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"Should '*Paraviwella* Beach' in Sri Lanka be Preserved for 'Sea Bathing'?": A ZTCM Approach

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Abstract

'Sea bathing' is the main recreational activity at the Paraviwella Beach Park in Sri Lanka. However, there is a proposal by the Government of Sri Lanka to convert the Beach Park into an area that could be used for the expansion of the fisheries harbour. Our study examines the possibility of the proposal against maintaining the Park by using the Zonal Travel Cost Method to estimate the welfare benefits (in terms of Consumer Surplus). The study shows that the welfare benefits of Paraviwella Beach Park to be LKR 6.39 million per year for local visitors. Our results suggest that for maximum revenue from the park to be derived, the fresh water bathing fee should be raised to LKR 100.45 from the present fee of LKR 20 since those who sea-bathe requires a fresh water bath thereafter. Though it would reduce the visitor numbers to the Park by 34%, it would increase the total revenue of the Park by 231.18%. These values demonstrate that the Park can be preserved for sea-bathing while making the site more financially viable.

Keywords: *Consumer surplus, Sea bathing, Recreational value, Travel cost method*

Introduction

Ocean beaches are a major site of recreation and remain one of a handful of democratic leisure environments in today's world (Short, 1999; Klein, Santana, Diehl, & de Menezes, 2003; Bartrowns & Rees, 2000). They signify a place where people from all 'walks of life' come to relax as well as to fulfill both their psychological and physiological needs. In the case of Sri Lanka, coastal areas, which carry high total economic value comprising both use and non-use values, play an important role in the planned economic development of the country. Among the few beaches along the coast line that have been identified as both popular as well as safe for bathing is the Paraviwella Beach, Tangalle in Sri Lanka. The Tangalle Urban Council, which is in charge of the site, has provided fresh water bathing facilities, wash rooms and parking facilities for visitors in order to make the experience of sea-bathing more enjoyable for visitors.

However, the present use value of the beach may change soon if the argument that the Paraviwella Beach is more suitable for expanding the existing fisheries harbour, in line with ongoing development plans for the Tangalle and Hambantota areas, were to hold sway. If the Beach were to lose its present use value as a sea bathing site for the general public, it would lead to a loss of welfare benefits for the general public as only a few people would benefit from the other development activities proposed. The present study therefore investigates the welfare benefit of sea-bathing at Paraviwella Beach. The estimated recreational value could be used by the policy makers to take policy decisions on the expansion of the fisheries harbour or in decision-making relating to future recreational development plans for the Paraviwella Beach.

Empirical Studies

Environmental valuation methods have been devised in order to identify the economic value of various activities involving the environment. Among the valuation methods for this purpose are, as Woodward and Wui (2001) have pointed out, the net factor income method, replacement cost method, travel cost method (TCM) and contingent valuation method. They go on to propose that the travel cost and contingent valuation models are suitable to measure the non-use value of an entity such as the wetlands. Of these, the TCM is the oldest technique for measuring the willingness to pay for non-use value (e.g. recreational benefits) recreational benefits (Clawson, 1959).

The TCM is one of several revealed preference methods applied to the valuation of non-marketed goods and services. The TCM relies on the assumption that although access to a recreational site has a minimal or no explicit price, individuals' travel costs, including transportation, accommodation, and lost wage can be used to approximate the surrogate prices for the recreational experience. The basic premise is that visitors perceive and respond to changes in travel costs to the site in the same way that they would respond to changes in an entry fee, so that the number of trips to a recreation site would decrease with an increase in distance travelled and other factors that add to the total travel cost (TTC). Socio-economic characteristics of the individuals and information concerning substitute sites and environmental quality indicators may also be included in the demand function.

