

VISITORS' WILLINGNESS TO PAY FOR VISITING THE PATENGA BEACH, BANGLADESH

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Tourism has not yet been recognized as an industry in Bangladesh. There is a great dearth of studies to understand the significance of this sector to the nation. This study is a pioneer effort of its kind to evaluate the services of the Patenga Beach offered to its visitors. A total of 400 visitors were interviewed using a predesigned questionnaire. The study reveals that the maximum willingness to pay for entering into the beach without any reduction in the number of trips was BDT 475.69 inclusive of a beach entrance fee of BDT 100 (USD 1.25) per visitor. The study suggests that if the beach had well-planned facilities for the beach goers, they are willing to pay more for the development of the beach.

Ecosystem Services, Entrance Fee, Tourist, Travel Cost, Visit, Willingness to Pay.

INTRODUCTION

Bangladesh, a South Asian developing country, is surrounded almost completely by India, except for a tiny part of its border shared with Myanmar. Most of the rivers of the country originate from hills in India and fall into the Bay of Bengal creating deltas and beaches. The eastern part of the country boasts a number of finest beaches including one of the world's longest beaches, the Cox's Bazar Beach. The Patenga Beach is one of those beautiful beaches that are relatively unexplored and unspoiled by rampant tourism. It is located at the mouth of the river Kamaphuli and stretches to the Bay of Bengal. It lies approximately twenty two kilometers to the south and south-west of the country's largest port city, Chittagong (Anon 2013). Nature lovers come here to get rid of the hectic city life and breathe in fresh air. During 1990s, a host of restaurants and kiosks sprouted out around the beach area. Nowadays, alcohol peddling is common at the beach even though it is still illegal. The beach has a healthy atmosphere with sandy dune, and rocky patches here and there. Horse riding, boating, biking, and diving are common activities there. The incidents of stunning sunset and sunrise viewable from the beach allure the visitors to come here. Visitors find the Patenga Beach diverse, fascinating and, above all, beautiful. It is a tourist destination that tempts visitors with the attractions of good weather, natural splendor, and the quiet lapping of the ocean waves at their feet (TravelOneBD 2012). The property right of this beach solely goes to the government of the People's Republic of Bangladesh. Except for some business tax, government has no other income from this beach against a much bigger expenditure for its management and safety. The regular crowdedness with the footsteps of hundreds of city dwellers at the beach was a ground for the assumption that most of them, if not all, were willing to visit the beach even though an entrance fee were imposed for further development of the beach facilities. But how much to charge is a research question that needs an answer. Revealed preference and stated preference are two common methods in estimating such nonmarket ecosystem services (Garrod and Willis 1999). Revealed preference methods generally focus on how to value non-market goods and services basing on people's observed behavior which minimizes bias associated with studies of this nature (Boardman, Greenberg et al. 2010).

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Common revealed preference methods used for non-market valuation are hedonic pricing method, travel cost method (TCM) and market pricing method. TCM has been used extensively around the world to value public recreation sites with minimal or no admission charges (Hanley and Spash 1994).

The travel cost approach is based on the theory of consumer demand. The fundamental principle of TCM is that the value people attach to a location of environmental significance can be inferred from the cost they incur in travelling to it. Value is placed on non-marketed environmental goods by incorporating the patterns of consumption in related markets. Such costs of consuming the services of an environmental asset include travel costs, entry fees, on-site expenditure, outlay of capital expenditure necessary for consumption, and the opportunity cost of time. TCM has also been applied to determine the willingness to pay (WTP) for sites where the cost of visiting substitute sites is also taken into account.

