Sustainable Tourism in the Global South

Sustainable Tourism in the Global South:

Communities, Environments and Management

The chapters in this book are selected presentations from the 7th Tourism Outlook Conference and the 3rd Tropical Tourism Outlook Conference: Nature, Culture and Networking for Sustainable Tourism, held at the Heritance Kandalama Hotel, Dambulla, Sri Lanka, 8 to 10 August 2014.

Edited by

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PREFACE

This book is an updated collection of selected research papers presented at the Tropical Tourism Outlook Conference Sri Lanka 2014 (TTOC Sri Lanka 2014). Recognizing the significance of the contributions for sustainable tourism development across the globe, the editors have compiled refereed final papers from each of the selected researchers for this book. The book is based on theoretical and empirical evidence gathered through surveys, in-depth interviews, participant observation and contextual analysis. Based on coherence and similarity, the chapters in the book are clustered in three parts: community, environment and management. Overall, there are nineteen chapters dealing with various aspects relating to sustainable development such as sustainable tourism, community and livelihood, socio-culture and economy, resources and environment, politics and policy settings, capitalization and capacity building, networking and marketing. As the contributors for the books are from different academic disciplinary backgrounds, this approach will enrich the reader's ability to triangulate relevant outcomes from the book.

The first part of the book consists of studies of the community context of tourism. In the first chapter R. M. W. Rathnayake and U. A. D. P. Gunawardena illustrate the welfare benefits for recreational planning in a national park of Sri Lanka. In Chapter 2, M. S. M. Aslam, Khairil Wahidin Awang, Zaiton Samdin, and Nor'ain Binti Hj. Othman investigate community capacity and participation in sustainable rural tourism development in Sri Lanka. Chapter 3 covers community-based ecotourism: help or hindrance of external forces, and is an analysis by Nantira Pookhao of the pros and cons of ecotourism development in a community. Ruwan Ranasinghe and Iraj Ratnayake in Chapter 4 analyse operator perspectives on homestay tourism in Sri Lanka. Influences of leadership on the continuity of homestay tourism are analysed by Wan Siti Zubaidah Yahya, Norliza Aminudin, and Norzuwana Sumarjan in Chapter 5, and in Chapter 6, H. M. H. M. Herath and P. K. S. Munasinghe contribute a case study on networking and stakeholder participation in community based tourism. Chapter 7 is an investigation by Nuraisyah Chua Abdullah and Jamaliah Said of the accountability of government agencies and homestay operators with respect to homestay programs in Malaysia (the lessons from Afar). In Chapter 8, Malcolm Cooper and Mayumi Hieda examine the current

trends and emerging issues in the community context of medical tourism in tropical Asia.

The second part of the book focuses on the environmental aspects of sustainable tourism development and is concerned with environmental management and sustainable tourism practices. In Chapter 9, Celia Muyinga provides a case study of Ruaha National Park in respect of environmental management for sustainable countryside tourism in Tanzania, evaluating existing policies and practical challenges. K. G. P. N. Gamage, K. Wickramasinghe, A. P. S. Fernando, and S. N. Dissanayake investigate the adoption of green marketing by hotels in Sri Lanka with special reference to the Colombo district in Chapter 10, while in Chapter 11 Jeremy Buultjens elucidates the emerging tourism development process in Sri Lanka, with respect to sustainability. Khairil Wahidin Awang in Chapter 12 analyses the significant role of sustainable tourism development in ensuring the sustainability of natural treasures. This is constructed using evidence of ecotourism practices in the Belum-Temenggor Forest Complex in Malaysia. In Chapter 13, Kanchana Wickramasinghe examines the barriers for adoption of environmental management practices in the hotel sector of Sri Lanka, but goes beyond the existing scope and intensifies discussion of the problems of adopting environmental management practices along with an ongoing rapid development process.

