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# **ECONOMICS, ECOLOGY AND THE ENVIRONMENT**

**Working Paper No. 82**

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# **Visitors' Reaction to Pinnawala Elephant Orphanage in Sri Lanka: A Survey**

## **Abstract**

*Pinnawala Elephant Orphanage (PEO) is a unique captive elephant-based recreation facility in Sri Lanka. Over 35,000 visitors (both local and foreign) visit the PEO per month on average for a variety of reasons. However, little or no attempt has been made to examine their reaction to its activities. This paper reports preliminary findings from two visitor surveys (one local and one foreign) conducted at the PEO to examine the characteristics of visitors, the satisfaction they gained from the visit, their attitudes towards conservation of the elephant, their reactions to the current facilities available at the orphanage, and their opinions and maximum willingness to pay (WTP) to enter the PEO. It is found that, although some variations occurred between the samples, the majority of all respondents showed a similar reaction to the activities and facilities at the Orphanage. However, some differences are evident between these two samples in relation to satisfaction received, responses to the WTP elicitation and attitudes towards the information and interpretive facilities. Overall, the majority of the respondents indicated that their support for the conservation of the Asian elephant had increased considerably with their visit to the Orphanage. This indicates that considerable unrecorded and as yet unutilised support could be generated both financially and otherwise to conserve this endangered species through wildlife based recreation facilities such as PEO in Sri Lanka.*

# **Visitors' Reaction to Pinnawala Elephant Orphanage in Sri Lanka: A Survey**

## **1. Introduction**

With the increases in conservation concern, people both in developed and less developing countries (LDCs) have become more and more environmentally sensitive (Boyd and Butler, 1996). As a result the nature/wildlife based recreation has received increased attention both from tourists and recreationists (Lee, 1997). Furthermore, Reynolds and Braithwaite (2001) point out within the overall context of tourism, the wildlife based tourism has experienced rapid growth over the over the past few decades. Harrison (2001) predicts that in LDCs, this sector particularly, will be able to attract more economic opportunities than the conventional sectors in those countries. The analysis of Tosun (2001) provides a useful insight into the challenges and the obstacles facing countries in the developing world in achieving economic stability of their tourism industry. However, it is clear from the literature (see for instance, Obua and Harding, 1996; Akama and Kieti, 2003) that one of the keys to economic stability and effective management of recreation sites in these countries is accurate information about visitors, and the attractions/resources that bring them as well as their reaction to the available facilities.

As Harrison (2001) points out, in most cases the existing management in most recreation sites in LDCs either do not seem interested in integrating such information about visitors into their development planning or they do not have the capability financially and otherwise to explore this information. The situation in Sri Lanka is no exception. Our investigation into the research studies undertaken on the outdoor recreation sites in Sri Lanka reveals that, although a few studies have been completed, none has focused on the issues involved from the visitors' perspective. For example, Abeygunawardena and Kodituwakku (1992) and Gunathilaka and Vieth (1998) attempt to estimate the scenic value of Peradeniya Royal Botanical Garden and the elephants in the Pinnawala Elephant Orphanage respectively. Similarly, Silva and Kotagama (1997) estimate optimal entry fee for the Udawalawe national park. On the other hand, Rajaratne and Walker (2001), and Thilakaratne and Santiapillai (2002) in their analyses discuss the issues involved respectively in captive breeding and the management of elephant in the Pinnawala Elephant Orphanage.

The purpose of this study is to present the findings of two sample surveys conducted at the Pinnawala elephant orphanage (PEO) in Sri Lanka in early 2003. One survey was of visitors from foreign countries to the PEO, and the other of local visitors. The aims were to assess the characteristics of visitors, the satisfaction they gained from the visit, their attitudes towards conservation of the elephant, their reactions to the current facilities available at the orphanage, and their maximum willingness to pay (WTP) to enter the PEO. It was felt that recreation sites such this in Sri Lanka could be sustainable if the policy makers and the managers were equipped with sufficient information about the visitors and their reaction to the existing set up in those places. Knowledge of visitors, characteristics is essential for recreation planning and management. Informed decision making and sound management of the site and facilities would help in the long run to ensure a stable flow of visitors to be sustained economically.

The paper first briefly describes the background of the PEO and identifies the main management issues. Then the survey method and data collection procedure are outlined. Next follows an empirical analysis of results from the visitor surveys. First the attributes of those surveyed are presented ; second, enjoyment of visits and willingness to pay for the improvement of the PEO by visitors are analysed; third, the attitudes to conserving the Asian elephant and the reaction to information and interpretive facilities are assessed; fourth the visitors' suggestions for improving the PEO are presented. The results are reported, analysed and compared between local and foreign visitors. The final section of the paper presents the conclusions reached in these analyses.

## **2. Pinnawala Elephant Orphanage: Background**

The PEO in Sri Lanka is a unique captive elephant-based outdoor recreation facility that was initially established in 1975 by the Department of Wildlife Conservation (DWC). It covers an area of nine hectares of a former coconut plantation in the Kegalle District, some 90km northeast of Colombo, the capital of Sri Lanka. At present the PEO is managed by the Department of National Zoological Gardens (DNZG) of the Ministry of Environmental and Natural Resources Management. Apart from the volunteers, casual workers and people who work for the contract suppliers of fodder for the elephants, a fulltime workforce consists of 65 people. This includes two veterinary surgeons working at the OPE. The elephants' day at the orphanage begins as early as 7.00 am and visitors are allowed to enter the facility after 8.30 am.