Evidently, even though there were a good number of studies on TCM (Bell and Leeworthy 1990; Clough and Meister 1991; Markandya 1992; Navrud and Mungatana 1994; Lew 1998; Sarker and Surry 1998; Scarpa, Chilton et al. 2000; Chen, Hong et al. 2004; Paulrud 2004; Blackwell 2007; Gurluk and Rehber 2008; Saengsupavanich, Seenprachawaong et al. 2008; Bedate, Herrero et al. 2004) across the world to value nonmarket ecosystem services, no such studies could be traced out for valuation of any nonmarket environmental service in Bangladesh. Thus, there were colossal scopes to conduct a number of studies on many natural or tourism spots across the country and this study is a pioneer effort of its kind. The main objectives of this study were to estimate an average visitor's total travel cost, maximum willingness to pay as an entrance fee to visit the Patenga Beach and to investigate the factors affecting the decision to enjoy such visits. The study is expected to provide important recommendations on introducing and upgrading facilities for the visitors to make the beach safer and more enjoyable.

LITERATURE REVIEW

The literature on the recreational use value of beaches is enormous and that on the application of the TCM is even much more enormous across the world. In recent years, many nonmarket valuation studies have been conducted both in under developed and developed countries (Markandya 1992). Bell and Leeworthy (1990) evaluated the recreational demand by tourists for saltwater using the TCM and found out that the daily consumer surplus per visitor is about \$34. Clough and Meister (1991) also carried out a valuation study but their focus was on allowing for multiple sites visitors and they rather used the Zone-wise TCM (ZTCM). Their findings show that the consumer surplus per person per visit for Tongariro National Park, New Zealand is \$174 and \$147 for winter and summer visitors, respectively. They however claim that these figures are too high compared to estimates obtained from previous studies. As a consequence, they use some robust means to adjust these figures to the tone of \$124 and \$66 per head for winter and summer visitors respectively. A good number of similar studies (Clough and Meister 1991; Chen, Hong et al. 2004; Paulrud 2004; Gurluk and Rehber 2008; Bedate, Herrero et al. 2004) have been conducted using ZTCM. Similar to the study conducted by Clough and Meister (1991), Navrud and Mungatana (1994) estimated the value of wildlife viewing in Kenya. Their results suggested that average recreational value per visitor per day ranged from \$114 to \$120 for non-resident visitors who stayed in Kenya for an average of 21.6 days and \$68 to \$85 for resident visitors from Kenya. On the other hand, the CVM yields a WTP value of \$33.19 per visitor and a corresponding willingness to

accept (WTA) value of \$86.97 per visitor. These results are almost consistent with those of Clough and Meister (1991). Similar to Navrud and Mungatana (1994), Abdullah (1995) used CVM to estimate the benefits of beach recreation by using logit and probit models. Scarpa, Chilton et al. (2000) and Saengsupavanich et al. (2008) have also used the CVM to assess the recreational benefits of Irish forest and beach, respectively.

Sarker and Surry (1998) used the TCM to determine the economic value of big game hunting. They used the count data model with four different alternative empirical specifications - Poisson distribution, geometric distribution, negative binomial distribution, and the Creel and Loomis model. On the other hand, Lew (1998) studied the implications of the two-constraint joint recreational choice demand model using system of equations to determine consumer surplus estimates for total trips and total onsite time, conditioned on whether the model is linear or semi-log and whether one-third of or full wages are used to value travel time and onsite time. Other works that have employed the TCM using the count data model specifications include Blackwell (2007), Mendes and Proenca (2009) and Kim et al. (2010). Arin and Sills (2001) studied the overall development of tourism in the national parks of the Republic of Georgia. Using a sample of 600 visitors, Yaping (1995) conducted a study using TCM to value improved water quality for recreation in East Lake, Wuhan, China. In the interviews, information about respondents' social and economic conditions such as income, education, age, sex, etc were gathered. The demand equation was derived using visitation rate as a dependent variable and travel cost as an independent variable. The results showed that the functional form used was semi-log and travel cost was the major determinant of demand.

