visitors, visitors from Rekawa, Yala and Bundala were 4515, 93893 and 3354, respectively. Out of the 53,779 foreign visitors, visitors were from Rekawa, Yala and Bundala were 2465, 48446 and 2868, respectively.

Our preliminary visits to Rekawa indicated that both local and foreign visitors show little interest in turtle-watching at Rekawa due to the unseemly and, at times, hostile behavior of self-appointed nest protectors drawn from the local community, and, because of the lack of facilities for visitors. Consequently, Rekawa attracts a lower number of visitors despite its close proximity to Yala and Bundala national parks.

4.2 Data Collection

We obtained the data for the present study from primary as well as secondary sources such as records on visitor arrivals. We collected primary data through on-site and off-site surveys of visitors (see Annex 1 for the questionnaire). We considered Rekawa as the on-site area and Yala and Bundala as offsite study sites. Prior to undertaking the main survey, we pre-tested the questionnaire by interviewing fifty visitors under two different scenarios at the Rekawa sanctuary and the Bundala and Yala National Parks. The final survey was undertaken from December 2011 to August 2012.

For identifying our study sample, we first identified the proportions of local and foreign visitors in 2011. Thus,ˆour study included a tourist sample of 900 respondents who visited Rekawa sanctuary (onsite) and the Bundala and Yala National Parks (off-site), of whom 600 were locals and 300 were foreign visitors (see Table 1 for the sampling plan). The sample size was divided into two equal groups for each of the two scenarios.

The survey respondents were male or female visitors above 18 years old. If there were families who traveled together, we chose the household head as the respondent for our survey.[5] The study adopted a systematic random sampling method, where every fifth visitor encountered was invited to participate in the survey. In case of a refusal, we interviewed the next visitor. The sampling covered all turtle-nesting seasons and visitation seasons (see Annex 2 for the details). Finally, six observations were excluded at the data cleaning stage because of incomplete orinconsistent answers. Thus, we used 894 observations for data analysis.

The survey questionnaire used consists of three parts (see Annex 1). The first part of the captures visitor information including socio-economic characteristics. The second part attempts to understand visitor recreational behavior, including knowledge of turtles and turtle-nesting and previous visits to Rekawa. The third part includes questions related to the CVM exercise and attempted to measure a user's mean WTP for access to the Rekawa sanctuary under different entrance fees (bid values) and two different management scenarios.

In addition to the primary questionnaire-based survey, we conducted several discussions with local hoteliers, and boutique and shop owners in order to obtain their views and opinions on implementing tourism initiatives in the Rekawa area. We included in our discussions the existing 'nest protectors' at Rekawa from whom we were able to gather useful information on the type of economic incentive that may mitigate the activities of those who currently pose a threat to turtle conservation. Field-level transect walks, group discussions and direct observations helped us to obtain socio-economic information and data. We also obtained some socio-economic secondary data from the Grama Niladhari and Divisional Secretary.

4.3 Developing Two Hypothetical Management Scenarios

We consider two alternative turtle tourism management scenarios in this study. Both our scenarios address tourism issues, but one has a special focus on conservation. Scenario 1 focuses mainly on visitor services to be established at Rekawa, while Scenario 2 focuses on both visitor services and conservation initiatives to be established at Rekawa. In Scenario 1, we outline a situation where there are improvements in tourism facilities such as clean toilets and drinking water facility, visitor centres and museum, cafeteria souvenir shops, camp sites and nature guide service. In Scenario 2, in addition to the visitor services and facilities mentioned in the scenario 1, we proposed initiatives such as 'eggs are not collected and turtles are not poached, turtles and their eggs, nests and hatchings are protected by local community'.

Both scenarios included economic incentives for the local community based on several discussions with village leaders as well as with the Grama Niladhari, the Divisional Secretary and wildlife officials in the Rekawa area.

4.4 Payment Vehicle and Bid Values

Under each scenario, we proposed different bid values to visitors and gauged their willingness to accept the bid as the proposed new entry fee for visiting Rekawa. The entrance fee as a realistic measurement of use value as Sri Lankans and foreigners are familiar with paying entrance fees for activities at recreation sites (Lee, 1997). At present, foreigners pay LKR 1000 (or USD 8) at the Rekawa sanctuary while there is no entrance fee for Sri Lankan visitors

The entrance fees or bids took six values, i.e., LKR 0, 60, 75, 100, 125 and 150, for local visitors and four values, i.e., USD 0, 10, 15 and 20, for foreign visitors in our visitor survey based on the results of the preliminary studies. Each respondent received only one offer or opportunity to accept a bid. The bid offer received was randomly made based on the pre-determined range of offers.

[5] The head was defined as the person who was in charge of daily expenditure and the other (younger) members of the family

In line with Arrow et al. (1993), we adopted NOAA guidelines in designing the CVM questions. Thus, we included some debriefing questions, including ones on why respondents are or are not willing to pay. We added "cheap talk" to reduce potential hypothetical bias through an explicit discussion of the problem (Cummings and Taylor 1999). Before asking the valuation question, we explained hypothetical bias to respondents so that they could bear it in mind while answering.

We trained our enumerators in lecture rooms and the field on how to interview and collect correct information from the visitors under different CVM scenarios. We ran multiple pre-tests and revised the questionnaire for obtaining correct information. In this way, we were able to overcome some of the limitations of CVM questions.

5. Results and Discussion

5.1 Demographic Profile of Visitors

Table 2 presents the socio-demographics of respondents and compares years of education, household income, marital status and age of local and foreign visitors. The average income of local visitors is lower, as expected, compared to that of the foreign visitors. A majority of respondents were male (71% of local respondents and 51% foreign respondents) and most visitor groups were led by males. The fact that turtle watching is done at night may deter female visitors. We also found that 12 percent of Sri Lankan visitors and 27 percent of foreign visitors work in either tourism or environment-related field. Overall, the majority of visitors (63%) were willing to pay an entrance fee.

5.2 Regression Results

Table 3 presents the marginal effects and the predicted probability of the dependent variable of the regressions for the four sets of probit models for local and foreign visitors (Scenarios 1 and 2 for local visitors and Scenarios 1 and 2 for foreign visitors). The predicted probabilities of the acceptance of the bid value as the entrance fee were 0.594 and 0.897 for foreign visitors under Scenarios 1 and 2, respectively. For local visitors, the predicted probabilities were 0.530 and 0.779 under Scenarios 1 and 2, respectively. Therefore, we find higher chances of acceptance of Scenario 2, which combines improvements in recreational facilities with turtle conservation.

The variable 'bidv' (Bid variable) is significant at 1 percent ($p < 0.05$) significance level. This means that visitors were less likely be willing to pay for higher bids in both scenarios, which is in line with the demand theory. Under the Scenarios 1 and 2, if we increase the entrance fee by USD 1, the probability of foreign visitors' acceptance decreases by 2.2 percent and 2.8 respectively. Compared to foreign visitors, the calculated marginal effects of most variables were lower for local visitors. Thus, if we increase the bid value by LKR 1, the probability of acceptance of Scenario 1 will decrease by 0.40 percent.