It remains open until 6.00 pm every day including public holidays. DNZG (2000) provides a detailed account of the daily events and the other activities of the PEO as well as the entry fee.

The initial objectives of establishing the PEO included provision of refuge and care for the elephants that were injured, orphaned, abandoned or separated from their families/herds in the wild. Although this was started with five such animals, at present the PEO provides shelter for 69 captive elephants: 15 animals less than 10 years old, 36 animals between 10 and 20 years, and 18 animals older than 20 years. According to DNZG (2000), this is the largest captive herd of elephants in the world belonging to the *Elephas maximus maximus*, the Sri Lankan subspecies of Asian elephant or *Elephas maximus*. Most of the young elephants in this herd, aged less than 20 years, were born in the PEO after the captive breeding programme was started in the early 1980s (Lair, 1997).

Thilakaratne and Santiapillai (2002) provide a detailed account of the captive breeding programme undertaken at the PEO. With the success of this breeding programme, the PEO has also become an important place for elephant education and research as well as the main center in the country for releasing domesticated elephants. However, it should be noted that most of these activities at present seem to be operating below capacity; for instance, the number of elephants released by the PEO over the last ten years is far from adequate to meet the current demand for domesticated elephants in Sri Lanka. This situation was clearly demonstrated by a public protest was held in Colombo in early 2003 demanding that wildlife authorities in the country release more elephants for domestic use (see Wijewardana, 2003).

However, with the increase in elephant population inside the orphanage, over the years the PEO has become an attractive outdoor attraction for both local and foreign visitors. Our analysis of secondary data on tourist arrivals at the PEO between 1993-2002 reveals 39,765 visitors to the orphanage per month on average, of which 97.3 % were the local visitors. Our analysis also indicates that the tourist arrivals at the PEO increase substantially every year between August and September, when they peak. This seems to be linked with the local school holidays, the well known religious pageant (*Esala prahara*) in Kandy and the increase in foreign tourist arrivals due to the summer holidays in Europe. The PEO charges two different admission fees from visitors: locals pay less than the foreign visitors. These entry fees alone generate Rs. 11, 56 606 worth of income per month for the PEO amounting to Rs. 138, 79272 per annum on average.



The actual economic impact of PEO on the local and regional economies has yet to be assessed. However, the economic benefits gains both by local and regional economies in and around the Pinnawala area. According to the local government authority in Pinnawala, during this period 152 new businesses were started up in the vicinity of the PEO and along the road to it from the Colombo-Kandy main road junction. Moreover, the informal discussion that we had with locals and the business community while undertaking this research study reveals that most of these businesses around the Pinnawala area came into existence after the PEO was established. Now they seem to be dependent heavily on the tourists visiting the orphanage. Thus, many local people recognise the PEO as an economic centre and would not like to see it disappear from Pinnawala. The assurance of the continued existence of the PEO is therefore quite important for ensuring the stability of local and regional economies in and around the Pinnawala.

Under current circumstances at the PEO, the policy makers at the DNZG and the local government authorities in Pinnawala seem to be confronting at least four major challenges: a) achieving the initial objectives of setting up of the PEO, b) drawing the visitors' support for the long-term objectives of conserving the elephant in Sri Lanka, c) the assurance of the economic stability of local and regional economies in and around the PEO, and d) providing a visitor friendly environment in and outside the PEO. Thus, in facing these challenges, it is quite essential to look first at the feasible options that could be utilised to maintain a continuous flow of visitors to the PEO at least at the current level in the short run until formulating new strategies to attract new visitors in the long run. This is because the PEO, as any other outdoor recreation facility, may lose its popularity over time unless its existing structure is continuously revitalised. Visitors to any such facility always search for high quality services and products that correspond to the changing life styles, tastes, needs and wants.

According to Akama and Kieti (2003) most visitors, particularly Western and affluent local tourists are usually influenced by 'push and pull' motivational factors when they make the initial decision to visit a tourist destination in the LDCs. The push factors may include the urge to escape from the pressure of the workplace and the stress associated with the urban life while the pull factors may include the ambition to travel to different places in search of novelty and exploration in a natural setting. Thus, the key to the success of any recreation ventures such as the PEO, is found only when it meets with the initial expectations of the tourists. Such

expectations can be stimulated through information provided via advertisements, commercials, brochures, mass media and informal information from friends and relatives, but understanding what exactly tourists would like to have is an empirical issue that requires more research and discussion. Jayawardena (2002) points out that this has become a salient issue in most service industries.

### **3. The Survey**

#### **3.1 *Samples***

The data presented in this paper were collected from two sub-samples of visitors to the PEO between 20 March and 10 April, 2003: One sample of local adult visitors; the other foreign adult visitors. A hundred and fifty visitors were chosen from each of these samples so as to provide a stratified sample. In this process, we also kept in mind the potential differences between these two visitor groups, in their preferences and values both at the preparation of questionnaires and the administration of the survey. Thus the main purpose of these two samples is to help identify the precise reaction to the PEO by specific social segments of visitors who may have different perceptions about wildlife based recreation facilities such as the PEO and also for the establishment of such facilities as an effective means to promote public support for the conservation of endangered species such as the Asian elephant.

