

ECONOMIC POTENTIAL OF THE TOURISM INDUSTRY TO CONSERVE THE ENDANGERED ELEPHANTS IN SRI LANKA

K.A.D.K.S.D. BANDARA^{*} and L.H.P. GUNARATNE

Faculty of Agriculture, University of Peradeniya

ABSTRACT

The Sri Lankan elephant population shows a marked reduction during last five decades, mainly due to destruction of elephant habitats by development projects and illegal encroachments. With the limitations of the lands available for elephants and escalating human-elephant conflicts, domestication of the elephants appear to one of the viable way of conserving elephants. However, with the low demand for draft, domestication of elephants should be targeted on more economically attractive options such as tourism.

With this background, the economic potential of utilization of elephants in tourism industry is investigated in this study. The degree of interest on elephant related activities by the tourists, and the status of involvement of tourist hotels and guest houses in those activities are also evaluated. The potential of generating revenue via the integration of the elephants to the sector was also considered.

The necessary information for the study was collected through two surveys carried out simultaneously during the period of January to February 2005. One survey was carried out targeting the tourists that come to see the elephants, based on a structured questionnaire prepared in English, French and Japanese. The random intercept sampling method was used. Meantime, a mailed survey was executed focusing the tourist hotels and guest houses. Tourist hotels, guest houses within 40-km boundary of parks, protected areas and orphanage were selected to the sample.

The descriptive statistical analysis revealed that, about 8% of the sampled tourists have selected the Sri Lanka as their tours destination mainly to see the elephants while around 20% tourists arrive to Sri Lanka with an intention of watching elephants. The study revealed that more than 80% tourists like to experience the elephant rides whereas more than 60% tourists prefer experience on the elephant safaris. The average willingness to pay for these activities are 20 US\$ and 28 US\$ respectively.

The survey carried out with the managers shows that more than 70 % of hotels and accommodations that are located vicinity of the parks have involved in any kind of elephant related activities as keeping elephants for tourism, promotion of elephant related activities and facilitating elephant watching.

Study found that there is a substantial potential in exploit elephants in tourism industry, which will generate more income to the elephant owners thus domestication can be used as one of the means of conservation of endangered elephants in Sri Lanka.

INTRODUCTION

The *Elephas maximus maximus* in Sri Lanka is the type specimen of Linnaeus (Crusz, 1986). Shotake et al. (1986) showed that it is genetically quite distinct from the Indian sub species *Elephas maximus ibengalensis*. The elephants have been influencing Sri Lankan socio-cultural environment since the ancient time. There is an enormous cultural and religious significance of elephant to the both Buddhists and Hindus in Sri Lanka.

Status of elephants in Sri Lanka

The Sri Lankan elephant population has undergone a marked reduction from the mid nineteen century (Santiapillai and Jackson, 1990; De Silva, 1998).

Fragmentation and loss of habitats are the factors contributing to this decline and this lead to human elephant conflict (Desai, 1998). Also this situation largely results from the *ad-hoc* development projects carried out during the last five decades (Weerakoon, 1999) and is exacerbated by the lack of coordination between different government departments and wildlife authorities. Moreover poor integration of economic aspects and lack of attention to public preferences for elephant conservation compound the problem.

The elephant has been protected in Sri Lanka since 12th century A.D. (Wicramasinghe, 1928). Nevertheless, large numbers were captured to be used as war elephants or for export to other countries. The systematic slaughter of elephants in general and of tuskers in particular began with the arrival of the colonial powers and the introduction of firearms. The situation was exploited to such an extent that a government ordinance in 1891 banned the “wanton destruction” of elephants (Olivier, 1978). The animal was given full legal protection in 1937. But today only about six percent of the males have tusks in Sri Lanka, in contrast to southern India, where 90% of the bulls are tuskers (Sukumar, 1986). If this trend exists the Sri Lankan elephant population will extinct from earth for ever within one or two decades.

Conservation efforts

At present, there is a growing concern over conservation of Sri Lankan elephant by various government organizations and non-government organizations. Some of these measures adopted are: establishment of new national parks and protected areas, establishment of elephant corridors, habitat enrichment, translocation of elephants and elephant drives, electric fencing and promoting ex-situ conservation.