In conformity with a priori theoretical expectations, the coefficient on the 'hhinc' (household monthly income) variable is positive and statistically significant at 1 percent ($p < 0.01$) significance level, implying that income is an important factor that increases the WTP for visitor facilities and/or marine turtle conservation.

In all four models, the variable 'education' (years of education) is also positive and significant at 1 percent ($p < 0.05$) significance level. Therefore, we believe, if the sanctuary receives visitors who have a good education (numbers of years), their acceptance for scenarios will increase.

We also found that prior visits to Rekawa increase the probability of accepting the bid by foreign visitors of Scenarios 1 and 2 by 48 percent and 13.7 percent respectively. Meanwhile the increase in probability has increased by 13.3 percent and 3.3 percent for local visitors under scenarios 1 and 2 respectively.

For the foreign visitors the variable 'rekavi' (already visited Rekawa) was significant in both scenarios and the variable 'nestseen' (seen turtle nesting) was significant Scenario 2. The variable 'entow' (working in tourism and environment related field) was also significant for the regressed results in Scenario 2. Therefore, the respondents who had visited Rekawa and seen turtles agreed with the scenarios even at high bid values – because they understood the importance of turtle conservation and of Rekawa as a prime nesting habitat. For local visitors, while the variable 'nestseen' was not significant, variables 'turtseen' and 'entow' (work/involvement in tourism or environmental-related field) were significant for both scenarios, confirming our previous argument.

Variables such as 'gender' and 'marital status' 'grsize' (group size) and 'age' were not significant for in all regression models. Meanwhile the variable 'site_dum' (Rekawa) was not significant for the WTP in both scenarios, which suggests that the particular site Rekawa is not in itself an important determinant of demand for marine turtle conservation and improvement of visitor facilities.

5.3 Reasons for Response

This section presents the frequently identified reasons for why visitors were willing or not to accept bid values. Table 4 shows that more than 90 percent of the respondents were WTP because they thought that the proposed initiatives would lead to more protection and conservation of turtles, at the same time providing economic incentives for the local community. This shows that the potential for charging a fee from visitors for the conservation of turtles is high.

Table 5 presents the frequently cited reasons against WTP for both scenarios at the study sites. A majority of visitors, both foreign and local, gave "the entrance fee is high", "do not like to watch turtles" and "do not trust the government" as their three main reasons against WTP. Some of them said the visitor services were not worth at the proposed bid values and that the turtles are already protected. Under the 'other' category, visitors said that they did not wish to disturb the innocent turtles and their habitats under the proposed scenarios and that they were more willing to watch turtles under more natural conditions. They further stated that they did not wish to entrust the local community with the task of protecting and conserving turtles.

5.4 Mean WTP

Based on the probit regression results, we estimate the mean WTP of local and foreign visitors under two different scenarios (Table 6). The estimated mean WTP values per visit of local visitors were LKR 93 and LKR 143 for Scenarios 1 and 2, respectively while that for foreign visitors were USD 15 and USD 19 for Scenarios 1 and 2. We found that the mean WTP of both local and foreign visitors was higher for Scenario 2 as compared to Scenario 1, by the amounts LKR 50 and USD 4, respectively, for local and foreign visitors. This suggests that visitors are more interested in the conservation of turtles than in enjoying recreational facilities. Their choice, in addition, may be influenced by their perception that the initiatives mentioned in Scenario 2 would help to solve the problem of turtle survival at Rekawa. Further, we can say that at Rekawa foreign visitors already pay about USD 10 and they would like pay more for improvements.

The mean WTP estimated in our study are similar to results from previous studies. For instance, Jin et al. (2010) found that the mean WTP for turtle conservation in lower income cities such as Davao City in the Philippines and Ho Chi Minh City and Hanoi in Vietnam was around USD 0.30 per month per household. For relatively higher income cities such as Beijing and Bangkok, the mean WTP values of the households were USD 1.28 per month per household and USD 1.08 per month per household, respectively. In our study, local visitors' WTP is almost the same as those in Jin et al. (2010). Interestingly, while studies show that people in developed countries are willing to pay 0.24 percent and 0.08 percent, respectively, of their annual per capita income for specific species such as the spotted owl (Loomis and Ekstrand, 1998) and the gray-blue whale (Bulte and Van-Kooten, 1999), our study shows that local visitors are willing to pay 0.005 percent of their per capita income for turtle conservation.

5.5 Potential Revenue Changes under Different Scenarios

Tables 8 presents the estimated number of visitors to Rekawa and estimated annual revenue under Scenario 1 and 2 for different bid values as entry fee including mean WTP values. We found that with an increase in the bid value in the form of the entrance fee, the number of visitors who were willing to visit Rekawa and pay for the scenarios went down gradually. Further, we found that compared to Scenario 2, the WTP for Scenario 1 went down drastically with an increase in the bid value. We also found that foreign visitors in particular did not accept Scenario 1. Figures 3 and 4 plot the results for local and foreign visitors under different scenarios and proposed entrance fees.

As seen in Table 7, a significant percentage of both foreign and local visitors are willing to pay high entrance fees for the implementation of Scenario 2. Therefore, although the expected number of visitors decreases with this scenario, revenue generation increases gradually with an increase in the entrance fees up to the mean WTP after

which the revenue decreases. At present, only foreign visitors pay an entry fee of LKR 1000 and the annual revenue is LKR 2.44 million. Under Scenario 2, the achievable maximum revenue at the estimated mean WTP would be LKR 7.40 million and USD 509,579 (or LKR 64.72 million) annually by selling entry passes for local and foreign visitors respectively. Thus, if Scenario 2 is implemented, government revenues would increase by 2856% (LKR 69.68 million) relative to what they currently earn. With Scenario 1, revenues will increase by 2044% percent (LKR 49.87 million) relative to current revenues.

Figures 5 and 6 show the revenue for different bid values as entry fees. These figures show that up to the mean WTP level, revenue will increase and after it will gradually decrease. The results show that if Scenarios 1 and 2 are implemented, there would be 2044 percent and 2856 percent maximum achievable annual revenue increase, respectively, at the entry fee of the mean WTP values.

The computation of revenue changes shows Scenario 2 to be highly marketable among the visitors, with visitors expressing themselves willing to enjoy recreational facilities as well as conservation of turtles rather than simply recreational facilities as described under Scenario 1.

5.6 Identification of Economic Incentives for Local Community

The total number of families in the Rekawa area (that is, the Grama Niladhari Division of Rekawa West 255) is 280. These households identify fisheries (both lagoon and fresh-water fishing), carpentry, masonry, handicraft production, home garden cultivation, coir product manufacture and tourism as their main sources of livelihood. Out of the total population of 1062, only 160 people work in formal public or private sector jobs. A majority of the people do not have access to basic needs such as drinking water and electricity. An estimated33 percent population is poor with daily household income less than LKR 100.