According to Akama, (1996) the support of the tourists from the Western world to conserve wildlife and natural areas, particularly in LDCs has increased proportionately over the years at least for three reasons: a) the postmodern social and economic changes, b) the emergence of a new paradigm to enhance environmental ethics and values, and c) the experiences of the degradation of pristine natural areas since the advent of the industrial revolution. Thus more often tourists from the western countries pledge both financial and other support to improve the facilities in the wildlife based recreation facilities in the LDC. On the other hand, if they are satisfied with the existing facilities in those places they are more likely to recommend them to others as recreation spots that should be visited (Akama and Kieti, 2003). Söderlund (1998) describes this as the cheapest and most effective form of marketing and promotion of the tourist destination in the LDC.

The locals, particularly the urban dwellers and nature lovers including students, who visited the PEO often provide a strong local market base for the continuity of the PEO. They also spread the

message among other locals that conservation of the elephant in Sri Lanka is a common responsibility which should be shared with others particularly the economic losses incurred by the farmers in the areas where human-elephant conflict prevails in the country. As Bandara and Tisdell (2003) observe, there is considerable unrecorded and as yet unutilised support existing among the majority of Sri Lankans for conservation of wild elephants, thus the analysis of locals visitors' reactions to the PEO could be used to investigate further the local support both financially and otherwise to conserve this endangered species in the long run. This also allows policy makers to obtain more information about people's reaction to the wildlife based-recreation facilities in general and the PEO in particular which is necessary for them to improve the facilities in these places in the future to make them economically viable in the long-run.

### **3.2 *Questioners and data collection procedure***

Deriving accurate information from field surveys is highly dependent upon the survey methods employed. The direct face-to-face interview is the most commonly used approach at recreation sties such as PEO (Lee and Han, 2002) and was used in this study. FAO (2000) describes the value of this method compared to the mailed and self-administered questionnaire formats in the developing country context. Mail surveys yield a low response rate and self-administered questionnaire suffer from self-selection biases. Further, face-to-face surveys have the advantage that trained interviewers can actually interact with respondents, and can clarify respondents' doubts thereby minimising non-response rates. They also have the added advantage that trained interviewers may judge the sincerity of respondents. Consequently, the quality of the data generated can be expected to improve.

In the present study, two separate questionnaires were used to conduct the interviews: One developed for the local visitors and the other for the tourists from foreign countries. Both questioners were designed to focus on four major areas: (1) visitors' socio-economic characteristics, (2) willingness to pay, (3) conservation attitudes, and (4) perception of the current facilities and future development. From these questionnaires the respondents were presented seven common sets of questions: (1) questions to establish conversational rapport with the respondents, (2) to identify their origin and the travel arrangement, (3) evaluate the satisfaction and the change conservation attitudes after their visit to the PEO, (4) to assess the WTP contribution, (5) to evaluate the present status of interpretive facilities available in the PEO (6) to

canvass the respondents' opinions/suggestions to improve the PEO, and (7) to relate the respondents' responses to their socio-economic background.

Six graduate research students from the University of Kalaniya were used as interviewers to administer the questionnaires. Interviews were conducted both in *Sinhala* and English. The supplementary information, particularly about existing facilities available in the PEO for visitors and historical data in relation to the establishment of the PEO, tourist arrivals and other information were obtained from the unpublished official documents in the DNZG and informal interviews held with the officials at both PEO and DNZG. We also undertook a number of informal interviews with local people and the business community around the PEO area to gather the supplementary information, in particular to understand the impact of the PEO on the local economy.

#### **4. Attributes of those surveyed**

Haefen and Phaneul (2003) point out that an understanding of visitor attributes/characteristics is a principle aspect of sustainable outdoor recreation. This is because the planning of new developments, management of visitors, monitoring trends and predicting recreation demands all require adequate information on visitor characteristics. Furthermore, provision of good quality services and facilities being demanded by visitors would depend to a large extent on sound management and will also require such knowledge of visitors. While recreation site such as PEO has the potential to yield a range of information, in this study we collected only the information on visitor characteristics that is vital to immediate policy development.

We found that one third of the respondents in the sample had visited the PEO before. This was quite significant in the sub-sample of local visitors, with 56% having visited the PEO previously. This indicates that the PEO has become a popular recreation destination worth visiting more than once at least for the majority of local visitors. Kozak (2002) provides a useful insight into tourist motivation towards visiting the same destination repeatedly, suggesting that such a habit of visitation is influenced by the following motivation categories: 'culture', 'pleasure-seeking/fantasy', 'relaxation, or 'physical'. Although in this study we did not specifically investigate the factors that influenced the respondents' repeat visitation to the PEO, the informal discussions which we had with them revealed that a mixture of all these factors were responsible for their decision. However, the analysis of the type of visit to the PEO reveals that the majority

of the respondents (about 83% at the aggregate sample level) had used at least the current visit seeking pleasure either with their family or friends. This more clearly indicates that the PEO has also become a popular family recreation site in Sri Lanka for both local and foreign tourists (see Table 1).