The decline of the Sri Lankan elephant population has been largely results of lacking socio-economic and political considerations. Therefore it is important that its management and conservation should take in to account, the social and economic value of its existence.

According to Santiapillai. (1997) and Dublin,(1997) the key to finding out a long term solution to the human elephant conflict in Sri Lanka is two fold. To encourage the adoption land-use strategies (such as selective timber extraction, controlled livestock grazing) that are compatible with elephant conservation, and where elephants and humans do overlap, that people derive tangible benefits from their presence (such as eco-tourism). This study has focused towards the assessing of potential economic benefits that can be taken via tourism industry to conserve the endangered elephant in Sri Lanka. Moreover, whether conservation is capable with the incorporation of elephants to the tourism industry.

Tourism

Tourism is one of the world largest and fast growing industries. According to the recent statistics tourism provide 10% of the world's income and employs one tenth of the world work force. It contributes 6% of the global GNP and 13% of consumptive expenditure. In Sri Lanka, tourism has become a very important

factor in foreign exchange earning. Gross earnings from the tourist industry increased by 39 percent in 2003, from US dollars 248 million in 2002 to US dollars 324 million in 2003. (Central Bank of Sri Lanka, 2003). Tourism has been significant in the case of many aspects, a very tangible element which can use for conservational activities. Tourism play a key role in economic and social benefits like attracting foreign currency, more funds for the conservation, improve world understanding .etc. Huge number of tourists arrives per year to Sri Lanka. Table 1 show the number of tourists arrived in last two years.

Table 1. Tourists arrival by region

B. Region	2002	2003	Change 2002/03
Western Europe	270,298	288,169	27.4
of which			
UK	87,933	90,273	38.1
Germany	65,179	68,910	6.9
France	13,689	28,586	10.6
Italy	12,177	15,654	28.6
Asia	113,664	177,351	24.0
of which			
Hong Kong	3,750	3,075	-16.2
India	60,960	62,673	29.6
Japan	13,602	17,115	25.9
North America	12,986	25,110	26.4
Australia	13,079	22,666	73.9
Eastern Europe	4,079	10,523	31.6
Other	3,658	9,414	6.7
Total	393,171	500,642	27.3

(in Thousands)

Source: Sri Lanka Tourist Board
Central Bank of Sri Lanka

Tourism industry involves various stakeholders in addition to the tourists such as accommodation establishments and restaurants owners, travel agents, tour operators. Table 2 shows the income distribution among various stakeholders.

Table 2. Revenue from the tourism- 1993 to 2002 (In Rs. Million) Source: CTB publication, 2003

Source of Revenue	1995	1996	1997	1998	1999	2000	2001	2002
Hotels & Restaurants	79.5	59.6	116.0	143.6	164.5	162.7	128.4	149.7
Travel Agencies	28.0	26.4	39.1	58.8	67.3	61.7	52.6	64.5
Shops	10.8	9.3	12.1	14.4	16.5	15.1	13.9	14.8
Embarkation Tax	201.6	151.1	183.1	190.5	218.2	200.2	269.3	393.2
Cultural Triangle	168.7	121.2	186.0	225.0	300.5	276.0	222.0	242.8
Botanical Gardens	25.2	16.8	21.8	26.7	32.6	29.4	21.2	26.3
Zoological Gardens	11.4	14.4	15.1	18.9	23.1	29.2	22.3	30.2
National Parks	38.5	27.8	34.5	41.2	56.0	60.2	54.4	58.0
Museums	1.2	0.6	0.7	0.1	0.9	0.5	0.6	0.8
TOTAL	564.9	427.2	608.4	719.8	879.6	835.0	784.7	977.8

This study is mainly focused towards assessing the potential contribution of accommodation establishments (tourist hotels and guest houses) and restaurants in addition to the tourists. The hotels and travel agencies earn large portion of revenue as shown in table 3.