The third part of the book presents research articles related to the management of tourism operations and services at destinations, sites and resorts. In Chapter 14, Iraj Ratnayake and Mahesh Hapugoda provide a detailed account of controversial and conflicting development and modifications at tourist attraction sites that ruin the authenticity of the destination and the experience of the visitors. Chapter 15 by Ruwan Ranasinghe examines the influences of motivating factors on the growth of a tourist destination. The survey and investigation was carried out at Nuwara Eliya, one of the popular tourist sites in Sri Lanka. In Chapter 16 Zahrah Mohamed Rani evaluates the experiential value of visitors as a motivational factor in selecting a particular heritage tourism destination for their revisit. Analyses of stakeholder conflict in destination operation and management are contributed by Athula Gnanapala in Chapter 17; this study encompasses hoteliers and travel agents in Sri Lanka. Chapter 18 in turn profiles the impact of all-inclusive tour packages with special reference to the Bentota Tourist Resort. Here, W. H. M. S. Samarthunga and Athula Gnanapala trace the actual experience of tourists and the tourism industry after selling all-inclusive packages at this tourist resort. In Chapter 19 Payam Mihanyar, Sofiah Abd Rahman and Norliza Aminudin evaluate the perception of the impact of domestic tourists on ecology in

relation to the awareness and understanding of sustainable tourism and carbon footprints.

The conference gave us the opportunity to compile this book using fascinating and informative research papers from diverse geographical settings and different academic backgrounds. It is a pleasure to acknowledge the contribution of Sabaragamuwa University of Sri Lanka, the main organizer of the conference, and its academic partners: North Arizona University, Universiti Teknologi MARA, and the International Geographical Union. Considerable support was also made available by the *Journal of Tourism Geographies* and other conference sponsors. The Ministry of Economic Development, Sri Lanka; the Chief Ministry and the Department of Trade, Commerce and Tourism of the Central Province, and the Ministry of Animal Production and Development, Rural Industries Development, Fisheries and Tourism of the Eastern Province, all helped to stage the conference and make the research discussed available to wider audiences. Finally, we express our sincere thanks to all the individual contributors to the book.

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September 2015

PART I:

COMMUNITIES

CHAPTER ONE

IDENTIFICATION OF WELFARE BENEFITS FOR RECREATIONAL PLANNING IN KAWDULLA NATIONAL PARK IN SRI LANKA

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Abstract

Although visitor characteristics and perceptions are considered in recreational planning within national parks, economic values such as welfare benefits are not considered. This study examines how welfare changes in terms of consumer surplus (CS) changes might be applied in recreational planning. A hypothetical travel cost approach was applied to identify the best recreational scheme to be adopted for Kawdulla National Park (KNP). Under two different scenarios the CS values per person were Sri Lanka Rupees (SLRs)4055.56, and SLRs10869.57; these values are more than 10 times higher than the existing CS recorded in the KNP. Meanwhile, the net present value of benefits (NVB) under these two alternative scenarios was also high compared to the existing NVB, emphasizing the conservation value of the KNP. Therefore, economic values of this type can be considered in recreational planning when faced with a choice between alternative recreational schemes.

Key words: Hypothetical travel cost method; Consumer surplus.

Introduction

Kawdulla National Park (KNP) was established to protect the immediate catchment of the KNP reservoir and to provide a refuge or habitat for wild elephants in Sri Lanka, especially in the monsoon period. This park is a prime elephant habitat where hundreds of elephants can be seen in the tank bed area. However, this is not a popular tourist destination, and in 2013 KNP only received 36,314 domestic and foreign visitors. In 2009, Rathnayake and Gunawardena estimated the annual total consumer surplus (CS) welfare benefit of the KNP as SLRs3.12 million (USD24000), or SLRs371 per person, by applying the zonal travel cost method (ZTCM). This is considered a very low rate of return. Thus, although the KNP has a rich biodiversity and high ecotourism potential, that potential has been underutilized by the Department of Wildlife Conservation (DWC), the wildlife authority in Sri Lanka. Inappropriate policy directions and market failures mean that this important natural resource base is undervalued, and that *ad hoc* recreational planning is continuing in national parks in Sri Lanka. The preliminary visitor satisfaction surveys conducted for the present study also found that visitors are unsatisfied, and their quality of visitor experience from their stay in KNP is at a very low level. As a result, repeat visitation to the KNP is also very low.

