

ESTIMATING ECOTOURISM POTENTIAL AT HORTON PLAINS AND KAWDULLA NATIONAL PARKS IN SRI LANKA

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ABSTRACT

It is argued that the ecotourism potential is high at national parks in Sri Lanka, the ecotourism potential has been underutilized for attracting more visitors to the national parks. But, so far, ecotourism potential of national parks has not been estimated in Sri Lanka. The present study was to estimate ecotourism potential at Horton Plains (HPNP) and Kaudulla (KNP) National Parks applying two catalogues. The ecotourism potential rating at HPNP and KNP were 83 and 79 respectively and statistically proved that ecotourism potential at both these sites are not the same. Based on the results, it is recommended to introduce more visitor services and recreational schemes for these two national parks.

KEY WORDS: Ecotourism potential, National parks, Resource inventory

INTRODUCTION

Official records state that the about 14 per cent of the land area of Sri Lanka is protected by the Department of Wildlife Conservation (DWC) in Sri Lanka, one of the highest proportions in Asia (DWC, 2001 & MOF, 1995). In Sri Lanka, national parks are the only protected areas which permit recreation. The national parks get more than half a million visitors a year, about 20% of who are foreigners. Presently, tourism is the fourth revenue earning industry in Sri Lanka (CBSL, 2010).

Tourism is a vital area in the Mahinda Chintana Policy Framework, which is the national policy document in Sri Lanka. It has been identified as capable of effectively driving the country's socio economic development. The programme's vision for the tourism sector is to make Sri Lanka the foremost leisure destination in the South Asian Region (GOSL, 2010). The programme believes the human resources and natural and cultural endowments values and ethos will be fundamental in transforming Sri Lanka into a centre of excellence and offer tourists the highest values of authentic experiences in its unique setting. The policy objectives are to get 2.6 million foreign visitors by 2016 and to become a tourism destination.

It is argued that although the ecotourism potential is high at national parks in Sri Lanka, the ecotourism potential has not been utilized for attracting more visitors to the national parks in Sri Lanka. How the 'ecotourism potential' could be measured is also a question, and the objective of the present study is to estimate the ecotourism potential at Horton Plains (HPNP) and Kaudulla (KNP) National Parks in Sri Lanka.

Most ecotourism studies have focused on the experience itself, and the setting in which it occurs (Boo 1990; Valentine 1993; Aylward et al. 1996). With respect to the experience, ecotourism normally involves 'travel to natural areas' (Boyd & Butler 1996; Wight 1993; Orams 1995), 'low-impact on the destination site' (Williams 1992; Nelson 1994) and 'fostering environmental principals' (Boyd & Butler 1996).

Ecotourism experiences also contribute to a better understanding and appreciation of the culture and natural history of the area visited (Mandziuk 1995; Herath 1996), and of the environment (Nelson 1994). The setting for ecotourism includes the natural environment, host communities and the equipment involved in the activities. Structures for ecotourism frequently involve rustic accommodations, trails, and basic amenities that tend to foster a stronger appreciation and closer contact with nature (Williams 1992). A key factor relating to host communities is whether ecotourism providers are local. Local providers generally benefit host communities more than outside providers by reducing economic leakages. Thus, local providers tend to provide greater expansion of the local economic base (Lindberg, Enriquez & Sproule 1996).

There are studies on ecotourism potential all over the world as a part of major tourism studies. There are few studies carried out mainly on assessment on ecotourism potential in a particular area. For example, a study on assessment of ecotourism potentials for sustainable natural resources management in and around Abijata-Shala Lakes National Park in the Central Ethiopian Rift Valley was carried out by Adem Gobena in 2008. In this study Gobena (2008) studied how to use the potentials of ecotourism in and around Abijata Shala Lake National Park (ASLNP) which is degraded by anthropogenic activities as an alternative option for preventing the natural resources degradation. In addition the study focused on sustainable use of natural resources for improving the livelihood of local communities and conservation of ASLNP.