Table 3. Foreign exchange earnings form tourism -2001 & 2002 (In Rs mill)

Source	2001 *	2002 **
Banks	6,718.1	8,523.3
Travel Agencies	4,026.0	5,146.5
Shops	4,379.4	5,615.2
Hotels	2,614.4	3,386.4
Others	1,125.4	1,530.6
TOTAL	18,863.3	24,202.0

* Revised

** Provisional

Tourism as a mean of elephant conservation

The Sri Lankan elephant population is being declined in a crucial rate. Therefore, conserving of this unique sub species of Asian elephant is of paramount importance in substantiation of economical, social and cultural benefits due to its existence in the long term.

Domestication of elephants especially to the tourism industry is considered as a one of the solution to conserve elephants, which again promote the long term coexistence of human and elephants.

Per year about 500,000 of tourists arrive to Sri Lanka and many of tourists visit wildlife parks to observe the elephants in the wild. Also the captive elephants in tourist hotels used for tourists attractions as elephant rides thus generating huge amount of money. The accommodation establishments situated near the park generate revenue via supplying foods, lodging and other facilities to the tourists who come visit the parks.

In this sense, tourism can perform a major role in conserving elephants. Though tourism has that much significance for elephants conservation, its potential should be examined economically. Therefore, investigation of economic potential of tourism industry to conserve the endangered elephants is very important as a prior task.

The main objective of this study is to evaluate the economic potential of tourism industry for using in elephant conservation in Sri Lanka. The willing to pay for various elephant related experiences by tourists and those factors influencing their willingness to pay is also found. In addition, the ways and means by which tourist hotel owners contribute to conserve the elephants is also investigated.

METHODOLOGY

Both primary data and secondary data were used in this study. Primary data was collected during the period of January 2005 to March 2005. Adopted methodologies for the process of data collection were mainly questionnaire surveys, literature review and informal discussions with key informants. Relevant articles in journals and magazines as well as the research publications were reviewed to obtain additional information.

Data collection

Two parallel surveys were conducted incorporating the tourists and managers/owners of tourist hotels, guest houses and accommodations.

The field survey of tourists

The relevant data to the study were collected by interviewing the tourists using a structured questionnaire. The interviewing of tourists was done so as to represent a group of tourists by several individuals of that group. The questionnaire was comprised of three sections. They were arranged to get the personal information, general information of visit to Sri Lanka and their responses on experienced elephant related activities with preferences. The questionnaire was prepared in English and translated into French and Japanese in order to collect data from the non-English speaking tourists. Total of 120 questionnaires were used for the survey and 70 of them were in English. The number of French and Japanese were 30 and 20 respectively. Pre testing was carried out prior to commence of the field survey.

The target population was the tourists who visit the nature sites. Therefore a sample of tourists was interviewed using the questionnaires at Uda Walawa, Wasgamuwa, Minneriya, Bundala, Yala and Pinnawala where major portion of tourists come to see the elephants.

Mail survey of managers of the hotels, guest houses and accommodations

In this part of the study, it is assumed that the tourists who are interested in elephants arrive the areas closer to the wildlife parks and the orphanage. Therefore, initially the parks and protected areas where the elephants are present were found. Then the area within a boundary of 40 km around the parks and protected areas were chosen was for the study.

The hotels, guest houses and accommodations were selected using the list of "Accommodation Guide" published by the Ceylon Tourist Board which was updated in November-December, 2004. The relevant data to the study from managers of the relevant establishments was collected using a structured questionnaire. The questionnaires were mailed with the cover letters to the managers of the hotels, guest houses and accommodations and follow up telephone calls were given, increase the response rate. Meantime, some of the establishment were visited and directly interviewed the managers.

The questionnaire was prepared in English which was comprised of three sections, section 1 was prepared to get the general information of the establishments. The section 2 was included to get the elephant related activities, which they have involved. The section 3 was used to the information about their involvement to conserve endangered elephants.

The necessary secondary information was collected from the publications of several institutions and their web sites such as Ceylon Tourist Board, Sri Lanka Hotel Corporation, Institute of Policy Studies and Central Bank. Some

information as list of tourist hotels, guest houses and accommodations, number of tourists arrived in past few years, revenue earned by the tourism industry in relation to each year national income, amount of revenue earned by each stakeholder in the tourism sector were collected from these sources.

Analytical framework

Most of the data were collected through the survey of tourists and managers of accommodation establishments, which can be used to assess the interest in elephants as well as elephant-related activities. Therefore, both descriptive data analysis and regression analysis were employed.