Protected area managers are interested in basing recreational planning on the results of conducted studies on visitor characteristics and perceptions, but rarely on visitor carrying capacities (Sale and Berkmueller 1988; Eagles et al. 2002). Resource economists have traditionally focused on measures of the welfare benefits of recreational activities. The traditional travel cost method has been useful for measuring these via CS (Randall 1994). In recreational planning there are hypothetical recreational activities or tourism schemes that can be proposed. For these hypotheticals, economists have usually used the contingent valuation method (CVM), and/or the hypothetical travel cost method (HTCM) (Cummings et al. 1986; Mitchell and Carson 1989; Layman et al. 1996). HTCM is a combined, revealed and stated preference approach, and welfare benefits can be estimated under alternative recreational scenarios. Further, according to Layman et al. (1996), the HTCM framework broadens the standard travel cost method (TCM) model to include possible management policies that have yet to be implemented. Specifically, managers have a tool for forecasting how different management proposals might affect the CS values of recreational participants, before actual proposals are put in place. Thus, different economic values (in terms of

CS) can be estimated for alternative scenarios, and these estimations used for policy decisions on recreational planning in the KNP. Our hypothesis in the present study was therefore that if more recreational services and facilities are provided, repeated visitation to national parks will result, leading to improvements in the welfare benefit from visitors.

Empirical Evidence: Contingent valuation combined travel cost studies

Cameron (1992) was the first to combine travel cost and contingent valuation data related to a recreational fishery site. This study demonstrated that a utility theoretic framework can be used to blend these two types of information in a single joint model. This gives a more comprehensive picture of preferences than either information source used separately. Cameron (1992) measured the demand at two different prices; the travel cost estimate of price and the contingent valuation price. Her model forced respondents to directly reveal how much they are willing to pay for access to the resource, but did not allow for quality changes, and can therefore only be estimated for cases where substitutes do not readily exist. Adamowicz et al. (1994) combined stated preference (SP) and revealed preference (RP) methods using a random utility model (RUM), in order to value environmental amenities. Individuals were asked to choose one alternative among three options. Each option was described through a set of attributes and individuals had to indicate their preference for the attributes. Two separate SP and RP models were run, then a joint one. Few studies (Ribaudo and Epp 1984; Forster 1989; Cameron 1992) have considered the incorporation of the contingent valuation method within the TCM framework.

Layman et al. (1996) introduced the HTCM concept in a study of the valuation of the Chinook Salmon Sport Fishery of the Gulkana River, under existing and alternative management plans. To develop estimates of effort and CS in a framework suitable for historical as well as contingent data, respondents were asked how many trips they would have made under three different hypothetical management conditions. In contrast to CVM, this methodology elicits from the users the number of trips they would have made to the site, rather than the amounts they are willing to pay to make a trip to the site. HTCM measures CS under actual and hypothetical situations. Conceptually, this approach should be less prone to strategic manipulation, and shows that, when used with historical data, TCM and HTCM are identical. Nevertheless, the hypothetical travel cost methodology is also capable of providing estimates of the consequences of

hypothetical policy changes. According to the findings of Layman et al. (1996), the HTCM framework broadens the TCM model to include possible management policies. These management policies also could be implemented for wildlife conservation, as for wildlife conservation managers this type of analysis offers distinct advantages over the traditional TCM model.

Bockstael et al. (1989), Parsons and Kealy (1992), Needelman and Kealy (1995), and Kaoru (1995) conducted a number of studies using TCM and CVM to analyse how changes in water quality impact on individual behaviour, and on how improvements in welfare may be gained from recreation in water bodies. These studies however, only considered the current level of water quality. This method does not allow consideration of the shift in the demand curve that would follow from an improvement in water quality. It is interesting though to consider the effect on welfare measures of quality improvements, through noting the shifts in recreational demand following such quality improvements. Thus, during the past two decades many studies have evaluated the benefits deriving from improvements in water quality by combining Site Planning (SP) and Recreational Planning (RP) approaches.