**Table 1**

<b>Type of visit</b>	<b>Sample</b>		
	<b>Local</b>	<b>Foreign</b>	<b>Aggregate</b>
As an Individual visitor	7 (4.7)	41(27.3)	48 (16.0)
Part of a family group	74 (49.3)	47 (31.3)	121 (40.3 )
With Friends	69 (46.0)	62 (41.3)	131 (43.6)
Total	150 (100)	150 (100)	300 (100)

**Note:** Values in parentheses are percentage of total in respective samples

Data on origin of the visitors to the orphanage were analysed separately: local visitors in relation to the area (district) where they settled in Sri Lanka; visitors from overseas were analyzed in relation to the country where they had permanently settled. Our analysis found that 80.6% of foreign visitors were from Europe, and the rest from Asia and Asia Pacific countries. Table 2 presents the distribution of foreign visitors to the PEO according to their country of permanent settlement. The data gathered in relation to travel arrangement of these visitors reveals that 57% of respondents travelled to the PEO as part of a package tour and the rest as independent travellers. However, this information could indicate either that these tourists have accepted the PEO as one places to visit during their stay in Sri Lanka, or that the travel agents both in Sri Lanka and overseas now recognised the PEO as one of the places that their customers should visit in Sri Lanka. No doubt the attention of travel agents is clearly captured in the number of web-pages appearing on in the World Wide Web: at present there are 132 web-pages devoted to the PEO.

**Table 2**

**The distribution of foreign visitors to the PEO according to their country of  
permanent settlement**

<b>Country</b>	<b>Number</b>	<b>Country</b>	<b>Number</b>	<b>Country</b>	<b>Number</b>
England	51 (34.0)	Sweden	5 (3.1)	Japan	1 (0.6)
Germany	29 (19.3)	India	3 (1.8)	Hungary	1 (0.6)
Holland	11 (7.3)	Austria	2 (1.2)	Malaysia	1 (0.6)
France	8 (5.3)	USA	2 (1.2)	Slovenia	1 (0.6)
Australia	8 (5.3)	Pakistan	2 (1.2)	Ireland	1 (0.6)
Switzerland	8 (5.0)	Spain	2 (1.2)	Canada	1 (0.6)
Denmark	6 (3.7)	China	2 (1.2)	Czech Republic	1 (0.6)

**Note:** Values in parentheses are percentage of total number of respondents in the samples

Our analysis of the origin of the local visitors to the PEO reveals that majority were from urban and semi urban areas in Sri Lanka, of which about 55% were from the areas located within a 60km radiance of the PEO such as Kagalle, Kandy, Kurunagalla, Matale and Gampha. Table 3 gives the distribution of local visitors to the PEO in relation to the area (district) where they settled in Sri Lanka. However, this is understandable because visiting recreation sites such as the PEO is still a novel phenomenon for the majority of Sri Lankans. Their low income earning capacity may have partly contributed to this end because still 19, 62613 families in Sri Lanka depend on the government social safety net program, *Samurdi*. On the other hand, about 72% of the population in Sri Lanka live in rural areas and the majority earn their living from subsistence agriculture.

**Table 3**

**The distribution of local visitors to the PEO in relation to the area (district)  
where they are settled in Sri Lanka**

<b>District</b>	<b>Number</b>	<b>District</b>	<b>Number</b>	<b>District</b>	<b>Number</b>
Kandy	34 (22.7)	Gampha	11 (7.3)	Anurathpura	2 (1.3)
Colombo	28 (18.7)	Ratnapura	9 (6.0)	Matara	1(0.7)
Nuweraeliya	20 (13.3)	Kagalle	8 (5.3)	Puttalam	1(0.7)
Kurunagala	16 (10.7)	Galle	3 (2.0)		
Matale	14 (9.3)	Kalutara	3 (2.0)		

**Note:** Values in parentheses are percentage of total number of respondents in the samples

Although in this study we did not gather full details of the socio-economic attributes of the visitors to the PEO, we were able to draw some sense of their socio-economic background through the responses received for two questions presented in the survey. One was in relation to their level of income, where the respondents were asked: *Do you consider your level of income to be above the average in your country?* Respondents' responses were recorded as 'yes' or 'no'. The response to this question could be used to test a hypothesis to find out whether the recreation facilities are still dominated by the affluent classes. Our analysis of the responses to this question reveals that about 55% of visitors surveyed belong to the above average income earning groups in their home country both at aggregate and sub-sample levels (see table 4 for details). However, we do not have the information to say exactly whether the rest of the respondents belonged to the average income earner group or below it because 'no' responses to the above question can be either. But stated information indicates that the majority of visitors have above average income.

**Table 4**  
**Responses for the question presented in relation to the distribution**  
**of income of respondents surveyed**

<b>Survey question:</b> Do you consider your level of income to be above the average in your country?	<b>Local</b>	<b>Sample Foreign</b>	<b>Aggregate</b>
Yes	85 (56.7)	81 (54)	166 (55.3)
No	65 (43.3)	69 (46)	134 (44.7)
Total	150 (100)	150 (100)	300 (100)

**Note:** Values in parentheses are percentage of total in respective samples

The other question was presented in relation to the level of education. Respondents were asked: *Have you had any tertiary education, for example, university or technical college education?* Respondents' responses were recorded as 'yes' or 'no'. The response to question could be used analyse whether people who have more years of schooling appreciate more the nature/wildlife-based recreation facilities such the PEO than do those who have fewer years of schooling. Moreover do they express more positive attitudes towards the conservation of nature than do the others? Nevertheless, about 65% of the foreign visitors surveyed in the present study have tertiary education qualifications. This is well above the average in most Western countries. However, this was only 12% for the local visitors surveyed. This is quite understandable because the annual placements offered by the tertiary education institution (both universities and

technical colleges) in Sri Lanka to those who qualified General Certificate of Advance Level, known as GCE A/L is still less than 5% of the total number of students who sit for this exam every year. Thus the number of Sri Lankan visitors with tertiary education is somewhat above the Sri Lankan average.