Environmental valuation methods have been widely applied to value benefits and losses with regard to supporting the sustainable management of natural resources (Barbier, Acreman, & Knowler, 1997; Brander, Raymond, Florax, & Vermaat, 2006; Sterner, 2003). However, it is difficult to evaluate all the economic benefits provided by an entity such as the wetlands because they have a wide range of hard-to-value uses. The benefits arising from environmental resources are classified in the total economic value (TEV) scheme (Barbier *et al.*, 1997). The TEV of environmental resources consists of their use and non-use values where use values involve actual use/consumption of the environmental resource. Use values can be further divided into direct use values, indirect use values and option values. Environmental resources can affect the welfare of individuals not directly related to recreational consumption. Direct use value is secured by actual visits to the site.

There are a number of studies on beach recreation from around the world that estimate consumer surplus (CS). Among them are studies by Blackwell (2007) on the Mooloolaba beach; Hanley, Bell and Alvarez-Farizo (2003) on the coastal waters of Scotland; and Hynes, Tinch and Hanley (2013) on the European bathing waters. The available studies make it evident that the majority were undertaken to estimate the benefits of improving marine water quality (Machado, 2002; Hanley, Bell and Alvarez-Farizo, 2003). In the recreational literature, there is however a dearth of studies on 'sea bathing'. A study by an anonymous author (Kang, 2007) however has estimated the non-marketed value of recreational beach resources at the Qingdao bathing beaches in China using TCM and contingent valuation. It gives policy directions for setting up a rational system of tax on beach resource exploitation and utilization.

Materials and Methods

Study Area

The Paraviwella Beach Park (6^0 01' 21.79" N and 80^0 48' 02.87" E) situated in the Southern Province of Sri Lanka, is about 200 km from the capital city Colombo. The Beach is one of the most beautiful and safest places for sea bathing as it resembles a natural built-up swimming pool enclosed by a huge coral reef. Its spectacular sunsets in addition to safe bathing opportunities make the Beach a huge visitor draw for those who visit Tangalle. At present fresh water bathing fee and vehicle parking fee are LKR 20.00 and LKR 50.00 respectively.

Methods

Theory of TCM

The present study applied the Zonal Travel Cost Method (ZTCM) because repeated visits to Paraviwella were very low within any given one-year period. This demand function can be used to estimate the total benefits derived by visitors (usually expressed in terms of CS) and under certain assumptions extrapolated to the general population.

The basic method of travel cost assumes that visitors visit only a single site during any given trip. In the ZTCM model, on the other hand, the country is divided into zones and the visitation rate from each zone is calculated instead of the visitation rate of individuals. Thus, it assumes that visitors from one region have the same characteristics. In ZTCM, 'quantity demanded' is represented by 'visitation from zones' to the site rather than the number of times a single visitor visits the site within a period. For a theoretically consistent negative relation between demand price and visitation, visitors' originating places are categorized into zones depending on their distance from the site. Assuming travel cost to be an increasing function of distance, the primary cause of variation in visitation rate from different zones is traced to their distances from the site. Implicitly, it also assumes that tastes and preferences of visitors across the zones are homogeneous. The zonal visitation rate is assumed as a proxy for the quantity demanded for recreation. Visitors from a shorter zonal distance to the site are expected to have a higher visitation rate than those from a greater zonal distance since the travel and time costs are lower for those from closer regions. The visitation rate (VR) and total travel cost (TTC) thus have a negative relation in conformity with the law of demand (1). Although variables such as age and sex of the respondents are used very much as the determinants of visitation frequency to a site for estimating the Trip Generating Function (TGF) in Individual Travel Cost Method (ITCM), in zonal models these variables normally do not appear because such variables remains undefined for a zone. Therefore, the relationship between VR and TTC is considered in regression and is known as the TGF.

$$VR = f\,TTC \quad \ldots\ldots\ldots\ldots\ldots(1)$$

The value of the recreational services offered by the site is measured by the difference between the estimated demand prices and the actual expenses that the visitor incurs during the whole trip. In other words, it refers to the CS, estimated as the area under the demand curve and above the price-line representing visitors' actual travel cost. For each zone a 'choke price' can be calculated using the estimated TGF which represents that maximum of all the demand prices from that zone (i.e, that value of T_i for which estimated VR_i falls to zero). If T_0 is the average (actual) price paid by visitors and T_C is the choke-price, then consumer surplus (per thousand people, or any other unit used for computing VR_i) is given in equation (2).

$$CS = \int_{T^0}^{T^c} VR\, dT \quad \ldots\ldots\ldots\ldots (2)$$

The CS for each zone, thus estimated, needs to be adjusted by an appropriate multiplicative factor to account for the total population in that zone. Aggregate CS can be obtained as the sum of zonal surpluses, which represents the recreational value of the site. However, it should be recognized that this sum measures only the recreational value of the site and not its TEV.