However, the travel cost approach assumes that various factors affecting visitors' travel costs, including both direct costs and the opportunity costs of visitors' time, influence the length and frequency of visitation to a given destination. The TCM has limitations, particularly in applications to multiple destination trips (Pearse 1968). Since the TCM is an indirect valuation method and is based on actual costs and in case of multiple destination trips it is difficult to segregate the cost for a particular site. In addition, assumptions such as the homogeneity of marginal costs and preferences of visitors from each origin are questionable (Wennergren 1964). To circumvent such limitations, studies that have estimated the use values of protected areas in developing countries have often excluded nonresidents (Durojaiye and Ipki 1988; Tobias and Mendelssohn 1991) or if foreign visitors are included, restrictive simplifying assumptions have been imposed (Navrud and Mungatana 1994). While studies using TCM have provided useful insights into the value of ecotourism in protected areas in developing countries, they have typically focused more on estimating consumer surplus than on evaluating user fees as a guide toward designing improved park pricing strategies which is the primary objective of the travel cost approach.

MATERIAL AND METHODS

DATA COLLECTION

A questionnaire was developed that included 30 questions to collect the information that were believed to have impacts on visitors' willingness to have visits to the Patenga Beach. The questionnaire consisted of seven parts namely, trip information, information

on choosing the beach, spending behavior, contingent behavior, beach services, demographic information and overall satisfaction of beachgoers about the beach. A systematic random sampling technique was used to select the visitors for interview. The four km long beach was divided into four equal segments, one km each. In each segment 100 visitors were randomly selected, and thus, a total of 400 visitors were selected randomly to be interviewed as per the questionnaire. Of the 400 selected visitors, 28 were not interested to respond to the interview. Hence, the actual number of visitors interviewed was 372. The interview process was conducted throughout the month of October, November, and December of 2012. To avoid sampling bias, interview process was conducted both on working days and in weekends. Visitors under the age of 18 were not interviewed due to complications involving the protections of human subjects and the necessity to obtain parental consents.

EMPIRICAL FRAMEWORK

TCM has been applied to determine the maximum willingness to pay (MWTP) for visiting sites with natural beauty or ecosystem services. In general, the total cost for individual “i” to visit a given site “j” can be represented by the following function in general (Hanley and Spash 1994):

$$X_{ij}=f(dC_{ij},tC_{ij},eC_{ij}) \quad (1)$$

Where,

X_{ij} = Total cost for individual i to visit the site j;

dC_{ij} = Distance costs for individual i to the site j which depends on the distance the person has to travel and the cost per mile of travelling;

tC_{ij} = Time costs which includes the time spent in travelling to the site j, the time spent inside the site and the value of the individual i's time.

eC_{ij} = Entrance fee for person i to site j.

Function (1) has been, and can be manipulated to accomplish specific studies. In the present study, this function has been used to calculate the travel cost per person to have a visit to the Patenga Beach. In revealed preference method, people's willingness to pay for visiting a beach reflects the demand for that beach to them. However, along with the cost, there are a number of other factors that might impact a visitor's preference for a beach to be visited. Given this, the following ordinary least square model was fit into the data to investigate the factors affecting visitors' preferences for choosing the Patenga Beach for a visit. The estimated parameters have subsequently been used to calculate a visitor's maximum willingness to pay to visit the beach.

$$Y=\beta_0+\beta_1 X_1+\beta_2 X_2+\beta_3 X_3+\beta_4 X_4+\beta_5 X_5+\beta_6 X_6+\beta_7 X_7+\beta_8 X_8+\beta_9 X_9+\varepsilon \quad (2)$$

Where,

Y = Number of trips made to the Patenga Beach per person per year;

X_1 = Number of years the visitor has been visiting the beach;

X₂= Quality of parking services to the beach (X₂= 5 if the service was excellent, 4 if above average, 3 if average, 2 if below average, and 1 if dissatisfying);

X₃= Security services of the beach (X₃=5 if the service was excellent, 4 if above average, 3 if average, 2 if below average, 1 if unsecured);

X₄= Age of the visitors;