Loomis (2002) estimated the recreation benefits associated with restoring free flowing rivers, specifically in the context of the Lower Snake River in the USA. In this study the traditional TCM was not applied directly; it included the SP approach known as the "contingent behaviour travel cost method". This stated preference approach involves: (1) describing the new recreation conditions such as water level drawdown, water quality improvements and so on; (2) surveying households and asking if they would visit and, if so, how many times per year; and (3) evaluating their expected travel cost and travel time to the water resource they would visit. From this information a travel cost model using intended number of trips as the dependent variable, and round trip travel cost and time as independent variables, can be estimated. From this model, prospective usage and benefits have been calculated to aid in policy decisions.

Siderelis and Moore (2006) also combined a travel cost modelling approach with the surveyed preferences of white water rafters, using the Chattanooga River in the United States, to examine the possible effects of six hypothetical modifications in the permission to use the river, and changes in river conditions, on the intended future trip behaviour of the respondents. In this study it was found that modifications in river use permits (procedures and pricing) and changes in river conditions would lead self-guided visitors to significantly reduce the number of trips they

planned to take in the future. Therefore, different CS values resulted. The results suggest that the travel cost modelling approach, supplemented with users' trip responses to hypothetical scenarios, can be an appropriate way to predict the effects of possible recreational management alternatives.

Kling (1989) provides a critical assessment of the improvements in precision and bias to welfare measures from combining contingent valuation and travel cost data. In addition to examining single-bounded contingent valuation as a component of the combined model, this study investigated the additional gains that may accrue from employing a double-bounded variant of contingent valuation. Sizable gains in both bias and precision were found in the simulation experiment. Parsons et al. (1992) compared four methods of linking a site choice RUM to a seasonal trip model. They estimated the alternative models using a common data set, and calculated a change in welfare for two policy scenarios across the models. They found that there was little practical difference between the two approaches used, and the welfare estimates were quite close.

Hanley et al. (2003) combined real behaviour with contingent behaviour, using a random effects negative binomial panel data approach. The purpose was to value changes in bathing water quality in an area of Scotland. They were able to predict both the expected change in participation as water quality further improved, and the welfare benefit increase gained per trip. Paccagnan (2007) estimated the economic benefits deriving from recreational uses for the Idro Lake in Northern Italy. This study compared current recreational demand with a hypothetical one obtained by considering an "improved quality" scenario. Through an on-site survey, a panel data set was built, and increases in welfare estimated by combining the SP and RP responses.

Finally, negative binomial count data TCM is the same approach used by Loomis (2002) to estimate the economic value of current reservoir recreation at the existing Lower Snake River dams. These studies found that there is consistency of results in the statistical models used for nonmarket reservoir recreation benefits being lost, and the river recreation opportunities being gained, by dam removal. In all these studies, scenarios have been developed for recreational planning based on field experiences and direct observations. However, these scenarios have not been developed based on studies of ecotourism potential, existing CS values, VCC values, or visitor characteristics and perceptions. In the present study, this gap was identified and the resulting findings were incorporated in scenario building for recreational planning.

Study Area and Data

Study area

Kawdulla National park is situated some 190 km from Colombo, the capital of Sri Lanka. The Kawdulla tank (water reservoir, 6675 ha), and its surroundings were declared as the KNP in 2002. The total area of the park is 6690 ha and it is a prime habitat for elephants. In addition, the KNP supports a large bird population and together with adjacent wetlands has been identified as an important bird area by Birdlife International. The park is visited by wildlife enthusiasts to view birds and elephants. Locals operate catamaran rides to view wildlife, and a private safari camp is located at the park border. However, there is a lack of proper visitor services and facilities.

Sampling and data collection methods

Data for the present study were obtained from primary sources as well as secondary sources. Primary data were collected from on-site surveys. Prior to the economic study, questionnaire surveys seeking identification of visitor characteristics and perceptions and vehicle capacity were conducted within a one year period by interviewing domestic visitors to KNP. According to Khan (2004), a set of responses obtained through systematic sampling is more uniformly spread over the entire population, and is more informative about that population, than simple random sampling. Hence this study used systematic random sampling, where every fifth visitor to the KNP was interviewed. Based on the results of the studies of visitor characteristics and perceptions and vehicle carrying capacity two scenarios were developed; these are presented in Table 1-1. Compared to Scenario 1, more visitor facilities and services are provided in the recreational planning Scenario 2. In addition, in Scenario 2 more community concessions are included in order to get local community support and involvement in recreational management.