There are six hotels located very close to the Rekawa beach, some in the ‘star’ class range, where some local people work as laborers. In the fisheries industry, a few families benefit by lagoon fishing. Members of the local community involved in fishing cannot compete with village-level rich people in fishing because the latter control the fishing activities in the area. In addition, a few (about 17 families) benefit directly from so-called ‘nest protecting.’ These self-elected “nest protectors” also steal turtle eggs to meet their daily consumption needs and that of the local community although they rarely engage in poaching turtles. Our field studies showed that some local youth earn up to LKR 1000 per day working as nest protectors while the egg collectors earn up to LKR 300 per day from selling the stolen turtle eggs. Further, though some local and international non-government organizations have obtained funds for turtle conservation purposes, they have not so far established more infrastructure facilities/ visitor facilities for ‘turtle watching’ initiatives.The majority of the population, however, does not have access to work as nest protectors or as guides in the existing “turtle watching” trade because of the monopoly held by those currently working as nest protectors and guides. Therefore, if we are able to attract more visitors to Rekawa and charge entrance fees, this population may be more likely to find employment in the tourism and turtle conservation sector.

The above description makes it clear that lack of livelihood opportunities is one major reason threatening the survival of marine turtles on the Rekawa beach. Since the Rekawa beach as a prime turtle habitat is protected under the Fauna and Flora Protection Ordinance (1937), we propose the following economic incentives to be given to the local community for the purpose of conserving turtles: (i) to streamline and promote ‘turtle watching’ at Rekawa; (ii) to draw up a proper incentive/compensation scheme to enable the local community to get involved in turtle conservation.

As discussed in the above section, if Scenarios 1 and 2 are implemented,there is likely to be a huge annual revenue increase. Scenario 2 provides both recreational facilities as well as conservation initiatives and could easily make possible the provision of economic incentives to the local community. We estimated the required capital for the establishing the infrastructure from the government sector as LKR 15.5 million, and the recurrent expenditure such as salaries and subsistence for the government officers, vehicle and fuel charges tobe LKR 6.5 million and LKR 8.72 million annually for Scenarios 1 and 2 respectively. Compared to the estimated revenue, the required initial capital and recurrent expenditure is very low.

Further, according to Table 8, we find that there is a range of options and maximum achievable revenues under each option. The results provide alternatives to policy makers to design an appropriate entrance fees for the Rekawa sanctuary.

One of the major concerns expressed by the local community was their exclusion from turtle conservation initiatives, a concern shared by administrators, policy makers and community leaders of the area. Given the high level of education and positive attitudes of members of the local community towards tourism and turtle conservation, they can be provided temporary employment opportunities as labor in the construction of infrastructure facilities while more permanent employment can be provided for them in operating visitor facilities and working as qualified interpreters/guides and nest protectors once the turtle watching initiatives are functional.

Since some local-level businesses that are already directly related to 'tourism', impart necessary knowledge and social skills to locals in order to prepare members of the community to take up income-generating roles in turtle conservation and protection. This sort of activity may also be helped if local banks offer loan schemes for members of the local community to improve visitor facilities and services. We found that the local level hoteliers, restaurant operators and boutique owners too were ready to provide visitor facilities, including accommodation and meal services if the government becomes directly involved in providing tourism-related operations at Rekawa. What this indicates is their belief that government involvement is necessary for the launch and promotion of tourism initiatives because the general public expects the government to give leadership in such initiatives. Some government officials we spoke to also felt that the DWC should become involved in policy making, law enforcement and managing tourism initiatives because However, state intervention from above alone will not be sufficient for this purpose. Under the current legal framework, members of the local community too must be involved in conservation initiatives. It is therefore noteworthy that in the preliminary and individual discussions, the current nest protectors and guides also endorsed the proposals mentioned under Scenario 2.

By allocating a portion of the entry fee to the local community, the government will accomplish the twin objectives of providing employment to members of the local community while ensuring the protection and conservation of marine turtles at the Rekawa sanctuary. Employing educated youth as guides/interpreters and recruiting young energetic youth as nest protectors and paying them a salary or allowance commensurate with their education levels and experience is one way to involve the community, particularly the youth, in turtle watching initiatives and, by extension, in turtle conservation. The state could also encourage private-public partnerships that include local investors.Benefits to the community need not be confined to such direct benefits. Other local income generating possibilities include production of handicrafts, operation of food stalls, provision of sanitation facilities, sale of souvenirs and provision of homestay and camping opportunities for visitors.

6. Conclusions and Policy Recommendations

In this study, we seek to derive the mean WTP of local and foreign visitors to visit the marine turtle sanctuary at Rekawa under two scenarios by way of bid values. While improved visitor services are identified in both scenarios, Scenario 2, in addition, focuses on turtle conservation.

The estimated mean WTP values per person per visit for local visitors were LKR 93 and LKR 143 for Scenarios 1 and 2 respectively, while the mean WTP values for foreign visitors were USD 15 and USD 19 for Scenarios 1 and 2 respectively. These results indicate that the majority (63%) of visitors were willing to pay an entrance fee, which would go towards protecting turtles and improving visitor facilities at Rekawa. The results showed that increase in bid value, visitor's education level in years, household income and their involvement in environment or tourism related field showed a significant marginal effect on acceptance of scenarios.

The study recommends the following policy directions that would help in both turtle conservation and the provision of economic incentives for the local community: (i) streamlining and promoting 'turtle watching' at Rekawa; (ii) introducing a new fee structure for turtle watching; (iii) proposing a proper incentive/compensation scheme for the local community to get involved in turtle conservation; (iv) establishing a village-level welfare fund using a percentage of the gate collection to improve the basic infrastructure facilities in Rekawa village that would benefit the entire community, thus providing an incentive for everyone in the community to support the initiative. Therefore

the policy makers would be able to get the local community involved in turtle conservation through 'turtle watching' tourism. The WTP values recorded for Scenario 2 are considerably higher than that for Scenario 1. This indicates that Scenario 2 could be implemented at Rekawa sanctuary as a policy decision. If we implement Scenario 2, which carries opportunities for both recreation and turtle conservation, the annual revenue increase would be 2856 percent (or LKR 69.68 million) over what it is now.

When deciding on a fee-levying policy to protect turtles by providing economic incentives for the local community, policy planners must strike a balance between increase in revenue through entrance fees and the possible reduction in the number of visitors due to the fee. They must also take serious note of the possibility of disturbance to turtle nesting due to high visitation. Thus, while increased numbers of tourists may increase the size of these potential additional funds, the authorities must have in place a proper visitor management mechanism.