X₅= The level of education that the visitors completed (X₅=5 if above bachelor, 4 if bachelor, 3 if Higher Secondary Certificate (12th grade), 2 if Secondary School Certificate (10th grade), 1 if below 10th grade);

X₆= Family size (Total number of members in the household);

X₇= Total household income (in thousand taka);

X₈= Overall satisfaction about the trip to the beach (X₈= 4 if highly satisfied, 3 if satisfied, 2 if dissatisfied, 1 = extremely dissatisfied);

X₉= Total travel cost to visit the beach;

β₀= The model intercept;

β₁, β₂, β₃, β₄, β₅, β₆, β₇, β₈, β₉ = Parameters to be estimated; and

ε= The normally distributed error term with mean zero and constant variance;

Using the estimated parameter in the model, number of trips to the Patenga Beach was calculated incorporating beach entrance fee in average travel cost [(X₉)] as shown in the following equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 [(X_9)] + e \quad (3)$$

Where, parameters with hats are the estimated values of the respective parameters, e is the entrance fee (if proposed) to the Patenga Beach, X_i (i=1,2,3,...,9) are the mean values of explanatory variables, and Y[^] is the predicted number of trips the visitors were willing to have to the Patenga Beach a year.

To predict the number of trips, mean values of the variables were used in the estimated model. While calculating, all variable means were held constant except travel cost to the Patenga Beach. This variable was gradually increased at a step of BDT 100 until the number of visits by a visitor to the beach tended to zero.

RESULTS AND DISCUSSIONS

The response rate of the visitors to participate in the study was 93%. Only 28 out of 400 visitors were not interest to respond in the interview. Maximum number (80.43%) of the visitors came to the Patenga Beach for spending leisure time to get rid of the of busy urban life followed by 13.23% of the visitors who came to the beach either for dating or for meeting friends (Table 1). Most visitors (83.07%) opted to visit the beach at vacation time no matter what the seasons were. It was followed by 15.87% of the visitors who opted to visit the beach at weekends. A number of factors were identified affecting visitors' choice in having visits to the beach. About 39% visitors said that they visited the beach since they found it peaceful. Another 37.57% visitors said that they visited the beach since it was close to the City of Chittagong. The nearness of the beach to the city center was flowed by the security (9.52%) of the beach and across-the-coast presence of

spacious concrete boulders (4.76%) that made rooms for the visitors to sit on and have good times (Table 1).

Table 1. Summary statistics of the attributes for the visitors to choose the Patenga Beach

Factors for Choosing Patenga Beach	Percentage	Purpose of the trip	Percentage	Time of trip	Percentage
Nearness to the city center	37.57	Spending leisure	80.43	Weekends	15.87
Life guards	2.66	Swimming	2.11	Vacation	83.07
Shopping	3.17	Dating and or meeting	13.23	Non-monsoon time	1.06
Concrete blocks for sitting	4.76	Entertaining kids	4.23		
Good swimming location	3.17		-		-
Relatively peaceful	39.15		-		-
Security	9.52		-		-
	100.00		100.00		100.00

Note: Total number of visitors surveyed, N=372.

The F value of the fitted model was 4.25 and it was significant at 1% level indicating that the model was a good fit for the data. The r^2 value of the model was 0.38. That means, the model could explain 38% of the variations in the number of trips to the site. Apparently, this r^2 value might not look good, yet in social science research, as in the case of present study, researchers are delighted with statistically significant r^2 values as low as 0.2 or even lower (Pyzdek and Keller 2009). Of the nine variables investigated, parking facility, household income and total travel cost, family size, and age of the visitors were found significantly affecting a visitor's number of trips to the beach in a year. The parameter estimates of the variables 'Number of years', 'Security', 'Education level', 'Overall satisfaction' and 'Total travel cost' were negative and that of other four were positive (Table 2).