Survey design, Data collection & Questionnaire survey

The study omitted foreign or overseas visitors from the sample as their inclusion would have led to significant differences given their high purchasing power as well as higher travel costs arising from those for transportation, lodging, entrance, etc. in comparison with local visitors and other multiple visitor issues. Data for the study were collected from both primary and secondary sources.

The study collected primary data from a field questionnaire survey. Local visitors were interviewed on site individually and sample size was 220. Systematic random sampling was applied so that the group leader or a volunteer participated in the survey while an adult from every 11th visitor group to Paraviwella was interviewed. The questionnaire consisted of 15 sub-questions/sections. Information on area of residence, socio-economic features, visitation rates to Paraviwella, round trip mileage, travel costs, opportunity cost of travel time, length of the trip, time spent at the site, other locations visited during the same trip, quality of the recreational experience and perceptions of environmental quality at the site were obtained via the questionnaire. The questionnaire was designed to collect information indirectly. This questionnaire was pre-tested with 15 visitor groups for clarifications regarding the feasibility of the data collection before the survey proper. The questionnaire was administered to randomly selected visitors from 07.00hrs to 17.30hrs from November 2014 to October 2015. The survey was conducted on weekdays, weekends and public holidays.

Only eleven districts were selected as zones for the study because the pretest results showed that the number of visitors from the other districts were very low during the period of the study. The questionnaire survey showed that the number of visitors from some districts was less than 5%, and these districts are located far away from the study site. The visitation rates per 1000 population from each district/zone were estimated using the following equation (3).

$$\text{Visitation rate/1000/year} = \frac{(V_{i/n})N\ x\ 1000}{P_i} \qquad \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

where, V_i= visitors from i^{th} zone, n = sample size, N = total number of visitors per year

P_i = Population in i^{th} zone

Total Travel Cost (TTC) estimation

TTC includes both the travel cost and the opportunity cost of time. Travel cost refers to the direct expenses incurred by visitors in getting to and from the site by including fare, fuel, fees and other incidentals (Lockwood & Tracy, 1995). Opportunity cost of time is the value of the time spent on the journey including time spent at the site. It is assumed that the people in zone '0' would have zero travel distance and time. All other zones would have an increasing travel time and distance.

The value of time is calculated by using the following formulae (4):

$$\text{Value of time (SLR) hour} = \frac{(MI/30)}{8} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

where, MI = average monthly income of each zone; 30 = days per month; 8 = working hours per day

Obtaining the statistical regression

This was done to test the relationship (i.e., to explain visitation rates in terms of travel costs) between visitation rates and respective travel costs through a linear regression. STATA 11 statistical package was used for analysis.

Construction of the demand curve

If the visitation rates of the Park users can be shown as a function of the 'Price' paid, for which travel cost is a proxy, the relationship can be taken as a 'demand curve' for bathing at Paraviwella Beach Park. Given a demand function relating visitation rates to travel cost, the final step was to 'anchor' the data to the actual level of visits, and generate points on the demand curve iteration.

The zonal visitation rates per thousand populations with respect to travel costs were used to estimate the demand equation for 'sea bathing at Paraviwella Beach Park. The same equation was used with data on travel costs to track changes in demand for visits with increasing admission fees. The area under this curve is calculated assuming that the demand curve is linear between any two points. According to Figure 1a, CS is the area under the demand curve above the price line. In the absence of an entrance fee, the entire area under the demand curve was considered as the CS for bathing and as equal to the total recreational value.