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Tables

Table 1: Sampling Plan of the Study

Study site	Scenario 1		Scenario 2	
	Local visitors	Foreign visitors	Local visitors	Foreign visitors
Rekawa Sanctuary	150	75	150	75
Yala National Park	75	38	75	37
Bundala National Park	75	37	75	38
Total	**300**	**150**	**300**	**150**

Table 2: Sample Respondents' Profile

Variable	Local Visitors					Foreign Visitors				
	Obs.	Mean	Std. Dev.	Min	Max	Obs.	Mean	Std. Dev.	Min	Max
Gender (male=1; 0 otherwise)	600	0.713	0.452	0	1	294	0.510	0.510	0	1
Marital status (married=1; 0 otherwise)	600	0.633	0.482	0	1	294	0.455	0.456	0	1
Hhince (LKR for locals; USD for foreigners)	600	37945	15217	15500	143500	294	2990.63	846.057	1000	6000
Age (years)	600	35.163	10.614	15	62	294	35.23	12.314	18	71
Education (years)	600	13.068	2.803	4	21	294	14.22	2.644	9	23
Entow (yes=1; 0 otherwise)	600	0.115	0.319	0	1	294	0.272	0.446	0	1
Acceptance of bid for Scenario 1	300	52.33%				145	54.48%			
Acceptance of bid for Scenario 2	300	70.67%				149	71.81%			

Hhince: Household income,
Entow: Working in tourism related or environment-related field,
Acceptance the bid value as an entry fee for a given scenario(yes=1; 0 otherwise)

Table 3: Marginal Effects and Predicted Probabilities after Probit Model Regression

Variable	Foreign Scenario 1		Foreign Scenario 2		Local Scenario 1		Local Scenario 2	
	dy/dx	se	dy/dx	se	dy/dx	se	dy/dx	Se
Bidv	-0.022***	0.007	-0.028***	0.007	-0.004***	0.001	-0.004***	0.001
Age	-0.012*	0.006	-0.008	0.006	-0.001	0.003	-0.005*	0.003
Gender	-0.054	0.111	0.019	0.061	0.034	0.074	0.044	0.059
Maritalstatus	0.073	0.105	0.031	0.075	0.049	0.078	0.006	0.058
Education	0.057**	0.024	0.060***	0.017	0.048***	0.012	0.041***	0.010
Entow	0.085	0.120	0.233***	0.067	0.257***	0.091	0.206***	0.046
Hhince	0.0002***	0.00007	0.0001***	0.00004	0.00001**	0.00000	0.00001***	0.00000
Groupsize	-0.016	0.017	0.023	0.016	-0.007*	0.004	0.004	0.003
Site_dum	0.192	0.121	-0.203**	0.092	-0.164**	0.075	0.069	0.065
Turtseen	0.024	0.109	0.029	0.066	0.240***	0.073	0.121*	0.067
Nestseen	0.109	0.267	0.131***	0.045	-0.027	0.088	0.007	0.073
Rekawavi	0.483***	0.074	0.137***	0.048	0.133*	0.081	0.033	0.061
Predicted prob. of acceptance of bid (at mean values)	0.594		0.897		0.530		0.779	

Note: *** p<0.01, ** p<0.05, * p<0.1

Table 4: Frequently Cited Reasons for WTP

Reasons for WTP	Visitors %			
	Local		Foreign	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
1. I can afford this amount.	25.26	26.26	17.02	20.08
2. This initiative helps to conserve turtles at Rekawa.	24.20	22.17	19.15	28.91
3. I will enjoy improved visitor facilities.	16.98	14.78	14.04	14.06
4. I should pay at least the operation cost of visitor facilities.	5.52	4.56	3.40	7.63
5. I should pay an entrance fee for entering the sanctuary.	2.55	1.41	7.66	6.83
6. It will help the local community.	8.07	12.73	11.06	8.83
7. I will be able to see turtles/turtle nests.	4.46	5.82	14.47	10.44
8. This is a new tourism initiative/experience.	7.43	10.06	12.76	3.21
9. Other reason	5.52	2.19	0.42	0

Table 5: Frequently Cited Reasons for Not WTP

Reasons for Not WTP	Visitors %			
	Local		Foreign	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
1. The entrance fee is too high.	25.23	26.51	15.00	20.00
2. I do not like to watch turtles.	25.47	22.35	20.50	18.40
3. I do not trust the government.	13.55	14.01	9.50	17.60
4. Government should protect turtles.	5.84	5.68	5.00	8.00
5. TCP should protect turtles.	1.63	1.14	12.00	6.40
6. Turtles are already protected.	12.38	12.12	9.00	12.00
7. The visitor services/facilities do not offer value for money.	6.31	4.92	17.50	12.80
8. I do not need improved visitor facilities.	6.07	7.95	10.00	4.00
9. I do not believe paying will solve the problem.	3.50	3.41	1.50	0.80
10. Other reason		1.89		

Table 6: Estimated Mean WTP Values under Different Scenarios

	Scenario 1		Scenario 2	
	Local visitors	Foreign visitors	Local visitors	Foreign visitors
Mean WTP	LKR 93.08 (8.69)	USD 15.33 (2.79)	LKR 142.61 (9.88)	USD 19.16 (1.53)

Standard Error is in the parentheses; LKR 127 = 1 USD

Table 7: Estimated Number of Visitors to Rekawa and Revenue under Scenarios 1 and 2

Entry Fee for Local Visitors (LKR)	Estimated No. of Local Visitors	Estimated Revenue (LKR)	Entry Fee for Foreigners (USD)	Estimated Number of Foreign Visitors	Estimated Revenue (USD)	Total Revenue LKR million
			Scenarios 1			
0	80392	0	0	40267	0	0.00
60	62075	3724489	10	30473	304735	42.42
75	58004	4350326	15	24309	364638	50.66
93.08*	**52477**	**4884576**	**15.33***	**24359**	**373422**	**52.31**
100	47360	4736004	20	18244	364886	51.08
			Scenarios 2			
0	95656	0	0	47724	0	0.00
60	84462	5067748	10	40764	407638	56.84
75	79374	5953077	15	33307	499606	69.40
142.61*	**51899**	**7401317**	**19.16***	**26596**	**509579**	**72.12**
150	47828	7174221	20	24856	497120	63.13