## 5. Enjoyments of visits and willingness to pay

Akama and Kieti (2003) point out that tourists, like other customers, usually have initial expectations of the type and quality of service to be offered in a particular destination that they visit. Thus it is important to assess the level of satisfaction or enjoyment that visitors have received from their visit to any tourist attraction such the PEO both from policy and pragmatic points of view. Moreover, such information also could be used as a basis to generate other vital information. In this study we used the responses that we received to a specific question (i.e. *Have you enjoyed your visit to the PEO?*), which was presented in relation to visitor enjoyment, as a starting point to elicit respondents' maximum willingness to pay, or the entry fee that they were prepared to pay.

Respondents' opinions of the level of satisfaction they received by visiting the PEO were recorded on a three-point-scale: 'a lot or very much', 'a little' or 'not at all'. The majority of respondents (87.6%) at the aggregate sample level indicated that they enjoyed their visit to the PEO very much. This was even higher for the foreign visitor sub-sample level where 95.3% stated that they enjoyed it very much. None of the respondents in either of the sub-samples indicated that they did not enjoy their visit to the orphanage at all. Table 5 summarizes the levels of satisfaction at aggregate and sub-sample levels.

**Table 5**  
**The level of enjoyment received by the visitors**

Level of enjoyment	Sample		
	Local	Foreign	Aggregate
A lot or very much	120 (80.0)	143 (95.3)	263 (87.6)
A little	30 (20.0)	7 (4.6)	37 (12.3 )
Not at all	---	--	--
Total	150 (100)	150 (100)	300 (100)

**Note:** Values in parentheses are percentage of total in respective samples

As mentioned, we used the question presented in relation to enjoyment as a basis to ask the respondents the maximum price (entry fee) that they would have been prepared to pay to enter



the orphanage. Interestingly, about 72% of the respondents at the aggregate level were prepared pay a higher entry fee than the existing charges to the orphanage. However, as expected the percentage of the respondents that are prepared to pay such a higher entry fee at the foreign visitor sub-sample level is considerably higher than for the local visitor sub-sample. Moreover, the majority of those in both samples said they are prepared to pay a higher entry fee were ready to increase the price to enter the orphanage by more than 100%. Table 6 presents the distribution of the percentage changes of the maximum WTP by the respondents surveyed.

**Table 6**

**The distribution of the percentage changes of the maximum WTP from the existing entry fee to the orphanage by the respondents**

Sample	Unwilling to change or offered lower amount	Number of respondents				
		Willingness to increase up to 25%	Willingness to increase 25 to 50%	Willingness to increase 50 to 75%	Willingness to increase 75 to 100%	Willingness to increase more than 100%
Local	46 (30.7)	21 (14.0)	3 (2.0)	7 (4.7)	54 (36.0)	19 (12.7)
Foreign	38 (25.3)	19 (12.6)	11 (7.3)	4 (2.7)	18 (12.0)	60 (40.0)
Aggregate	84 (28.0)	40 (13.3)	14 (4.7)	11 (3.7)	72 (24.0)	79 (26.3)

**Note:** Values in parentheses are percentage of total in respective samples

The mean WTP estimates, calculated on the maximum WTP amount offered by the respondents, reveal that non-protest respondents (i.e. excluding the respondents who were unwilling to change the current entry fee or who offered a lower amount than the existing entry fee to the orphanage) on average were willing to pay Rs. 409.39 at the aggregate sample level to enter the orphanage. However, the mean WTP values estimated at the sub-sample level reveal that a considerable difference exists between the two visitor groups. Respondents in the local visitor sub-sample were WTP Rs. 55.09 to enter the orphanage whereas the visitors in the foreign sub-sample were WTP Rs. 738.39. This means, in other words, that the local adult visitors are prepared to pay just over twice the price that they currently pay (i.e. Rs.25) to enter the orphanage whereas the adult visitors from overseas are willing to pay between 3 and 4 times higher than the currently entrance fee (i.e. Rs.200). In terms of the Dollar or any other strong currency, Rs. 200 for an overseas visitor may not be a significant amount. On the other hand, local visitors those who were prepared to pay a higher entry fee must also have felt that it is reasonable to pay something more for the enjoyment that they received visiting the PEO. Table

7 presents a summary of estimates of the important statistics based on the willingness to pay to enter the PEO by the respondents surveyed.

**Table 7**  
**Summary of estimates of statistics for the maximum price (entry fee)**  
**that respondents say that they are willing to pay to enter the orphanage**

Sample	Statistic				
	Mean	Mode	Stan.deve	Maximum	Minimum
Local	55.09	50	26.83	200	30
Foreign	738.39	500	734.66	4500	250
Aggregate	409.39	50	629.36	4500	30

**Note:** All the values are in Rupees

## 6. Information and interpretive facilities

One of the most challenging problems faced by educators/environmentalists/ policy markers particularly in the LDCs, is finding ways communicate the existing environmental issues meaning to the general public. This is especially true in the case of the PEO. Our initial investigation into the information and interpretive facilities available at the orphanage, which we undertook prior to this research, reveals that the existing setup has not yet fully recognised the importance of educating visitors, at least about issues involved in conservation of the Asian elephant or the role of the orphanage. This situation seems to be quite serious in the case of local visitors because literally there are no interpretive facilities available for them, except the information brochures for sale at the information center. However, informal discussions with tourist operators reveal that visitors from overseas receive necessary information prior to the trip from the tour company which also guides them at the site. They also indicated that, since most of the foreign visitors were well informed before arrival, many seem to be clear about what is happening at the PEO. However, they did not deny the fact that the meagre interpretive facilities at the orphanage have hampered the objectives of the PEO.