Table 1-1. Summary of the two Recreational Scenarios

Scenario 1	Scenario 2
Opportunity for watching elephants with fewer vehicles (not crowded) Interpretive talks on visitor safety measures Safe viewpoints are established Proper visitor centre operation – film shows, interpretive talks Restaurant facilities Clean wash room facilities Vehicle park Clean drinking water facilities Camping facilities Resting places along the road network	More opportunity for watching elephants with fewer vehicles (not crowded) Vehicular crowding is not at all viewpoints Interpretive talks on visitor safety measures Safe viewpoints are established Wildlife officers at each viewpoint Proper guide/interpretive service throughout Providing a brochure/self-guided brochure More way side exhibits for interpretation Expanded/managed/improved road network Opportunity for bird watching- trails, hides, and so on Proper visitor centre operation – film show, interpretive talks Restaurant and camping facilities Clean wash room facilities Vehicle park Clean drinking water facilities Quick ticketing system Boating facilities Resting places along the road network

The Theoretical Model

Estimating the welfare benefits of the KNP

The HTCM methodology represents the shift in the demand for wildlife viewing/nature enjoyment based on different possible recreational options. For example, under an improved recreational Scenario 1, the intercept shifts up from a_1, to $a_1 + a_2$ (Fig. 1-1). The change in net benefit can be estimated by calculating the CS under each shift in the demand for the number of wildlife viewing/nature enjoyments trips to a recreational area. The statistical significance of the change in CS can be examined with a *t*-test on the difference between the actual and hypothetical intercepts.

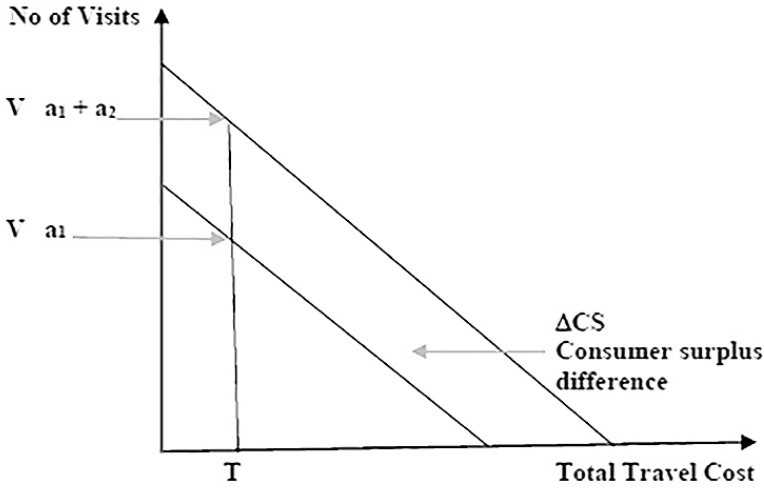

Fig. 1-1: Consumer surplus changes for hypothetical trips
Key: V_1 = hypothetical visits to KNP under improved management Scenario 1; V_2 = hypothetical visits to KNP under improved management Scenario 2. The hypothetical visitation rate equations quantify changes in welfare benefits that occur from changes in visitation as a consequence of possible recreational scenarios.

Using the method outlined by Layman et al. (1996) and Loomis (2002), HTCM was applied in the estimation of CS under the proposed alternative scenarios in KNP. It was assumed that the intended number of trips to a particular area could be increased if the quality of visitor experience was to be improved. This is shown in Equation 1:

$$r_i = f(ttc_i, hhinc_i, age_i, educ_i, gender_i, D_i) \quad (1)$$

Where: r_i is intended number of visits/trips made by individual *i* in a year; ttc_i is per trip travel cost of individual I; $hhinc_i$ is monthly household income; age_i is Age in years; $educ_i$ is education in number of years; $gender_i$ is gender (=1 if male, 0= if female); and D_i is availability of a substitute site closer to KNP (=1 if available, 0=if not available).