* Mean WTP

Note: USD 1= LKR 127

Figures

Figure 1: Turtle Nesting Sites in Sri Lanka

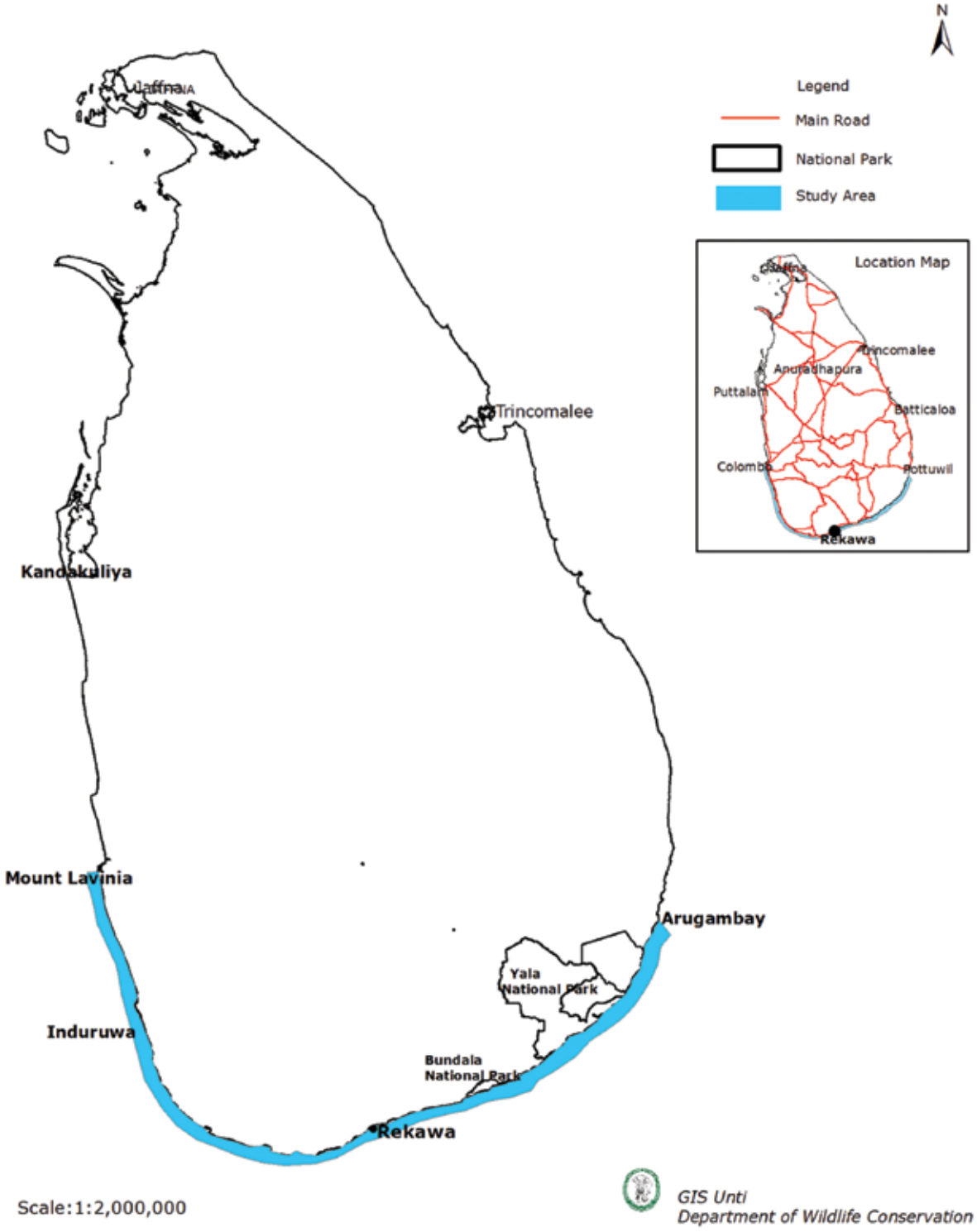
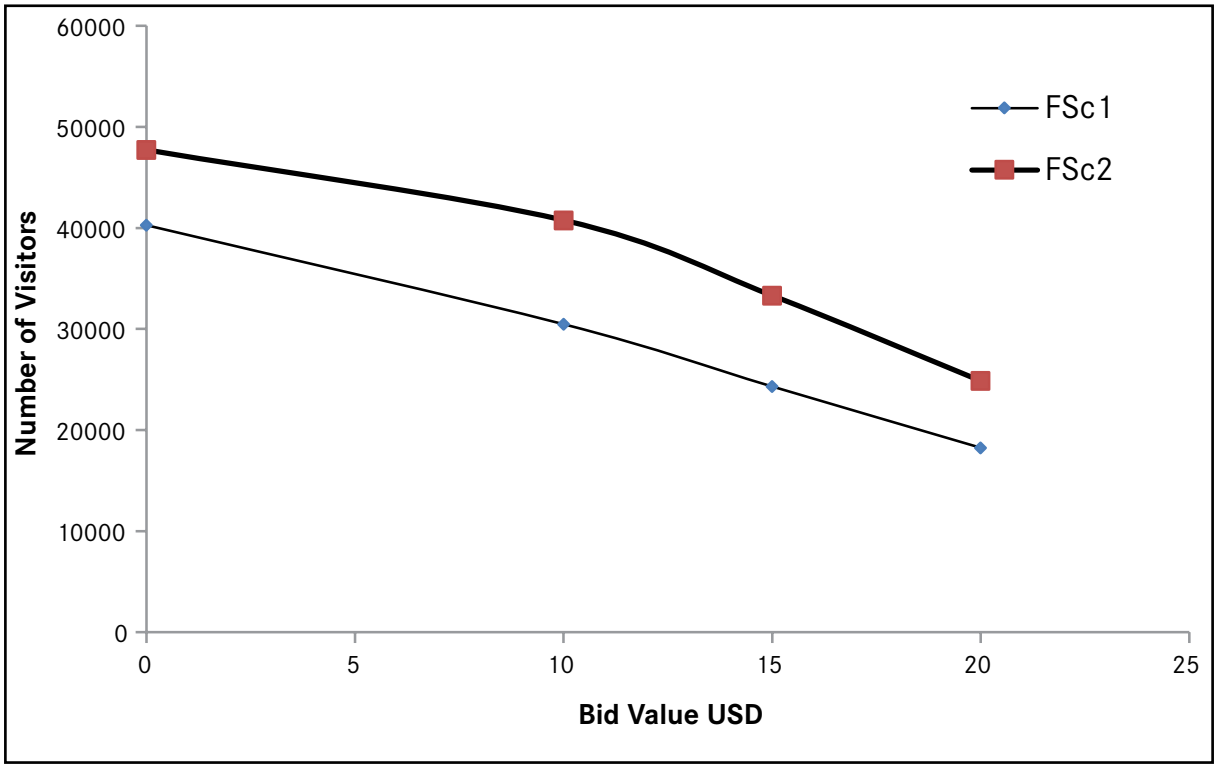