Table 2: Factors affecting visitors' annual number of trips to the Patenga Beach, Bangladesh

Variables	$\hat{\beta}_i$	SE	t-Stat
Intercept	0.922	0.6632	1.3904
Number of years	-0.009	0.0179	-0.5543
Parking facility	0.192	0.0913	2.0982 ^a
Security	-0.095	0.0983	-0.9630
Age	0.014	0.0100	1.4277 ^c
Education level	-0.054	0.0759	-0.7079
Family size	0.131	0.0673	1.9498 ^b
Household income	0.002	0.0004	4.8114 ^a
Overall satisfaction	-0.003	0.1233	-0.0224
Total travel cost	-0.001	0.0003	-3.2193 ^a

Note: F = 4.25 ($p \leq 0.01$), $r^2 = 0.38$, ^asignificant at 1% level, ^bSignificant at 5% level, and ^cSignificant at 10% level

The parameter estimate for the variable 'Parking facility' was 0.192 which was significant at 1% level. The implication of this finding is that, if the quality of parking service level is increased by 1, number of trips to the beach increases by 0.192 (Table 2). The Patenga Beach is the closest beach for the city of Chittagong, the dwelling place for four million people. Thus, hundreds of nature lovers of this city have great demand for

this beach. But its parking lot was quite insufficient for so many visitors. This study, as expected, has proven that, the beach could attract more visitors if parking service for the visitors could be improved or increased. The beta value for the variable 'Age' was 0.014 which was significant at 10% level (Table 2). The study has established the fact that people's age has a positive link with their likelihood of travelling to places of interest. A visitor is likely to take one additional visit to the Patenga Beach if the visitor is 10 years older.

The parameter estimate for the variable 'Family size' was 0.131 which was significant at 5% level. That means, a visitor's number of visits to the Patenga Beach increased by 0.131 if his or her family member were increased by one (Table 2). The implication is that a larger family is more likely to take a travel to the Patenga Beach than a smaller family does. The traditional belief and festivity vary widely from society to society. In Bangladeshi social structure, it is true that a financially solvent larger family spend more time in travelling and tourism than a small family. The study also confirms that. The estimated parameter of the variable 'Household income' was 0.002 which was significant at 1% level. As expected, it implies that a visitor's annual number of trips to the Patenga Beach increases by 0.002 if his or her income increased by a thousand taka (i.e., a visitor will add 2 more trips to this beach if his income increases by 1000 thousand taka). As already mentioned, a well off family is likely to spend more on travel than a needy family. Unlike household income, the number of trips to the beach declines for an increase in the cost of travelling to the Patenga Beach. The parameter estimate for the variable 'Total travel cost' was -0.001 which was significant at 1% level (Table 2). That is, if the travel cost to the Patenga Beach increases by BDT 1000, the number of visits in a year by a visitor to the beach would have dropped by one.

Table 3 shows how a visitor's number of visits to the Patenga Beach decreased for an increase in the travel cost attributed to imposing an entrance fee to enter the beach. As expected, a traveler would keep on decreasing the number of trips to the beach if an entrance fee were imposed and gradually increased. When the entrance fee was zero with a total travel cost of BDT 375.69, a visitor's annual number of trips to this beach was estimated to be three. Given that a visitor would not decrease his estimated number of visits to the beach, he was willing to pay an entrance fee of BDT 100. If the entrance fee were increased to BDT 200, the estimated number of trip would have fallen from three to two. Each visitor was willing to have an average of two visits a year to the beach if the entrance fee ranged from BDT 200 to BDT 1200. Similarly, a visitor was willing to have a single visit a year to the beach if the beach entrance fee were in the range of BDT 1300-2200. If the fee exceeded BDT 2200, the visitor was not interested to have any visit to this beach. Thus, with the existing number of trips unchanged, the maximum a visitor was willing to pay as beach entrance fee was BDT 100 (equivalent to USD 1.25 at 2012 exchange rate) and as total travel cost was BDT 475.69 (USD 5.95) to have visits to the Patenga Beach.