The intended number of $trips_i$ is the number of trips that the respondents indicate they would like to take to the national park if the

quality of visitor experience was improved under a particular management scenario. This is the number of trips contingent upon the description, hence the name contingent behaviour. The number of trips to be taken within a year would be 1, 2, 3 and so on. While reliance on intended number of trips rather than actual trips is a potential concern with use of the contingent behaviour approach, some authors believe that the method is likely to be more reliable than contingent valuation (Ward and Beal 2000). In this context, a count data model is an appropriate statistical tool to estimate the contingent behaviour or hypothetical TCM demand equation (Creel and Loomis 1990; Eiswerth et al. 2000; Loomis 2002). According to Loomis (2002), the count data model assigns probable outcomes only to these non-negative integers, and does not assign any probability to fractional trips, such as 1.25 or 2.75, as an ordinary least squares (OLS) regression model would. This makes the count data model a more efficient statistical estimator of the demand function. Poisson and the negative binomial are two commonly used count data models.

Due to resource constraints in the present study, a site-based sample was used, so that the number of visits, the dependent variable in the regression analysis, takes on a positive integer value or count. A Poisson Regression Model, employing an on-site sample with the number of visits expressed as counts, was used to estimate the demand for recreation, whose probability density function is given by Haab and McConnell (2002) as:

$$Pr\,(x_i = n) = \frac{e^{-\lambda i}\,\lambda^{n}_{i}}{}\,,\ n = 0,1,\,2,\,n! \qquad (2)$$

It is worth noting that the parameter λ is both the mean and the variance in a Poisson distribution. Statistical tests of this model equally often suggest that such a condition is violated in the context of recreational data. Furthermore, it is common to specify this parameter as an exponential function, since it is necessary that $\lambda>0$:

$$\lambda = exp\,(z_i \beta) \qquad (3)$$

The eventual goal of recreation demand studies is to use welfare measures (consumer surplus) for policy recommendations. In the present study, welfare measurement or the value of access to KNP in its general form, is calculated as the willingness to pay for use of the site. The computation then is that of the area under the utility constant demand curve for the KNP (the income constant demand curve), given expected low income effects and budge shares of recreational demand models (Haab and McConnell 2002):

$$WTP\ (access) = \int_{P_i^0}^{\infty} e^{\beta_0+\beta_1 s} ds \quad = \left[\frac{e^{\beta_0+\beta_1 s}}{\beta_1}\right]_{P_i^0}^{P\to\infty} = -\frac{x}{\beta_1} \tag{4}$$

Where: $\beta_{1<0}$

When calculating the willingness to pay for access using the Poisson regression model and assuming an exponential function, the choke price is infinite. Defining P^0 as the current travel cost, consumer surplus for access is derived as in Haab and McConnell (2002).

The effect of imposing an entrance fee

At present the park entrance fee is Rs. 60.00 at KNP. The impact of entrance fee (*f*) on the CS was estimated by finding the margins of the number of visits under different TTC values.

$$V = f\beta_0 + \beta_{TTC}\ TTC + \ldots\ldots \beta_n X_n + \varepsilon \tag{5}$$

Where: V is No. of visits; TTC is Mean TC+f; f is entry fee; and X_n is value of each variable X_n

A range of entrance fees, from SLR 60.00 to SLR.1800.00 was applied for each scenario, and the effect of imposing an entrance fee on CS was studied. The effect of imposing an entrance fee on CS can be estimated as follows:

$$New\ CS = V/\beta_{TTC} \tag{6}$$

Welfare loss due to acreage loss from natural sites for development

If new development projects are implemented in the KNP instead of preserving it, the social welfare of the present visitors to the site will be affected. The consumer surplus per unit area of land was calculated by dividing the total annual consumer surplus by the total area used for recreational activities at present. The following equation is applied when estimating the marginal value for changes in the area:

$$\Delta WL = \partial CS/\partial(acreage) x \Delta(acreage) \approx CS/acreage x \Delta(acreage) \tag{7}$$

where: WL is Welfare Loss.