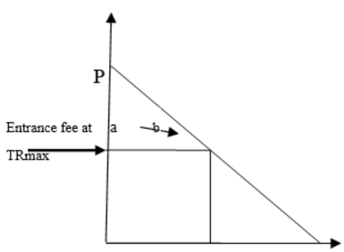

Figure 1a: Demand curve for recreation

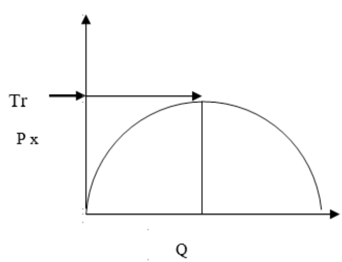

Figure 1b: Relationship between total revenue and Q

a = intercept

b = slope

p = a - b Q …………………… (5)

TR = P X Q

From Figure 1a,

$$P = a - b\,Q$$

$$TR = (a - b\,Q)\,Q$$

$$= aQ - bQ^2$$

From Figure 1b,

when TR is maximum (TRmax)

$$dTR/dQ = 1- 2bQ = 0$$

Then, $a = 2bQ$

$$Q = a/2b \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \; (6)$$

Determination of price which gives the maximum revenue

The actual visitor number with a higher entrance fee is the number of visitors of all studied zones with respect to each proposed total travel cost with higher entrance fee. Once the actual zonal number (Q) is obtained, the total revenue (TR) can be calculated by multiplying the Q by the respective fee (P).

Q is first regressed against the respective P in order to obtain the appropriate regression equation. Here, when P reaches zero, Q will be maximized; when P is at a maximum, Q will be zero. The TR is plotted against Q to obtain the point which gives the maximum revenue (Tr max) as seen in Figures 1b.

According to equation (6), Q can be calculated because 'a' and 'b' are given in the regression equation of P and Q. Once Q is calculated, it can be substituted in the above formula to get the appropriate price level, which is the price or the maximum revenue that should be charged as the entrance fee.

Present value of non market benefits (PVB) from preserving the site

Given Paraviwella Beach Park's status as a recreational bathing area, a flow of annual benefits has come to be associated with it over a long period of time. Thus the sum of aggregate CS estimated in our study provides an insight into the 'social value' of preservation Grigalunas, Opaluch and Trandafir, 2004). The present study focuses only on the recreational benefits provided by the

Paraviwella Beach Park. Additionally, the study estimates only the benefits of preserving the present recreational use value of the site.

According to Grigalunas, Opaluch and Trandafir (2004), the CS is the difference between the maximum that a user is willing to pay in order to engage in recreational activities or to maintain the present level of amenities and the cost that they would have to incur in order to be able to do so. Hence, it is possible to obtain the yearly benefits (i.e., CS accruing to users) from enjoying the amenities at the natural recreational site by:

$$PVB = \frac{Y}{(1+r)^1} + \frac{Y}{(1+r)^2} \frac{Y}{(1+r)^n} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(7)}$$

where, 'Y' is the annual CS in Sri Lanka Rupees (SLR) and '*r*' is a discount rate. In valuing constant benefits in terms of SLR, where Y is received in perpetuity, the simplified formulae would be:

$$PVB = Y/r \ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(8)}$$

In calculating the *PVB* in the present study, the discount rate is considered as 10 percent as proposed by the Department of National Planning in Sri Lanka.

Results and Discussion

The total number of visitors, as well as the origin of the place of travel of each visitor, was recorded for a period of twelve months from November 2014 to October 2015. The remainder of the visitors was from 11 districts. The study calculated their visitation rates as well (Table 01). According to the data collected, most of the visitors were from Hambantota, Colombo and Gampaha districts. The lowest visitation rate was recorded from the Puttlam district.