In this study, we assessed the visitors' perceptions of the information and interpretive facilities available at the orphanage by presenting two questions: the first assessed the level of information obtained by them from the orphanage; the second sought to understand whether they would like

to have had more information about the orphanage. The information obtained from these questions could be used as a bases to investigate further exactly what kind of information should be provided for the visitors to gain their support for the conservation of the elephant and also to improve the facilities available at the orphanage. Tables 8 and 9 present summaries of the respondents' responses to these two questions.

**Table 8**  
**Level of information obtained by the visitors to the orphanage**

<b>Response</b>	<b>Sample</b>		
	<b>Local</b>	<b>Foreign</b>	<b>Aggregate</b>
A lot of information	0 (0.0)	52 (34.7)	52 (17.0)
Not much information	33 (22.0)	75 (50.0)	108 (36.0)
No information	117 (78.0 )	23 (15.0)	140 (46.7)
Total	150 (100)	150 (100)	300 (100)

**Note:** Values in parentheses are percentage of total in respective samples

**Table 9**  
**Respondents' responses in relation to their desire to obtain  
more information about role of the PEO**

<b>Response</b>	<b>Sample</b>		
	<b>Local</b>	<b>Foreign</b>	<b>Aggregate</b>
Yes	149 (99.3)	132 (88.0)	281 (93.6)
No	1 (0.7)	18 (12.0)	19 (6.3)
Total	150 (100)	150 (100)	300 (100)

**Note:** Values in parentheses are percentage of total in respective samples

As shown in Table 8, a little over 80% of the respondents at the aggregate sample level said they did not obtain much or any of the information that they wished to have from the orphanage. This situation is much more serious at the local sub-sample level, where none have met their expectation. However, these results are quite consistent with the findings of our initial investigation into information and interpretive facilities available at the PEO prior to this research. On the other hand, the information gathered in relation to whether the respondents wish to have more information about the role of the orphanage (see Table 9) further the confirmed findings our initial investigation. As indicated in Table 9, 93.6% of the respondents at the

aggregate sample level wish to have more information, of which more than half represent the local visitors to the PEO.

## 7. Attitudes towards the conservation of the Asian elephant

As briefly discussed in section 2, one of the initial objectives of establishing the PEO is to improve the public attitudes towards conservation of the Asian elephant declared as an endangered species by the IUCN (1996). Thus in this study we attempted to assess to what extent this objective has been fulfilled by presenting three questions to the respondents. In the first, they were asked: *Has your experience at the PEO increased your support for the conservation of the Asian elephant?* The responses were recorded as ‘a lot’, ‘a little’ or ‘not at all’. Table 10 presents the summary of the respondents’ responses to this question. As shown in this Table about 70% of the respondents at the aggregate level have indicated that their support for the conservation of the Asian elephant has increased a lot by the experience they gained from visiting the PEO. A very insignificant the number of respondents (2% of the total respondents surveyed) indicated that their support had not increased. This was indeed zero at the local visitor sub-sample level.

**Table 10**  
Respondents’ support towards conservation of the Asian elephant  
in relation to their experience at the PEO

Response	Sample		
	Local	Foreign	Aggregate
A lot	118 (78.7)	94 (62.7)	212 (70.6)
A little	32 (21.3)	50 (33.3)	82 (27.3)
Not at all	--	6 (4.0)	6 (2.0)
Total	150 (100)	150 (100)	300 (100)

**Note:** Values in parentheses are percentage of total in respective samp

In the second question, we attempted to assess the respondents’ perception of the view commonly held among the general public that much more should have been done to conserve the elephant in Sri Lanka. The respondents in both samples were asked: *Do you agree with the view that much more should be done to conserve the Asian elephant?* Responses for this question reveal that 97.3% of respondents at the aggregate sample were agreed with this view. Table 11 presents a comprehensive summary of the responses.

**Table 11**  
**Respondents' response to the view that much more should**  
**be done to conserve the Asian elephant**

Response	Sample		
	Local	Foreign	Total
Yes	148(98.6)	144 (96.0)	292 (97.3)
No	02 (1.3)	2 (1.3)	4(1.3)
Unsure	--	4 (2.6)	4 (1.3)
Total	150 (100)	150 (100)	300 (100)

**Note:** Values in parentheses are percentage of total in respective samples

Finally, the third question assessed respondents' attitudes towards the view that high income countries in throughout the world should pay for the conservation of wildlife, in this cases the Asian elephant. Tisdell (1999) provides a useful discussion about this view with Asian examples. Nonetheless, in the present study the respondents were asked: *Do you think high income countries should help for conserving Asian elephant?* Table 12 presents a summary of the respondents' responses to this question. As expected, 98 % of the respondents in the local visitor sub-sample believed that high income countries should help to conserve the elephant in Sri Lanka. Interestingly, about 76 percent of the overseas visitors in the sample also shared this opinion. The majority of the remainder of the respondents in this sample said that they were not sure that high income countries should bear this responsibility.