Present value of nonmarket benefits from preserving the site

Both the study sites are under preservation orders, and a flow of annual benefits can be found over a long period of time. The sum of the estimated aggregate CS provides an insight into the 'social value' of preservation (Grigalunas and Trandafir 2004). The present study focuses only on the recreational benefits provided by each study site. Moreover, the study estimates only the benefits of preserving the recreational use value of the site, ignoring the cost of doing so. According to Grigalunas 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 amenities, and the cost they incur in order 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:

$$\text{Present value benefits} = PVB = \frac{Y}{(1+v)^1} + \frac{Y}{(1+v)^2} + \ldots\ldots \frac{Y}{(1+v)^n} \quad (8)$$

where: Y is the annual CS in Sri Lanka Rupees (SLR); and v is a discount rate.

In the case of a constant benefit from SLR, (Y received in perpetuity), then the simplified formula will be:

$$PVB = Y/v \quad (9)$$

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

Results and Discussion

The socio-demographic characteristics of the respondents

The sample size was 320, but of these 12 were rejected due to unreliable information provided by the respondents. Fig. 1-2 shows that the majority of respondents were from the North Western (22%), Central (21%) and North Central (15.5%) Provinces.

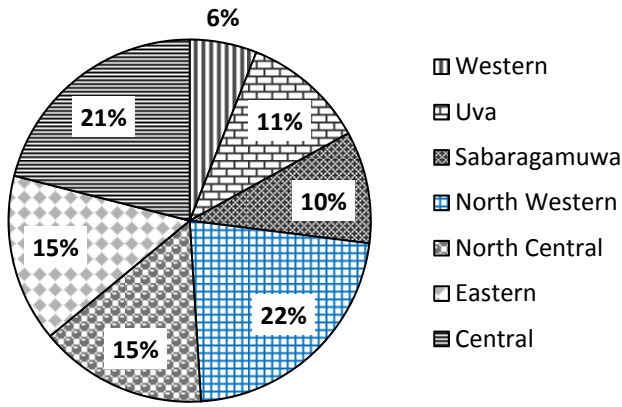

Fig. 1-2: Distribution of Respondents by Province

The summary statistics of respondents are presented in Table 1-2. It should be noted that these summary statistics were the result of on-site sampling, and should not therefore be inferred to be reflective of the entire population. The mean numbers of trips recorded in the study were 1.47 and 2.26 under Scenarios 1 and 2 respectively. We found that respondents are more interested in implementation of Scenario 2. Under both scenarios, since the distribution of the reported number of visits is highly biased to the right, indicating skewness of 0.76 and 0.31 for Scenario 1 and Scenario 2 respectively. The standard deviations are 0.57 and 0.69 for Scenarios 1 and 2 respectively. Therefore, the variance should be lower than the mean, indicating evidence that an over-dispersion of counts could not be found in the study (Cameron and Trivedi 1998). The respondents were mainly household heads or members that are earning. The average age was 43 years, the respondents were comparatively wealthy and their household income was recorded as being SLRs54316 per month. Further, they were also educated; 13 years was the average education level.

Table 1-2. Gender, mean age, income, education, and number of visits of respondents

Variable	Mean	Std. dev.	Skewness
V_1 (No. of visits under Scenario 1)	1.47	0.5727	0.76
V_2 (No. of visits under Scenario 2)	2.26	0.6925	0.31
Age	42.82	12.936	0.57
Gender	65% male	-	-
Education	12.88	2.184	0.96
HHINC	54316	17953	1.09

Paired *t* tests were carried out on the number of visits under each scenario. The null form of the central hypothesis was rejected at this point, because the resulting t value was -22.75 at the 95% confidence level. Therefore, there is a significant difference between recreational Scenarios 1 and 2. Further, it can be seen that if recreational activities are improved, repeat visitation will take place, and welfare benefits will be improved.

The number of trips demanded by visitors

Based on the responses to the hypothetical scenarios, the number of trips demanded for each province was estimated (Table 1-3). Fig. 1-3 illustrates the number of visits to each province under two different recreational scenarios. Although KNP is located in the North Central Province, it is located close to the Eastern Province. For these two provinces though, the number of trips demanded is comparatively low because the provincial population and per capita income levels are low. We found that if the two scenarios are implemented the number of trips demanded could be improved for certain provinces. The Western Province is located a long way from KNP, but the number of trips demanded between these areas is high because the respondents are more interested in the implementation of Scenario 2. Finally, the lowest per capita income levels were recorded in Uwa and Sabaragamuwa provinces, and these provinces are also located far away from KNP. Therefore, although there are more recreational services provided in the KNP, comparatively low numbers of trips demanded were recorded in the more distant provinces.