Table 01: Time costs, Travel costs, Total travel costs and Visitation Rates for Paraviwella Beach Park

District	No. of Interviewed Visitors	Mean Travel Cost (SLR)	Mean Opportunity Cost (SLR)	Existing Fresh Water Bathing Fee	Total Travel Cost (TTC) (SLR)	Visitation Rate (VR)
Hambantota	45	125	185	20	330	26.41
Matara	22	150	210	20	380	8.78
Galle	15	210	226	20	456	4.63
Rathnapura	11	275	265	20	560	3.26
Colombo	23	346	310	20	676	3.01
Kalutara	21	327	290	20	637	6.20
Gampaha	24	332	304	20	656	6.94
Moneragala	21	110	228	20	358	15.95
Kandy	10	321	290	20	631	2.34
Kurunegala	6	367	312	20	699	1.29
Puttalum	5	318	328	20	666	2.14

The information supplied by visitors revealed that the highest total travel cost was for those from the Colombo District where as the opportunity cost of time was highest for those from the Puttlam District compared to all other districts (Table 01). The lowest TTC, due to the low travel cost and opportunity cost of time, was recorded from the Hambantota district given that the study site was located in the same district.

The travel cost function was estimated using the ordinary least square method (OLS). The estimated regression function was significant and the adjusted R^2 (measure for goodness of fit) was acceptable at 62.7 %. All the variables were significant at the 5% level. Table 02 gives the regression results.

The regression equation (TGF) is,

VR = 30.66 – 0.0424TTC …………………..(9)

Table 02: Regression results of VR vs TTC for Paraviwella Beach Park

Variables	Visitation Rate (VR)
Total Travel Cost	-0.0424***
(TTC)	(0.0109)
Constant	30.66***
	(6.167)
Observations	11
R-squared	0.627

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Since the regression results were satisfactory, it was used in estimating the demand function for Paraviwella Beach Park. The demand function was calculated by estimating the number of visitors (per year) for various levels of proposed fresh water bathing fees. When a certain level is reached with the fresh water bathing fee, demand will be zero (choke-price), and none will visit from that zone. The demand function of each district was summed up horizontally to derive an aggregate demand curve for the Paraviwella Beach Park. Another method to derive the aggregate demand curve is to total the number of visitors from all regions at each level of entry fee. Since both these methods give identical results (Dixon and Hufschmidt, 1986), the latter was used in this study. Table 03 shows the visits from each zone at different levels of entrance fee and the aggregate visits.

We plotted the data as a graph and used it to calculate the consumer surplus (see Figure 2). We divided the graph into seven strips based on the distribution of coordinates and calculated the area of each strip (assuming that the demand curve is linear between any two points) which was then summed up. We calculated the area under the above curve (Table 04) thereafter.

Table 03: Visitor numbers for each increasing entrance fee calculated by using formulae no. (9) for Paraviwella Beach Park

District	Population '000	TTC (SLR)	Proposed Fee (SLR)							
			0	20	40	80	120	160	200	240
Colombo	2584	676	656	676	696	756	816	916	1016	1156
			(7363)	(5172)	(2981)	(0)	(0)	(0)	(0)	(0)
Galle	1096	456	436	456	496	576	696	856	1056	1296
			(13347)	(12417)	(10558)	(6841)	(1264)	(0)	(0)	(0)
Gampaha	2191	656	636	656	696	776	896	1056	1256	1496
			(8101)	(6243)	(2528)	(0)	(0)	(0)	(0)	(0)
Hambantota	576	330	310	330	370	450	570	730	930	1170
			(10092)	(9603)	(8626)	(6672)	(3742)	(0)	(0)	(0)
Kalutara	1144	637	617	637	677	757	877	1037	1237	1477
			(5152)	(4182)	(2241)	(0)	(0)	(0)	(0)	(0)
Kandy	1447	631	611	631	671	751	871	1031	1231	1471
			(6884)	(5657)	(3203)	(0)	(0)	(0)	(0)	(0)
Kurunegala	1577	699	679	699	739	819	939	1099	1299	1539
			(2956)	(1619)	(0)	(0)	(0)	(0)	(0)	(0)
Matara	847	380	360	380	420	500	620	780	980	1220
			(13044)	(12326)	(10889)	(8016)	(3706)	(0)	(0)	(0)
Moneragala	445	358	338	358	398	478	598	758	958	1198
			(7268)	(6891)	(6136)	(4627)	(2362)	(0)	(0)	(0)
Puttalum	789	666	646	666	706	786	906	1066	1266	1506
			(2583)	(1914)	(576)	(0)	(0)	(0)	(0)	(0)
Rathnapura	1139	560	540	560	600	680	800	960	1160	1400
			(21149)	(20639)	(19618)	(17577)	(14515)	(10433)	(5331)	(0)
Total Number of Visitors			97939	86662	67356	43733	25590	10433	5331	0