Prakash *et al.* (2005) studied the potential of ecotourism development in the Lake Bosumtwi Basin in Ghana by studying the livelihoods of the local communities, the state of the lake and its natural environment and the current status of tourism development.

Moyini (2006) conducted the Uganda Ecotourism Assessment and revealed that the bulk of Uganda's tourism is ecotourism. This industry is on the upswing, though the potential is to some extent under-utilized. Opportunities for ecotourism outside wildlife and forest protected areas are unexplored to a large extent because yet, 70% of Uganda's forested area is on customary and private lands. Further, the ecotourism product is not sufficiently diversified both spatially and in terms of variety. Innovations in the ecotourism industry are also limited. The authorities managing the resources are poorly equipped to operate as businesses. At a general level, a number of recommendations have been presented, including: the need to identify, inventory and

map ecotourism attractions outside wildlife protected areas; greater and more meaningful community involvement; greater economic analyses including product pricing studies; and the recognition of ecotourism as a distinct segment of nature-based tourism calling for its own policy and strategy, guidelines, standards and certification procedures.

Studies on ecotourism potential in Sri Lanka are scanty. Epler-Wood (2000), president of the International Ecotourism Society conducted a rapid assessment of Sri Lanka's ecotourism potential in 2000. In this study ecotourism assets, Sri Lanka's infrastructure, community based ecotourism aspects were assessed. The study revealed that Sri Lankans themselves are nature conservationists and highly educated that the specialized planning and management skills required for ecotourism are well within their range. The landscape and wildlife are outstanding. Infrastructure is good for ecotourism. Communities seem well prepared to become involved in locally based tourism programs and the government is supportive and providing financial inputs. The environmental science community is highly qualified and fully behind ecotourism development. The country is ready for ecotourism, and planning process should begin immediately. Finally, the market will play a primary role in how well Sri Lanka succeeds in ecotourism destination (Elper Wood 2000).

Catalogues for assessing the ecotourism potential

First of all, one precondition for the promotion of ecotourism in rain forests is the existence of an attractive tourism potential. In order to be able to assess this, specific and quantifiable criteria are needed. Based on a proposal by WTO/UNEP (1992) a catalogue of criteria has been compiled and grouped into a set of five categories of criteria (see Table 2).

These features are generally, applied in assessing the ecotourism potential at a site up to a certain extent. All these features may not be found at a site, although certain site specific features could be used in assessing the potential. In the above studies also, some features were present up to a certain extent, and some features were absent.

In addition, Mackinnon *et al.*, (1996) proposed a checklist to identify the ecotourism potential at protected areas. The checklist included 11 sections and under each section three sections are found. For each section, a maximum 3 marks are given and the minimum that will be one.

The government of Sri Lanka has recognized the ecotourism potential of Sri Lanka and has officially stated that "Ecotourism will be developed as an important branch of special interest tourism" (SLTB 2003). However, there is much that needs to be done before the ecotourism potential of Sri Lanka is realized. At the moment most domestic tourism is short-break and pilgrimage oriented. International tourism is 90% pre-packaged and only 9% visits parks, while in Costa Rica 50% of international visitors visit national parks.

Study Area

In the present study two different national parks were chosen as the study sites. *i.e.* HPNP and KNP. HPNP is located approximately between the latitudes 6°47' to 6° 50" N and longitudes 80° 46' and 80° 50' E (DWC, 1997), which includes two of Sri Lanka's three highest peaks, but mostly comprises a gently undulating highland plateau at about 2,100 m, located at the southern edge of the central mountain massif, where the spectacular World's End escarpment falls 1,500m to the plains below. This is the most popular and crowded national park in Sri Lanka where visitors are allowed go along the nature trails, and park is popular mainly due to its scenic and unique landscape.

KNP is located approximately between the latitudes 6°47' N and longitudes 80° 46' and 80° 50' E in the catchment of Kawdulla reservoir with an extent of 6690 ha, which lies in the dry northern plain of Sri Lanka, and comprises low forested hills that surround and feed the third century Kawdulla reservoir. The park is a prime elephant habitat in the dry zone in Sri Lanka and therefore both foreign and local visitor visit the national park to watch hundreds of elephants in the tank bed of Kawdulla reservoir.