Table 1-3. No. of trips demanded under the alternative scenarios

Province	Population	Percent visiting	Per capita income (Sri Lankan Rupees)	Scenario 1		Scenario 2	
				Trips per visitor	Trips demanded	Trips per visitor	Trips demanded
Central	2557000	21.18	209276	1.4	758202	2.1	1137302
Eastern	1547000	14.62	213945	1.8	407109	2.8	633280
North Central	1259000	15.50	215286	1.4	273203	2.5	487863
North Western	2372000	21.97	228365	1.6	833805	2.0	1042257
Sabara-gamuwa	1919000	9.81	180548	1.3	244730	1.8	338857
Uwa	1259000	11.32	190933	1.2	171023	1.3	185274
Western	5837000	5.61	428458	1.6	523929	3.3	1080604

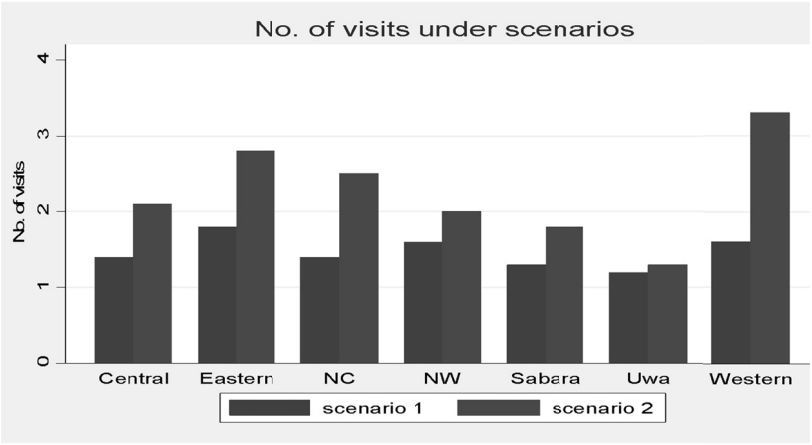

Fig. 1-3: Number of visits made by respondents under R different scenarios (Central- Central Province, Eastern-Eastern Province, NC-North Central Province, NW-North Western Province, Sabara-Sabaragamuwa Province, Uwa- Uwa Province, and Western- Western Province)

Estimation of welfare benefits under hypothetical scenarios

The results of the regressed visit rate functions are provided in Table 1-4. In addition to using Poisson Regression, data were analysed using the Ordinary Least Square (OLS) model. The coefficient on the own travel cost variables (TTC) is negative across all four models. The overall signs and significance of estimated coefficients were consistent with both economic theory and the existing literature on this subject. The intercept is positive across all four equations, and shifts positively from Scenario 1 to Scenario 2. The results show that the number of visits to KNP mainly depends on total travel cost (TTC), household income (HHINC) and education level (EDUC). Compared to Scenario 1, variables HHINC and TTC are more significant for the number of visits. Under the OLS model the variables gender and presence of substitute site are significant to number of visits under Scenario 1. The negative sign and the significance of the travel cost variables suggests a downward sloping demand curve.

These results are consistent with the previous demand studies of Creel and Loomis (1990) and Shrestha et al. (2002), and indicate that the visitation rate or the number of visits decreases as travel cost increases. The significance of these variables leads to the conclusion that higher household income and education levels produce a higher visitation rate. The coefficient of variable Di (presence of a substitute site) is negative, and this means that this variable negatively affects the number of visits to KNP. The coefficient for age is negative, implying that participation in recreational activities decreases with age. The variable distance to KNP also negatively affects the number of visits, and it is clear that if the distance to KNP is more than 100 km, visitors are not willing to make repeat visits. Another important result is that if the 'TTC' is low and distance to the destination is less than 75 km, respondents were more willing to visit the study sites under the given scenarios. Further, it is noted that they are willing to make more visits under Scenario 2 than under Scenario 1. In the recreational planning process strategies and recreational services/facilities therefore have to be developed and focused on the attraction of short distance visitors.