**Table 12**  
**Respondents' response to the view that high income countries**  
**pay for the conserving the Asian elephant**

Response	Sample		
	Local	Foreign	Total
Yes	147(98.0)	115 (76.7)	262 (87.3)
No	03 (2.0)	7 (4.6)	10 (3.3)
Unsure	--	28 (18.6)	28 (9.3)
Total	150 (100)	150 (100)	300 (100)

**Note:** Values in parentheses are percentage of total in respective samples

## **8. Suggestions for improving Pinnawala Elephant Orphanage: Visitors' perspective**

In this study we also canvassed the visitors' opinions/suggestions that could be used in the future to improve the existing structure of the PEO. The respondents were presented two questions: the

first is a close ended question where they were asked: *Do you have any suggestions for improving the PEO?* Responses were recorded as 'yes' or 'no'. The respondents who positively responded to this question were presented the second question which is an open-ended one where respondents were asked to specify their suggestions. Interestingly, analysis of responses received for the close ended question reveals that 68% of respondents at the aggregate sample level were willing to present their suggestions for improving the PEO. Furthermore 52 % of the local visitors made suggestions.

When we analysed the details of the suggestions made by the respondents both in local and foreign visitor sub-samples, it was found that those suggestions could easily be grouped into six common areas of interest. They are: a) improvement of current services and facilities at the orphanage; b) Safety and security; c) elephant care and welfare; d) information and interpretive facilities; e) improvement of services and facilities outside the orphanage; and f) improvement of revenue status and encouragement of visitor spending. It must be noted that a few isolated/unusual options were also found both in local and foreign visitor sub-samples, as they were neither practical nor serious, we did not include them in our summary of the suggestions presents in Table 13.

**Table 13**  
**Suggestions for improving the PEO by the visitors surveyed**

<b>Improvement of the current service and facilities at the orphanage</b>	<ul style="list-style-type: none"> <li>• Construct resting huts for public.</li> <li>• Relocate existing car park near the orphanage gate.</li> <li>• Build more public toilets.</li> <li>• Develop cafeteria facilities.</li> <li>• Establish a camping site</li> <li>• Expand the size of the orphanage.</li> <li>• Construct walking tracks.</li> <li>• Provide public drinking water facility.</li> <li>• Establish regular system to collect garbage.</li> <li>• Hire a professional manager and a curator.</li> </ul>
<b>Safety and security of the visitors</b>	<ul style="list-style-type: none"> <li>• Construct observation platform for public along the river bank.</li> <li>• Set up a first aid or medical center.</li> <li>• Tighten security along the road from the orphanage to the river when elephants take their usual bath in the morning and afternoon.</li> <li>• Use appropriate safety standards.</li> </ul>
<b>The elephant care and welfare</b>	<ul style="list-style-type: none"> <li>• Plant more shade trees.</li> <li>• Increase the space available for the elephants inside the orphanage.</li> <li>• Begin public sponsorship program for elephants.</li> <li>• Encourage more volunteers.</li> <li>• Construct proper pond inside the orphanage for elephants.</li> <li>• Grant more freedom for elephants.</li> <li>• Free some elephants to the wild or keep in natural habitat.</li> <li>• Encourage visitor involvement with the orphanage activities such as feeding.</li> <li>• Do not fully domesticate elephants in the orphanage.</li> </ul>

<b>Information and interpretive facilities</b>	<ul style="list-style-type: none"> <li>• Provide information booklet at the gate.</li> <li>• Employ professional guides.</li> <li>• Display more information about elephants and their way of life.</li> <li>• Encourage lectures, public talks educational demonstrations.</li> <li>• Set up an elephant museum to display more information about human-elephant relationships and conflict.</li> <li>• Employ interpreters.</li> </ul>
<b>Improvement of services and facilities outside the orphanage;</b>	<ul style="list-style-type: none"> <li>• Construct wider roads.</li> <li>• Provide shuttle bus service at least from Colombo-Kandy main road junction.</li> <li>• Regulate activities of the business people along the road to orphanage.</li> <li>• Construct public car park.</li> </ul>
<b>Improvement of revenue status and encouragement of visitor spending</b>	<ul style="list-style-type: none"> <li>• Begin elephant- based extra activities such as elephant dance.</li> <li>• Amalgamate other public entertainment activities such as carnivals, fairs and exhibitions with the orphanage.</li> <li>• Encourage visitors to spend more time inside the orphanage by providing more entertainment opportunities.</li> <li>• Promote local business people to pay a certain percentage of their income to improve the facilities in the orphanage.</li> <li>• Increase entry fee.</li> <li>• Encourage public donation.</li> <li>• Use trained elephants for elephant's rides.</li> <li>• Sell the excess stock as domesticated elephants.</li> </ul>



## **8. Concluding remarks**

This paper presents the preliminary findings of two sample surveys which were conducted to examine the visitors' reaction to the PEO. We find that the PEO has an excellent potential to offer outdoor recreation facilities to both local and foreign visitors while promoting the elephant conservation consciousness among the general public. However, our findings reveal that certain important aspects of visitor care and interest have been given low priority by the existing management at the orphanage, particularly information and interpretive facilities, safety and security, and other basic facilities such as toilets, cafeterias and resting huts for the public. Thus it seems, as with any other outdoor recreation facility, the PEO may lose its popularity in the future unless the current management make efforts to meet the visitor expectations. We also find that many visitors expressed serious concern about the initial objectives of the establishing the PEO particularly the welfare of the elephant and public attitudes towards conservation of the elephant in Sri Lanka.