Assuming a linear relationship between willingness to pay for the elephant-related activities and other independent variables, the regression model was fitted to estimate the relationship between selected attributes and the willingness to pay amount.

Conceptual model

$$WTP = f(\text{NAT, AGE, DAYS, INC, EDU, SEX, EXP, ACT, INV})$$

WTP=Willingness to pay for the elephant-related activities (Rs)

Variable	Hypothesis
DAYS=Days stay in Sri Lanka	Expected relationship is the tourists who stay longer period experienced such activities and willing to pay more.
AGE=Age (Years)	Young people are more interested in elephants and elephant-related activities. Therefore, they like to pay more.
EDU=Educational level	Educated people are expected to be more towards enjoying the elephant-related activities which are nature-based activities.
INV=Whether experienced such type of activities	Experience tourists are expected to spend more on those activities.
NAT=Nationality	Developed nations have already deteriorated their nature and biodiversity when they achieve development. Therefore, they like to pay more for these activities. Per capita income of each country is used as an indicator of level of development.
SEX=Sex	Males are more preferred for those activities.
EXP=Expected daily Expenditure in Sri Lanka	High spending people are expected to have a high willingness to pay.
INC=Annual income	Higher income visitors are expected to spend more money.
ACT=Number of elephant related activities like to experience	More interested tourists are likely to experience more activities.

RESULTS AND DISCUSSION

Visitor characteristics

Based on the sample survey, it was found that the average age of the tourists who came to see the elephants is 56 years with the range of 21 to 77 years. The average number of days stayed in Sri Lanka is 15 days, with a maximum of 30 days and a minimum of 6 days. The respondents' average annual income of the sampled tourists is 36.954 US \$. The random intercept survey is comprised of 16 different nations. Their distribution is given in the table 4.

Table 4. Nationality distribution of the sample

Nationality	Number of Tourists	%
British	36	36 %
Irish	4	4 %
Australian	2	2 %
Finland	1	1 %
Danish	1	1 %
Italian	1	1 %
Canadian	2	2 %
Dutch	4	4 %
Swiss	3	3 %
American	7	7 %
German	8	8 %
New Zealand	4	4 %
Poland	4	4 %
Franchise	9	9 %
Swedish	5	5 %
Japanese	7	7 %
Chinese	2	2 %
	n = 100	

Status of education

Most of the tourists come to see the elephants are mid-career professionals who hold a degree and more than 75 % belong to those categories. More than 18% of visitors have completed secondary education. Almost all the respondent has at least primary education. It was noted that the tourists who have some kind of understanding and interest about environment visit these areas to see elephants.