Table 3: Estimation of predicted number of trips to the Patenga Beach, Bangladesh

Table 3: Estimation of predicted number of trips to the Fategu Secondary Sanitation													
	0	1	2	3	4	5	6	7	8	9	e*	MWTP	Trips Y
$\hat{\beta}_i$	0.922	-0.010	0.191	-0.095	0.014	-0.054	0.131	0.002	-0.003	-0.001			
$\bar{x}_i$	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	0	375.69	3	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	100	475.69	3	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	200	575.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	300	675.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	400	775.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	500	875.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	600	975.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	700	1075.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	800	1175.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	900	1275.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	1000	1375.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	1100	1475.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	1200	1575.69	2	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	1300	1675.69	1	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	1400	1775.69	1	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	1500	1875.69	1	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	1600	1975.69	1	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	1700	2075.69	1	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	1800	2175.69	1	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	1900	2275.69	1	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	2000	2375.69	1	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	2100	2475.69	1	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	2200	2575.69	1	
	9.42	3.51	2.97	31.35	3.91	4.35	501.37	3.60	375.69	2300	2675.69	0	

*e is the beach entrance fee in BDT; MWTP = Maximum willingness to pay; BDT 80 = USD1 (Exchange rate in December, 2012).

CONCLUSIONS

The main objective of this work was to estimate the maximum willingness to pay for an average visitor to visit the Patenga Beach. The regression results obtained from this study showed that travel cost, visitor's household income, family size, parking facility were important variables for visiting the beach. The parameter for travel cost was negative and significant implying that increase in travel cost would reduce the number of trips, as was normally expected. Similarly, the parameter of household income was positive and significant implying that the number of trips increased as household income increased. The study predicted that an average visitor was willing to pay BDT 100 (i.e. USD 1.25) as beach entrance fee to visit the Patenga Beach without a significant reduction of the number of visits to this beach. Marketing of the ecosystem services provided by the Patenga Beach is important for its further development. So government might consider imposing an entry fee less than or equal to BDT 100 per head to enter the beach. This would generate a great deal of revenue that could be used for better management of the beach. The beach did not have public washrooms or facilities for sanitation. Revenue collected as beach entrance fee is expected to help build such facilities. Development of such facilities would surely attract more visitors to this beach.

The study reveals that most visitors of this beach were from Chittagong city with a small fraction from other parts of the country. Although many visitors were found interested to stay at the beach for a couple of days to spend leisure or honeymoon, they stayed there for a couple of hours since there were no hotels or motels at or near the beach. So, it is

recommended that if secured and comfortable lodging facility can be developed, this beautiful beach will attract far more number of visitors from every corner of the country. Since Chittagong is an importance center for international trade and business, this beach could be an excellent tourist spot for foreigners too if it had well established permanent infrastructures.

The study also shows that about 39.34% visitors to this beach came here by their own vehicle. Although the rest of the visotrs didn't own any vehicle, many of them came there by rental vehicles reserved for the entire trip time. Thus, a huge number of vehicles gather there during a typical visiting season. From onsite visits it was clearly evident that vehicles were on long queue to enter the parking site. This killed a significant amount of time from the stipulated visit time of the visitors. This problems needs to be fixed. A well-managed and sufficiently spacious parking service should be given a higher priority for scientific and economic development of this beach.

The outcome of the study is expected to help the policy makers to prepare a comprehensive management plan for the Patenga Beach along with its future development. The results of the study will be useful to Chittagong City Corporation, the Chittagong Development Authority (CDA) and the Bangladesh Tourism Corporation to come up with an integrated management and development plan for this beach. Better management of this beach will ultimately improve the quality of the existing below standard food corners and catering services. Results obtained from this study will likely serve as a guide to explore the touristic potentials of such other natural sites of the country. The study is one of the very pioneer efforts of its type. Thus, it is expected that this study will provide premises for future research in the evaluation of nonmarket ecosystem services.

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