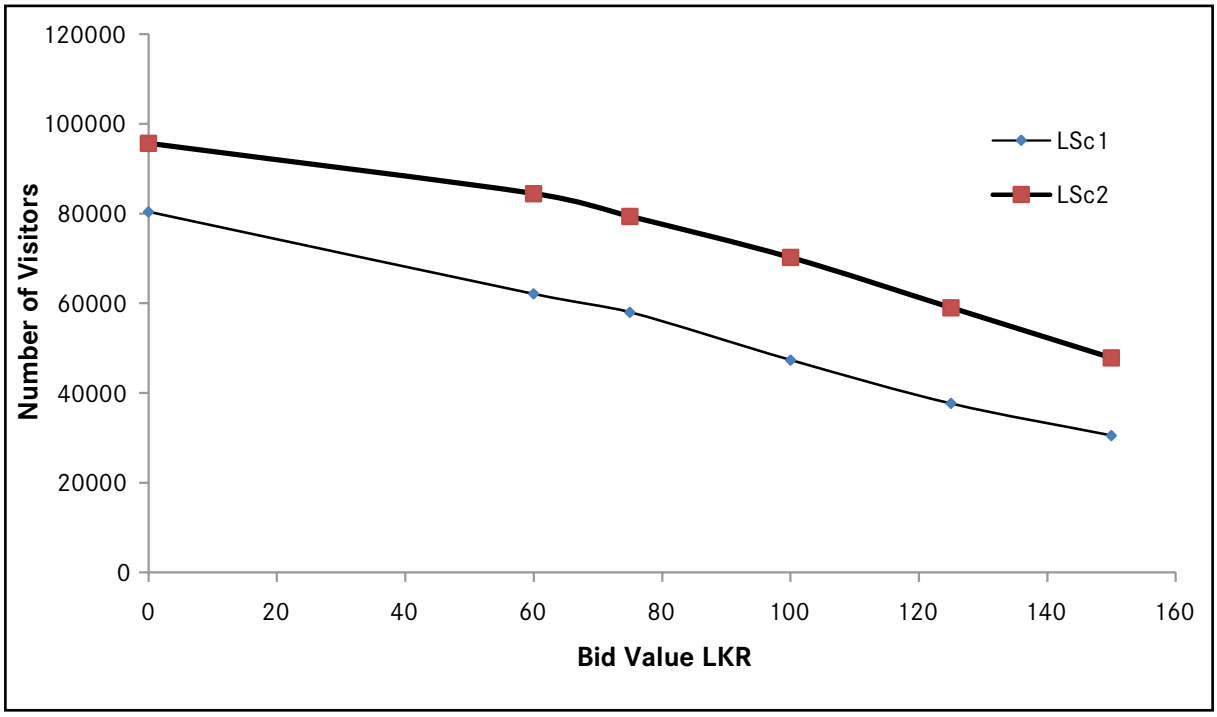
Figure 2: The Location Map of Rekawa, Bundala and Yala National Parks

Figure 3: Estimated Foreign Visitors to Rekawa under the Different Bid Values (entrance fees) of Scenarios 1 and 2



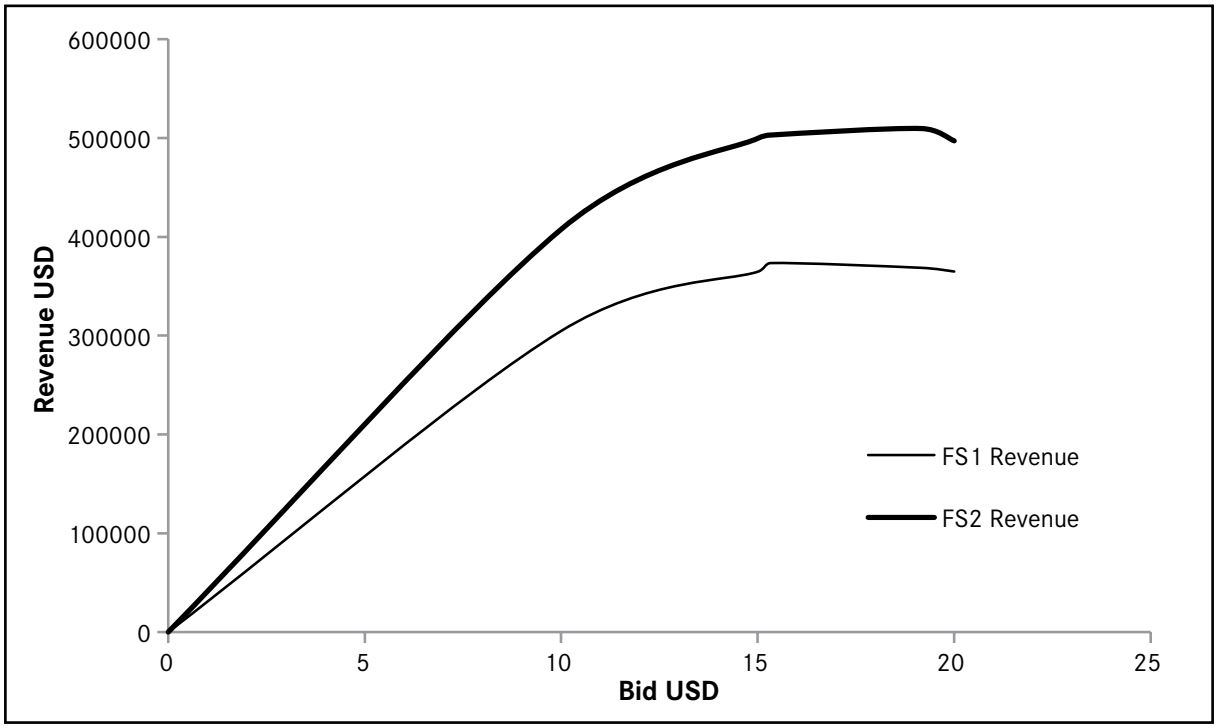
FSc1 - estimated foreign visitors under scenario 1, FSc2 - estimated foreign visitors under scenario 2

Figure 4: Estimated Number of Local Visitors to Rekawa under Different Bid Values of Scenarios 1 and 2