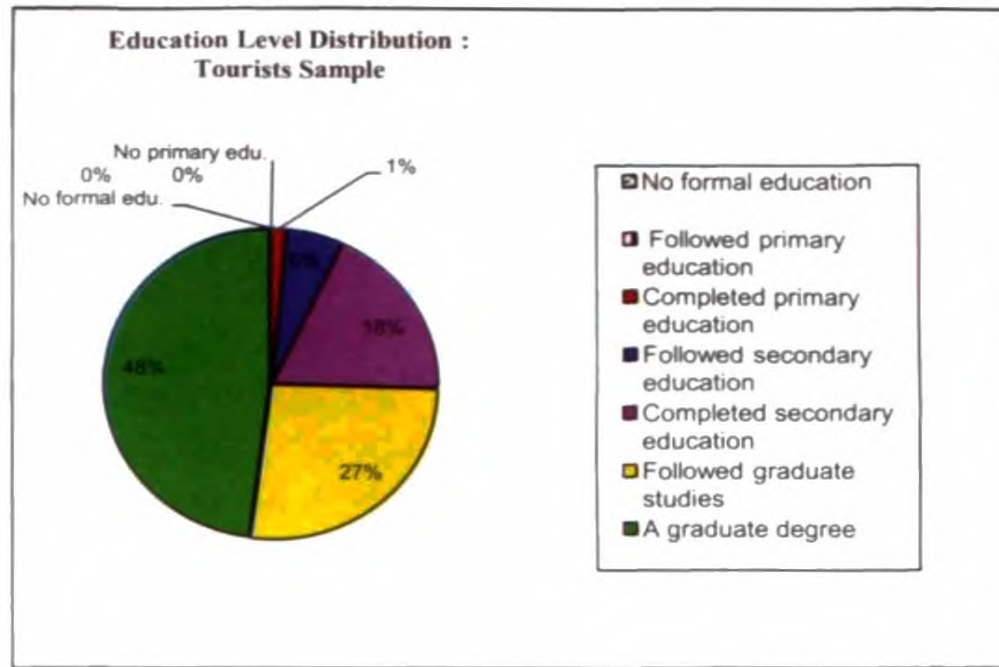


Figure 1. Status of education in tourists sample

Reason for selecting Sri Lanka as a travel destination

The question 1 of section B in the questionnaire of tourists was directed to get the most important reason when selecting Sri Lanka as a travel destination. Table 5 shows the details of the tourist’s responses.

Table 5. Most important reason for selecting Sri Lanka as a travel destination

Visiting friends and/or relatives	10%
See the Sri Lankan elephants	19%
Business/Convention	10%
Sun and beaches	16%
Archaeological sites	3%
Cultural/Native history	6%
Nature history	7%
Sight seeing	28%
	100%

n = 87

According to the responses, a major portion of tourists (28 %) indicated sight seeing as the most important reason when selecting Sri Lanka as a travel destination. In addition to that seeing elephants in Sri Lanka has a quite significant. Because 19 % of tourists have chosen Sri Lanka as a travel destination due to presence of elephants.

Degree of Influence, presence of elephants in Sri Lanka to choose as a travel destination

Figure 2 shows the degree of importance of Sri Lankan elephants to the tourists when selecting Sri Lanka as their travel destination.

Influence of Sri Lankan Elephants to Choose Sri Lanka as a Travel Destination

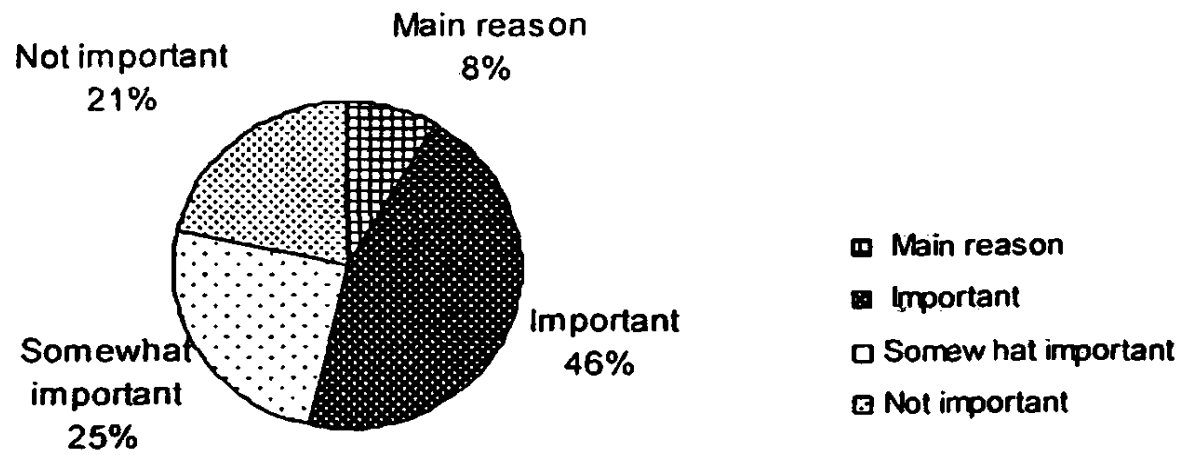


Figure 2. Degree of influence elephants to choose Sri Lanka as travel

This shows that main reason of 8 % of sample tourists is seeing the Sri Lankan elephants in journey to Sri Lanka, according to their responses. They might be the researchers or eco-tourists.

Tourists involvement of nature related activities

Table 6. Involvement of nature related activities by the tourists

Activity	Number	%
Jungle excursion	44	48.4
Visiting cultural sites	64	70.3
Bird watching	29	31.9
Wildlife	45	49.5
Botany	31	34.1
Fishing	4	4.4
Visiting indigenous communities	7	7.7
Others	6	6.6

n=91

As shown in the table 6 most of the tourists arrive to Sri Lanka had opportunity to visit the cultural sites (70 %) also around 50 % of tourists involve in wildlife related activities as elephant safaris, deer safari etc.