We believe that the orphanage should be developed to educate both local and foreign visitors in all aspects of elephant management and conservation. This requires improving substantially the present status of interpretive and other facilities available to tourist at the PEO. Such improvement is possible if the visitors' demonstrated willingness to increase the entry fee is taken up. Along with improving the interpretive facilities, it thus would also be possible to establish an archival collection of literature, photographs, and artefacts illustrating the present status of human-elephant conflict and also the history of the relationship between the people and elephant in Sri Lanka. This would provide an excellent opportunity for researchers and other interest groups to understand the issues involve in the management of the elephant and other wildlife. Moreover, the PEO could be used as a center to undertake an appropriate programme to meet the growing demand for domesticated elephants in the country and also to train mahouts in a more systematic and suitable manner. Thus, it is important from the policy development perspective that the PEO should operate not only to entertain tourist as a recreation facility but its activities must also integrate with the long-term objectives of conservation of the Asian elephant in Sri Lanka.

## References.

- Akama, J.S., (1996). Western Environmental Values and Nature-Based Tourism in Kenya. *Tourism Management*, 17:567-574.
- Akama, J.S. and Kieti, D.M., (2003). Measuring Tourist Satisfaction with Kenya's Wildlife Safari: A Case Study of Tsavo West National Park. *Tourism Management*, 24:73-81.
- Abeygunawardena, P. and Kodituwakku, K.A.S.S. (1992). Economics of Recreation Value of Peradeniya Royal Botanical Garden. Proceedings of 3<sup>rd</sup> Regional Workshop on Multipurpose Trees, Kandy, Sri Lanka.
- Bandara, R., Tisdell, C. (2003) Comparison of rural and urban attitudes to the conservation of Asian elephants in Sri Lanka: *Biological Conservation*, 110: 327-342.
- Department of National Zoological Gardens (2000). Pinnawala Elephant Orphanage (Brochure). Department of National Zoological Gardens Dehiwala, Sri Lanka.
- FAO, (2000). Application of the Contingent Valuation Method in Developing Countries: A Survey. Information Division, Food and Agricultural Organization of the United Nations, Via delle Terme di Caracalla, Rome, Italy.
- Gunathilaka, H.M. and Vieth, G.R. (1998). An Assessment of Scenic Value of Sri Lankan Elephants: The Case of Pinnawela Orphanage. *Sri Lanka Journal of Social Science*, 21: 37-51.
- Haefen, R.H. and Phaneul, D.J., (2003). Estimating Preferences for Outdoor Recreation: A Comparison of Continuous and Count Data Demand System Frameworks *Tourism Management*, 45:612-630.
- Harrison, D. (2001). Tourism and the Developed World: Issues and Case Studies, CABI Publishing, Wallingford, U.K.
- Jayawardena, C., (2002). Future Challenges for Tourism in the Caribbean. *Social and Economic Studies*, 51:1-23.
- Kozak, M., (2002). Comparative Analysis of Tourist Motivation by Nationality and Destination. *Tourism Management*, 23:221-232.
- Lair, R. (1997). Gone Astray: The Care and Management of the Asian Elephant in Domesticity, FAO, Thailand, RAP Publication: 1997/16.
- Lee, C. (1997). Valuation of Nature Based Tourism Resources using Dichotomous Choice Contingent Valuation Method, *Tourism Management*, 18:587-591.

- Lee, C. and Han, S.Y., (2002). Estimating the Use and Preservation Values of National Parks' Tourism Resource using a Contingent Valuation Method. *Tourism Management*, 23:531-540.
- Obua, J. Harding, D.M. (1996). Visitor Characteristics and Attitudes Towards Kibale National Park, Uganda. *Tourism Management*, 17:495-505.
- Rajaratne, A.A.J. and Walker, B. (2001). The Elephant Orphanage (Pinnawela): A Proposal for Development. *Gajah*, 20:20-29.
- Silva, K. A. I. D. and Kotagama, H. B., (1997). An optimal fee for entrance to Udawalawa National Park: an assessment. *Tropical Agricultural Research*, **9**, 317-329.
- Söderlund. M., (1998). Customer Satisfaction and its Consequences of Customer Behaviour Revisited: The Impact of Different Levels of Satisfaction on Word of Mouth, Feedback to the Supplier and Loyalty. *International Journal of Service Industry management*, 9:169-188.
- Thilakaratne, N. and Santhiapillai, C., (2002). The Status of Domesticated Elephants at the Pinnawala Elephant Orphanage, Sri Lanka. *Gajah*, 21:41-52.
- Tisdell, C., (1999). Biodiversity, Conservation and Sustainable Development: Principles and Practices with Asian Examples. New Horizons in Environmental Economics Series, Edward Elgar Publishing, Cheltenham, UK; Northampton, MA, USA.
- Tosun, C. (2001). Challenges of Sustainable Tourism Development in Developing World: The Case of Turkey. *Tourism Management*, 22:289-303.
- Wijewardana, S. (2003). Decrease in Domestic Elephant Population in Sri Lanka. *Diviyina* (Sunday Edition), 8<sup>th</sup> February 2003, News Section, p.3.

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