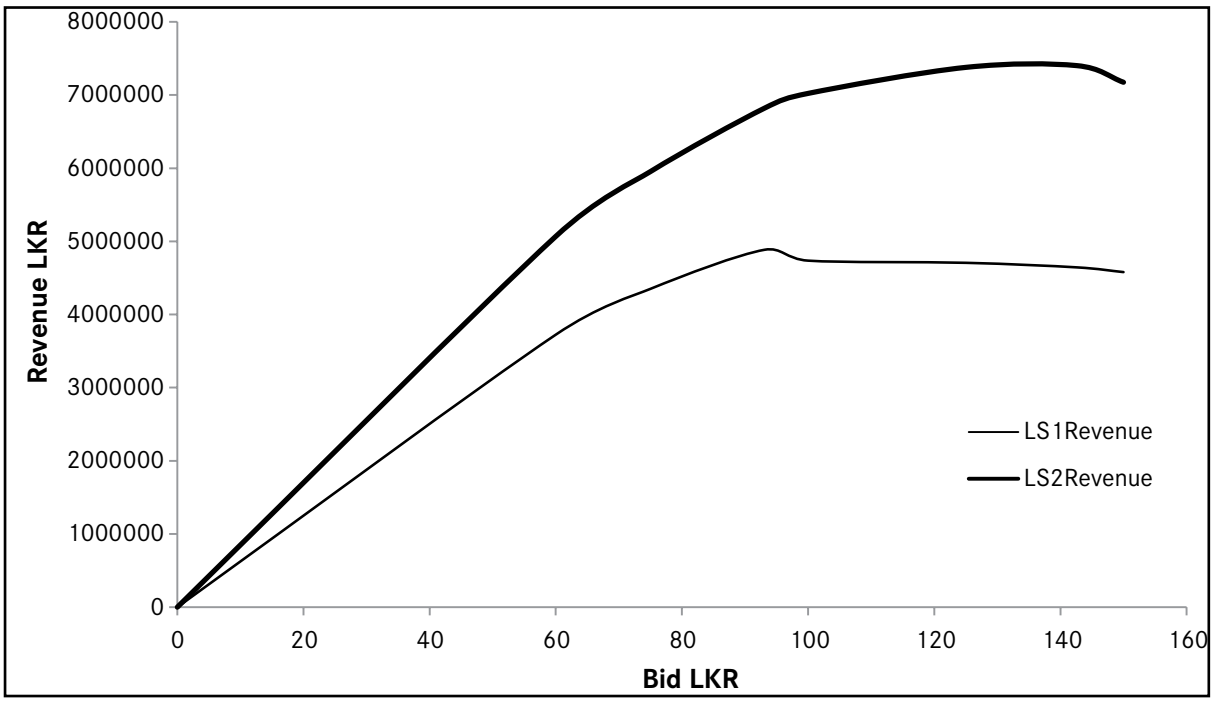
LSc1 - estimated local visitors to Rekawa under Scenario 1, LSc2 - estimated local visitors to Rekawa under Scenario 2

Figure 5: Revenue Changes with Bid Value Increase under Different Scenarios for Foreign Visitors



FS1- Scenario 1 for foreign visitors FS2- Scenario 2 for foreign visitors

Figure 6: Revenue Changes with Bid Value Increase under Different Scenarios for Local Visitors



LS1 - Scenario 1 for local visitors , LS2 - Scenario 2 for local visitors

Annex 1

Questionnaire for Visitor Survey

Turtle Conservation at Rekawa Sanctuary in Sri Lanka

Dear Sir/Madam,

This questionnaire is administered to get your observations and views on the policies and options that should be adopted for turtle conservation at Rekawa sanctuary in Sri Lanka and on providing economic incentives to the local communities for this purpose.

We are trying to establish a proper management system to conserve turtles and their nests at Rekawa beach. So far entry fees are not being charged from local tourists for turtle watching. Therefore, to improve the visitor services and facilities as well as to ensure benefits for the local communities, we would like to request you to respond to this questionnaire.

Turtles at Rekawa

Sri Lanka is famous for five species of turtles who regularly visit Rekawa. They are Green Turtle (*Cheloniamydas*), Olive Ridley Turtle (*Lepidochelysolivacea*), Leatherback Turtle (*Dermochelyscoriacea*), Hawksbill Turtle (*Eretmochelysimbricata*) and Loggerhead Turtle (*Carettacaretta*).

The sea turtle is of great significance to humanity and the biosphere. It is not only an important species to maintain for marine ecological balance, i.e., nutrient cycling, component in the food webs, and gardening (controlling jelly fish population), but also helpful in monitoring changes in the environment. Turtles also have a use value which is called recreational value. All five species of turtles visit Rekawa beach for nesting during night time. Turtle watching in a natural environment is an interesting recreational activity.

Use of turtle meat, shell and eggs for self-consumption purposes and collection of eggs for sale to so-called hatcheries are the only sources of income for some poor fishing families at Rekawa beach. Based on the threat to turtles and the importance of turtle conservation, the Department of Wildlife Conservation has declared this prime turtle nesting habitat, i.e., Rekawa, a sanctuary to give full protection to turtles and to prevent threats to turtle survival. However, low-income villagers who depend on egg collection and flesh consumption have no incentives to ensure the well-being or survival of turtles and thus the government turtle conservation program has failed.

Name of Interviewer:.....

Date of interview:..... Day of the work:.....

Date: .....

Survey Site: 1. Rekawa 2. Bundala 3. Yala

Visitor No: .....

Visitor Origin: ..... 1. Local 2. Foreign

Scenario No.: ..... 1. Scenario 1 2. Scenario 2

A. General Information about the Visitor

A1 Where did you start your trip/country]?:.....

A2 Gender of the respondent: ☐

A3 Employment: ☐

A4 Household monthly income: LKR/USD .....

A5 Age in completed years: .....

A6 Education (No. of years): .....

A7 Marital status: ☐

A8 Work in tourismor environment-related field: ☐

(See Annex A)

B. Visitor's Recreational Behavior

B1 Are you traveling

1. Alone/individually
2. As a member of family
3. As a member of a group

☐

B2 If you are not traveling alone, how many members are there in your group/family? ☐

B3 Have you ever seen live marine turtles? 1. Yes 0. No ☐

B4 Have you ever seen natural turtle nesting (laying eggs) places? 1. Yes 0. No ☐

B5 (For off-site visitors only) Did you know about Rekawa Sanctuary before coming here? ☐

1. Yes 0. No ☐ (If no, go to >>> B.10)

B6a Have you visited Rekawa Sanctuary before? 1. Yes 0. No ☐

B6b If yes, why did you visit Rekawa? (If no, go to >>> B.10)

B6b Purpose of visiting Rekawa Sanctuary now (You may give one or more reasons)

1. Turtle watching
2. Observe turtle nesting sites B6b1 ☐
3. Enjoy the natural landscape
4. For bathing purposes B6b2 ☐
5. To meet a friend/relative
6. Educational purposes B6b1 ☐
7. Research
8. Working in an environmental agency/NGO/INGO

B7 If you have visited Rekawa for recreational purposes, how would you describe the quality of recreational facilities at Rekawa Sanctuary? (Tick one cage only)

1. Very poor ☐
2. Poor ☐
3. Fair ☐
4. Good ☐
5. Very good ☐

B8 Do you think this visit provided value for your money? 1. Yes 0. No ☐

B9a Do you like to visit Rekawa again under the existing management situation? 1. Yes 0. No ☐

B9b If yes, why would you want to visit Rekawa again? Please give 2 reasons for your decision.

1. It will provide more entertainment.
2. It will help to maintain the quality of the recreational site and we may have more turtle sightings. B9b1
3. It is close to my residence.
4. I am satisfied with existing visitor services/management. B9b2
5. Other (specify).....

B9c If not, Why will you not visit Rekawa again? Please give 2 reasons for your decision.

1. It will not provide more entertainment.
2. Lack or fewer number of turtle sightings. B9c1
3. It is far from my residence.
4. I am not satisfied with existing visitor services/management. B9c2
5. Other (specify).....