Experiences of elephant related activities: tourists

According to the responses of tourists, more than 80 % have an interest on experiencing the elephant rides. Also more than 60 % tourists like to experience the elephant safaris. The portion of tourists who have interest on elephant circuses, races etc are very low. In addition to this some of the tourists like to participate activities such as visit orphanage, looking at bathing of elephants, visit

the temples which keeping elephants, hiking in the natural habitat of elephants. This portion of tourist is 11 %. The categorized responses are shown in table 7.

Table 7. Experiences of elephant related activities by tourists & their willingness to pay for them

	Elephant ride	Elephant safaris	Elephant circuses	Cultural events which use elephants	Elephant races	Others
Percentage of tourists like to experiences	82%	66%	4%	7%	5%	11 %
Average willingness to pay in Rs	1942 (20 US \$)	2831 (28 US \$)	1341 (13 US \$)	1241 (12 US \$)	1921 (19 US \$)	1297

Willingness to pay for the elephant related activities: tourists

Survey respondents were asked to mention their willingness to pay (WTP) for the each elephants related activities they would like to experience. According to the responses of tourists, indicate in the table 7, average willingness to pay for the elephant ride is 20 US \$ with minimum of 8 US \$ and maximum of 51 US \$. Also the amount willingness to pay for the elephants safaris is 28 US \$ with minimum of 6 US \$ and maximum of 50 US \$.

Willingness to pay amount reflects the tourist's valuation of the each elephant related activity. The amount of willingness to pay can be utilized to get an idea about the degree of significance each activity and potential of getting benefits economically through the tourism industry via the incorporation of elephant related activities to the schedules of tourist packages.

Involvement of elephants related activities by tourists hotel, guest houses and accommodations.

Nature related activities: tourist hotels, guest houses and accommodations

According to the responses of managers of the tourist hotels, guest houses and accommodations the percentage of establishments that has involved in each activity is indicated in the table 8.

Table 8. Nature related activities Practice by the tourist hotels, guest houses & accommodations

Nature related activity	% of hotels & guest houses
Jungle excursions	40 %
Visiting cultural sites	65 %
Bird watching	60 %
Wildlife	70 %
Visiting botanical gardens	15 %
Fishing	15 %
Visiting indigenous communities	5 %
Others	10 %

n=32

As shown in that table 70 % of the ventures in the sample have involved in wildlife related activities. Among the establishments that has engaged in wild life related activities for earning revenue, a high number of the tourists hotel, guest houses and accommodations have involve in elephant related activities. (Figure 3)