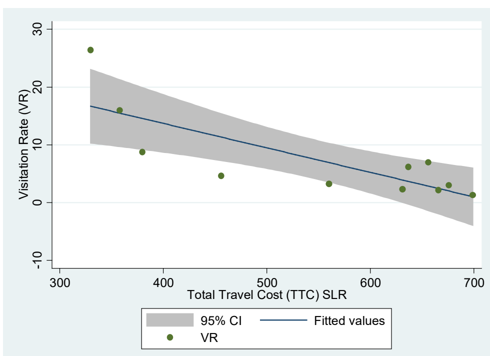

Figure 02: Regression, VR vs TTC

Table 04: Calculation of recreational value of bathing at Paraviwella Beach Park

Section	Triangle Area	Square Area	Total Area
1	½*20*(97939-86662)	-	112,770
2	½*20* (86662-67356)	20*(86662-67356)	579,180
3	½*40*(67356-43733)	40*(67356-43733)	1,417,380
4	½*40*(43733-25590)	80*(43733-25590)	1,814,300
5	½*40*(25590-10433)	120*(25590-10433)	2,121,980
6	½*40*(10433-5331)	160*(10433-5331)	918,360
7	½*40*5331	200*5331	1,172,820
Total Recreational Value			8,136,790 (SLR 8.14 million)

According to the analysis, the local recreational value (assuming that the fresh water bathing fee is zero) of Paraviwella Beach Park was LKR 8.14 million per year in 2013. The total welfare benefit of bathing was LKR 6.39 million per year. Roughly 68,620 local visitors were recorded based on the sold fresh water bathing tickets during the study period and the site was worth approximately LKR 93.15 per local visitor. We regressed the proposed fresh water bathing fee against the expected number of visitors the results of which are given in Figure 2 and Table 05. They give the R square value as 93.2%, the results of which are acceptable.

Table 05: Regression results of P vs Q for Paraviwella Beach Park

Variables	Proposed Fee (P)
Number of Visitors (Q)	-0.00222^{***}
	(0.000245)
Constant	200.9^{***}
	(13.50)
Observations	8
R-squared	0.932

Standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

The demand function for the Paraviwella Beach Park is,

$P = 200.9 - 0.00222Q$………………….. (10)

According to Figure 1a, ‘a’ is 200.90 and ‘b’ is 0.00222 while Q is 90,495. Substituting this into formula no. 2 will result in a P value of Rs. 100.45 which is the optimum fresh water bathing fee which maximizes the total revenue. The total revenue at this entrance fee would be LKR 4,545,162.00 (or LKR 4.54 million). Though the proposed optimum fresh water bathing fee will result in a reduction in the total number of visitors by 34.06%, it would still maximize the total revenue of the Park by 231.18%. In general, an increase in the bathing fee to the Park is bound to result in a reduction in the number of visitors to the Park. It has been argued that such increases in the bathing fee would de-motivate people who are poor or with marginal income levels. Given that the data yielded by the survey of visitors showed the mean monthly household income of visitors to be roughly LKR 54,400.00, it would be reasonable to assume that visitors to the Park are not at the poorest or the marginal income levels of society.

Though the price of all goods and services provided by the Park, including vehicle parking charges and fuel prices, have increased significantly in recent times, the fresh water bathing fee has not been increased for the last five years. There is further justification therefore for an increase in the bathing fee and further support for the argument that such an increase would not have harmful social implications.