B10 Do you know of any other natural recreational site that you would like to visit instead of Rekawa Sanctuary? 1. Yes 0. No

If no, go to >>> Section C

B11 If yes, which other sites have you visited during the past year? During the last month/year how many times did you visit those sites and what was the main recreational activity that you enjoyed in those places?

	Site Name	No. of Visits	Months	Years	Distance to the site from your residence	Main recreational activity (please refer to the codes)
		1	2	3	4	5
B11a						
B11b						
B11c						
B11d						

1. Bird watching
2. Elephant watching
3. Turtle watching
4. Wildlife watching
5. Visiting beach
6. Boating/white water rafting
7. Enjoying forest environment
8. Whale watching
9. Dolphin watching
10. Enjoying a particular landscape
11. Other (please specify.....)

B12 Of all the recreational sites visited, which one is your most preferred site?

B13 If you prefer to visit several sites, what are the reasons? Please give 02 reasons for your decision.

1. It will provide more entertainment.
2. I will be able to maintain the quality of the recreational site along with more animal sightings.
3. It is closer to my residence.
4. I am satisfied with existing visitor services/management.
5. Other (specify).....

B13a	

B13b	

C. Visitor's view of the new management scenario for improvements in visitor services and facilities as well as management situation for turtle protection at Rekawa (See Annex 1)

C1 If this is done, are you willing to pay LKR/USD as an entry fee for Rekawa Sanctuary? 1. Yes 0. No

C2 If yes, why are you willing to pay this entry fee? Please give the most important 02 reasons for your decision.

1. I can afford this amount.
2. This initiative helps to conserve turtles at Rekawa.
3. I will enjoy improved visitor facilities.
4. I should pay at least the operation cost of visitor facilities.
5. I should pay an entrance fee for entering the sanctuary.
6. It will help the local community.
7. I will be able to see turtles/turtle nests.
8. This is a new tourism initiative/experience.
9. Other (please specify.....)

C2a	

C2b	

C2c	

C3 If no, why don't you like to pay an entry fee? (Please give the most important 03 reasons for your decision).

1. The entrance fee is too high.
2. I do not like to watch turtles.
3. I do not trust the government.
4. The government should protect the turtles.
5. TCP should protect turtles.
6. Turtles are already protected.
7. The visitor services/facilities do not offer value for money.
8. I do not need improved visitor facilities.
9. I do not believe paying fees will solve the problem.
10. Other (please specify .....)

C3a	

C3b	

C3c	

THANK YOU FOR HELPING US TO BETTER MANAGE YOUR SANCTUARY!

Annex A

A. General Information

General Information for Local Visitors

A.2 Gender 1. Male 0. Female	**A.3 Employment** 1. Regular employee 2. Casual employee 3. Contractual employee 4. Own business/Self-employed 5. Housewife 6. Student 7. Other (please specify .....)	**A.7 Marital Status** 1. Married 0. Unmarried	**A.8 Working in a tourism or environment-related field** 1. Yes 0. No

General Information for Foreign Visitors

A.2 Gender 1. Male 0. Female	**A.3 Employment** 1. Regular employee 2. Casual employee 3. Contractual employee 4. Own business/Self-employed 5. Housewife 6. Student 7. Other (please specify.....)	**A.7 Marital Status** 1. Married 0. Unmarried	**A.8 Working in a tourism or environment-related field** 1. Yes 0. No

C. Visitor's view of new management scenario for improvements in visitor service facilities as well as management situation for turtle protection at Rekawa

Scenario 1

The Rekawa beach is approximately 4 km long and is a prime turtle-nesting habitat in Sri Lanka. Therefore, it has been declared as a sanctuary under the Fauna and Flora Protection Ordinance (1937). The Department of Wildlife Conservation on behalf of the Government of Sri Lanka is currently working on a program to introduce policies to conserve turtles at Rekawa and at the same time give incentives to the local community. Under the plan, the Department of Wildlife Conservation will improve the visitor services and other facilities to attract more visitors to the Rekawa Sanctuary. In order to generate income for local communities, the Department of Wildlife Conservation will simultaneously recruit and train nature guides (with pay). The Government will take responsibility for the safety and security of the tourists and supervise nature guides. In terms of visitor services, the Department plans to ensure

- Clean toilets and drinking water facilities;
- Visitor center/museum to educate tourists;
- Cafeteria for food and snacks;
- Souvenir shops;
- Camp site for overnight stays;
- Nature guides for tourists.

Scenario 2

The Rekawa beach is approximately 4 km long and is a prime turtle-nesting habitat in Sri Lanka. Therefore, it has been declared as a sanctuary under the Fauna and Flora Protection Ordinance (1937). The Department of Wildlife Conservation on behalf of the Government of Sri Lanka is currently working on a program to introduce policies to conserve turtles at Rekawa and is at the same time giving incentives to the local community. Under the plan, the Department of Wildlife Conservation will improve the visitor services and other facilities to attract more visitors to the Rekawa Sanctuary. In order to generate income for local communities, the Department of Wildlife Conservation will simultaneously recruit and train nature guides (with pay). The Government will take responsibility for the safety and security of the tourists and supervise nature guides. In terms of visitor services, the Department plans to ensure

- Clean toilets and drinking water facility;
- Visitor center/museum to educate tourists;
- Cafeteria for food and snacks;
- Souvenir shops;
- Camp site for overnight stays;
- Nature guides for tourists.

However, because of poaching of turtles and egg collection by local people, tourists often do not see the turtles and/or their nests and hatchlings. So, in order to ensure that **tourists will see more turtles, turtle nests and hatchlings**, the new program will collaborate with local people to ensure the following:

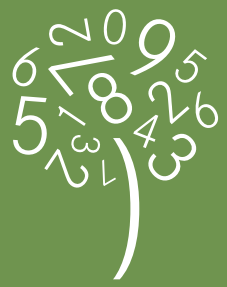
- They will not collect eggs or destroy turtle eggs;
- They will not poach turtles coming to the site;
- They will be engaged in the sanctuary for protection of turtles, their nests and hatchlings;
- They will be trained to protect turtles and turtle nests

It is expected that these changes will facilitate better turtle watching for visitors and more protection for turtles in the sanctuary.

Annex 2: Details of Sampling Plan

Sri Lankan Visitors		Both Scenarios			Total
Sample	**Percent**	**Rekawa**	**Yala NP**	**Bundala NP**	
December-February	39	117	59	59	**235**
March-July	61	183	91	91	**365**
Total	**100**	**300**	**150**	**150**	**600**

Foreign Visitors		Both Scenarios			Total
Sample	**Percent**	**Rekawa**	**Yala NP**	**Bundala NP**	
December-February	39	59	29	29	**117**
March-July	61	91	46	46	**183**
Total	**100**	**150**	**75**	**75**	**300**



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