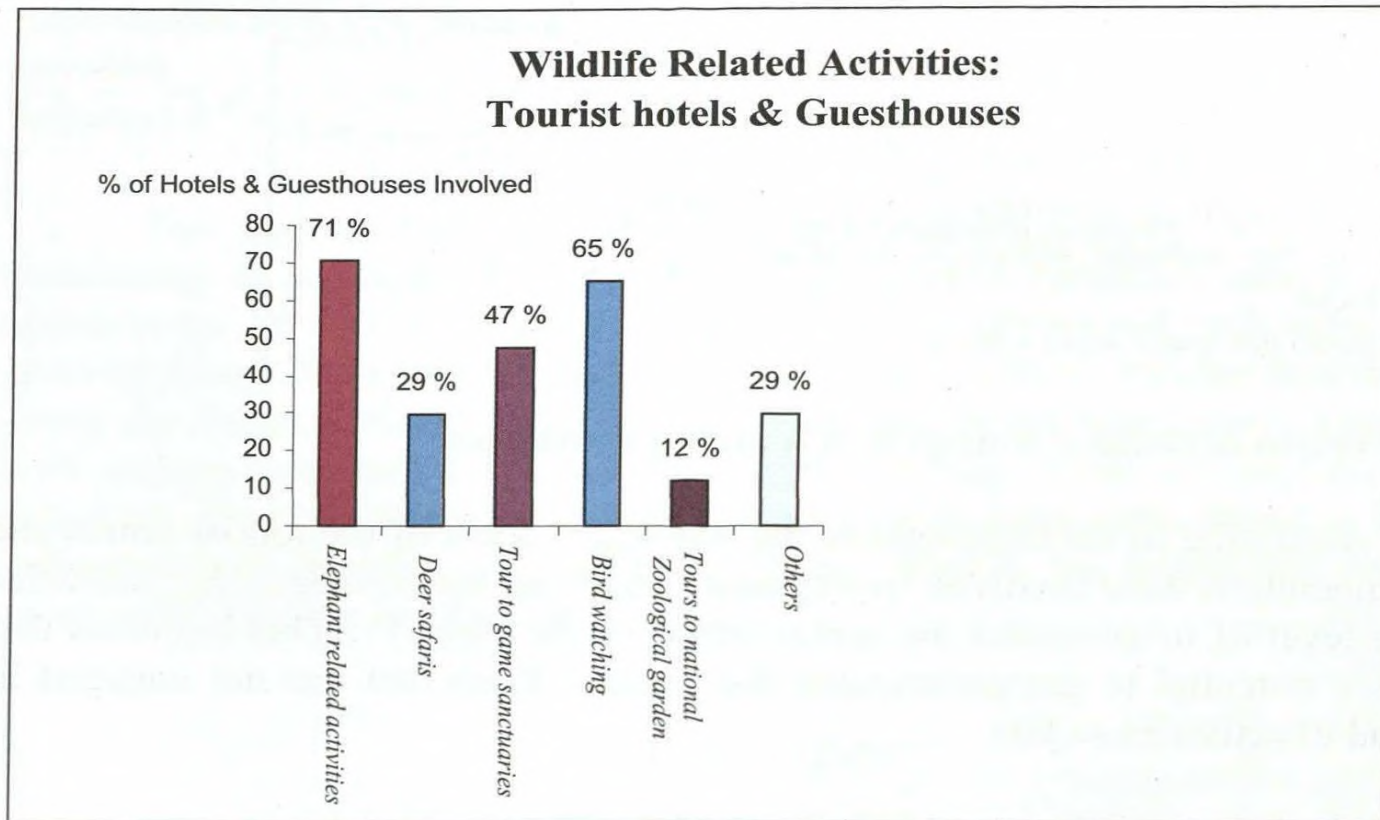


Figure 3. Wildlife Related Activities Involve by the Tourist Hotels & Guest houses for the Tourism

Elephant related activities of the tourist hotels, guest houses and accommodations

The involvement of these establishments on elephants related activities can be categorized in to 3 types as shown in the table 9.

Table 9. Elephant related activities involved by hotels & guest houses

a) Keeping Elephants for Tourism Activities (Exhibitions, circuses, riding, carry tourists ...etc.)	21 %
b) Promote Elephant Related Activities for Tourism (Safaris, tours, seeing perahara... etc)	79 %
c) Facilitate Elephant Watching (Situated near parks, orphanages... etc)	36 %

According to that more than 75 % of enterprises have involve in promoting elephant related activities as safaris, arrange tours to orphanage and protected areas...etc. Only 21 % hotels and guest houses keep elephants for tourism activities.

Also more than 35 % of accommodation establishments situated near the wildlife parks and orphanage, which facilitate watching the elephants. That kind of enterprises earns revenue by supplying accommodations and foods for the tourists. The hotels and accommodations keeping elephants have involved in various activities. Those activities can be categorized as in the table 10.

Table 10. Various uses of elephant that are taken by the hotels & guesthouses, which are keeping the captive elephants

Activity of Elephants use	% of Hotels & Guest houses
As an exhibit for tourists	40%
Use for elephant rides	60%
Use for elephant circuses	0%
Use for cultural activities	40%
Give for cultural activities in other places	40%
Use to get some works done	20%

Conservation activities: tourist hotels and guesthouses

According to the responses of the managers, most of the tourist hotels and accommodations have involved in elephant conservation activities. That activities and the level of involvement are summarized in the table 11. This indicates that there is a potential to get participated the organizations that has not engaged in that kind of activities so far.