However, the mean fresh water bathing fee, proposed by visitors, according to the questionnaire survey, is LKR 30.00. Since this value is higher than the present fee, it suggests that the present bathing fee can be revised upwards. The recreational value generated by the present study (LKR 8.14 million) is within the range of the estimated recreational values of national parks in Sri Lanka. A study by Rathnayake and Gunawardena (2009) recorded roughly LKR 1.92 million for Kawdulla National Park in Sri Lanka while Rathnayake and Gunawardena (2011) and Marasinghe (2002) respectively recorded LKR 51.68 million and LKR 54.4 million for the Horton Plains and Yala National Parks in Sri Lanka. In comparison with other national parks, Horton Plains National Park and Yala National Park record higher values, mainly due to their higher visitation rates. Meanwhile, the highest recreational values were recorded for urban recreational areas like Diyawanna Oya (at the Parliament Ground in Sri Lanka) due to the higher visitations and the higher incomes of visitors. A study done by Kang (2007) estimated the CS for the Qindao First Beach at RMB 197 million yuan/year (1 RMB = 0.15 USD). Compared to that figure, the CS at Paraviwella is low (LKR 143= 1USD) as the annual visitation to the park is also comparatively low at the Paraviwella Beach Park.

The study excluded students and foreigners to narrow down the scope of the study. This would lower the estimated value in comparison with the real value placed by visitors as a whole on the experience of sea-bathing at the Paraviwella Beach Park. Another problem that the study faced had to do with the fact that most visitors do not visit Paraviwella only, instead of visiting it as part of a tour that entails visits to many other sites. The use of the travel cost of such visitors for the estimation of ZTCM would have overestimated the real value of Paraviwella Beach Park. Hence, only costs incurred in visiting Paraviwella were considered in the present study.

TCM also uses existing markets, determining a person's valuation of an environmental good from what they spend on the visit in terms of time, travel expenditure and entry fees (in this instance, the fresh water bathing fee). Travel cost methods are particularly useful for assessing the value of non-commercial tourism, such as the recreation and leisure values of a protected area. Travel cost methods, however, can be problematic in that they are data intensive, relying as they do on restrictive assumptions about consumer behaviour (for e.g., multifunctional trips) while being highly sensitive to the statistical methods used.

Conclusions and Policy Recommendations

The present study focused mainly on how the economic value of welfare benefits from recreational sea-bathing is useful for taking a policy decision on the proposed harbour expansion at the Paraviwella Beach Park. The study shows that while the welfare benefit of sea-bathing at Paraviwella is LKR 6.39 million per year, the total economic value could be much higher than this. Meanwhile, the present value of benefits of Paraviwella is LKR 63.9 million per year. According to the secondary data available, revenue generation from the 'harbor operation' would be two times lower than this value. In addition, the proposed fisheries harbour expansion requires a considerable amount of capital. Moreover, a harbour expansion would benefit only a relatively small number of people, mainly the local community.

Our research shows that there is potential to earn more revenue from bathing at the Paraviwella Beach Park. Thus the study provides a justification for preserving the site as it is instead of converting it for other uses such as the establishment of hotels and the expansion of the fisheries harbour. Since it was observed during the research that the operational and maintenance costs of the Paraviwella Beach Park are very low, the study recommends that a certain amount of the Park's earnings be invested in providing more facilities like 'summer huts', 'resting places', 'an interpretation centre' and safe drinking water facilities for visitors in an eco-friendly manner. The recorded mean age was 32 years and the mean household income was LKR 54400.00 per month. As a policy decision government should consider in determining a reasonable fresh water bathing fee. Further, the mean age is 32 years, and comparatively, a young crowd comes enjoy the sea bathing. Therefore, if visitor facilities are provided that should mainly focus this crowd. The study also recommends that policy makers reconsider and recalculate the existing fresh water bathing fee at the study site so that the investment is required to provide the afore-mentioned visitor facilities will not be a burden on the Tangalle Urban Council. Since the total area of the Beach Park is comparatively small in size, the ecological and social carrying capacities of the Park would need to be considered however in establishing infrastructure and visitor facilities.

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