Table 11. Participation in conservation activities of elephants by hotels & guest houses

Conservation activity	% of Hotels & Guest houses
Contribute to trust fund support for conservation	67%
Aid for the orphanage	13%
Help for conservation campaigns	23%
Others	22%

Estimates of the regression model

The factors influencing the expenditure by tourists for various elephant related activities were identified. The estimates of the multiple regression models are given in Table12.

$$WTP = NAT + AGE + DAYS + INC + EDU + SEX + EXP + INV$$

Table 12. Estimates of the OLS regression model

Variable	Coefficient	Std. Error
Constant	13981	
Nationality	- 0.16	17833
Age	- 85.2	39.45
No. of days stay	0.003	0.224
Annual income	- 0.005	0.141
Education	0.61	1356

Sex	0.06	3883
Expected expenditure	0.25	3309
Number of activities like to experience	- 0.008	9164
Experienced with similar activities	- 0.12	5317
Adjusted R ² = 0.52		

The model was free from perfect multicollinearity with reasonably satisfactory fit (adjusted R²). Among the considered variables, nationality, days spend in the Sri Lanka, whether the tourists have experienced such activities and level of education were significant at 5 % level. National income was used as a proxy for the variable, nationality so that contrary to the expectation, tourist with high income countries are less interested in spending money on elephant related activities. However, tourists who had plans to stay more were found to be more enthusiastic in spending on similar activities. Also it was found that young are more willing to pay for these activities.

CONCLUSION

The study aimed at getting an insight into the make use of elephants for tourism and identifying the future potential of this so as to promote tourism as an alternative mean of elephant conservation in Sri Lanka. The study was carried out with tourists who visit the national parks and the owners/managers of guest houses/hotels located closer to these sites. This study found that there is a substantial potential of incorporating elephants into the tourism industry, which will foster the coexistence of human and elephants as in the past.

This study revealed that there is a huge demand for the elephant related activities more than identified so far, such as elephant rides and safaris. The present rates charged for elephant related activities are much less than their willingness to pay for those activities. According to the findings, an average willingness to pay for the safaris and rides are approximately 20 and 28 US \$, respectively. This shows the potential revenue that can earn through these activities.

It may cost 20,000-25,000 rupees per month to maintain a captive elephant. Given the substantial cost of maintaining a captive elephant and less demand for draft work, there is a need to find better alternatives; the study indicates that much more amount of revenue can be generated per month when the elephants are used for the tourism activities under well managed situation.

The recent studies carried out by the Institute of Policy Studies has identified that the revenue from the protected areas could be increased significantly if the Ceylon Tourist Board (CTB), Department of Wildlife Conservation and the Forest Department assist the private sector to promote "value added" activities around protected areas. This would include hotels and

tourist attractions such as elephant safaris. The findings of this study corroborate this fact by identifying the potentials in a scientific manner.

The nature tourist market is a particularly attractive niche market as there is some evidence that nature tourist have higher incomes than the average tourist, stay longer and spend more on locally produced products and services (Vidanage, 1995). With the problems of the tourist industry due to the war, nature tourism represents a niche marketing, which can command a premium. Many private tour operators feel that nature tourism has considerable growth potential. Promotion of nature tourism would also accord with the three main objectives of the tourism Master Plan prepared by the Ceylon Tourist Board (CTB) of moving away from low budget mass beach tourism by selecting activities that upgrade existing attractions and product, diversify the product mix and its capacity and develop new circuits and product packages inland, including new tourist areas.

The elephant related activities are in the category of existing tourists attractions. Therefore, the value of them in the sense nature related activities can be identified from this study and it is important to take an active role to promote elephant related activities with a good product mix to attract among the tourist who are the potential customers of them. This requires the Ceylon Tourist Board taking an active role in promoting elephant related activities.

On the other hand, with the limited carrying capacity of the protected areas and growth of the rural populations, the human elephant conflict will escalate in the future, so that there is a growing need to find feasible solutions. Therefore, use of elephants in the tourism industry by capturing and taming of young elephants can be considered as one of the counteractive measure. Then a mechanism could be developed to transfer a part of the revenue generated from such activities to compensate the farmers to mitigate human elephant conflict, as a mean of conservation.

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