These two sites are totally different from each other, and each park has unique visitor attractions. Following significant differences are found between these two sites (Table 1).

Table 1. Significant differences between HPNP and KNP

Attributes	HPNP	KNP
Extent	Comparatively small-3162 ha	Comparatively large- 6900 ha
Visitation	Very high	Low
Location	Montane wet zone and located close to a tourism centre	Dry zone and Cultural Triangle
Seasonality of visitation	Not seasonal	Seasonal
Main Visiting purpose	Landscape and bird watching	Elephant watching
Popularity	Highly popular	Comparatively less popular
Establishment	Park was established in 1988.	Park was established in 2002
Visiting mode	Visitors are allowed to walk along the nature trail	Visitors are not allowed to walk inside the national park, wildlife safaris are allowed

MATERIALS AND METHODS

Identification of ecotourism potential is important for determining the recreational activities/schemes for each study site. There are no proper theories adopted for identification of ecotourism potential of a particular site, although according to the literature flagship attractions, complementary and support attractions, accessibility and regional attractions, climate and general political and social frameworks in a particular site affect its ecotourism potential.

The Wilcoxon signed rank test which was proposed by Wilcoxon (1945) was applied in comparing the ecotourism potential of two study sites.

Hypothesis is,

H_0 : median difference between the pairs is zero

H_1 : median difference is not zero.

$$W = \left| \sum_{i=1}^{N_r} [\text{sgn}(x_{2,i} - x_{1,i}) \cdot R_i] \right| \dots\dots\dots(1)$$

For $N_r \geq 10$, a z-score can be calculated

$$z = \frac{W - 0.5}{\sigma_W}, \sigma_W = \sqrt{\frac{N_r(N_r + 1)(2N_r + 1)}{6}} \dots\dots\dots(2)$$

X_{1i} and X_{2i} -measurements

N= Sample size

N_r = Reduced sample size

If $z > z_{critical}$ then reject H_0

For $N_r < 10$, W is compared to a critical value from a reference table.

If $W \geq W_{critical, N_r}$ then reject H_0

The ecotourism potential at each study sites was assessed using following framework which was proposed by WTO/UNEP (1992). In this framework, there is a catalogue of criteria, and criteria are grouped into a set of five categories *i.e.* flagship attractions, complementary & support attractions, accessibility and regional attractions, climate and general political and social frameworks (Table 2).

Table 2. Framework for identification of ecotourism potential

Criteria	Presence (+) or Absence (-)
1. Flagship attractions (attractive natural features)	
<ul style="list-style-type: none"> • manifold landscapes (forest types, lakes/ivers, mountains) • high biodiversity (flora and fauna) • existence of large animals • existence of a biodiverse avifauna • easily observable animals • uniqueness of species and natural elements of the landscape 	
2. Complementary & support attractions (natural, cultural and/or artificial features)	
<ul style="list-style-type: none"> • opportunity for swimming (waterfalls, rivers, beaches) • opportunity for sports (<i>e.g.</i>, tracking, fishing, kayaking/rafting) • indigenous culture (ethnic groups, villages, handicrafts, folklore) • archaeological and historical sites / features • visitor centre (exhibitions, museum, films, lectures, library <i>etc</i>) • accommodation/catering facilities in different price categories 	
3. Accessibility and regional infrastructure	
<ul style="list-style-type: none"> • distance to international airport or major tourism centre • access (roads, railway / domestic flights) • communication facilities / medical care • other interesting natural and/or cultural attractions in vicinity • interesting landscape en route 	
4. Climate	
<ul style="list-style-type: none"> • daily duration of sunshine; “tolerable” temperatures • amount and distribution of rainfall 	

5. General political and social frameworks

- stable political/social structures in the country / region
- threats to tourists (criminality, transportation)
- acceptance of tourism by local population

To fill up information requested from criteria 1 to 4 of above catalogue a tourism resource inventories including lists of fauna and flora were prepared for HPNP and KNP based on the standard tourism resource inventory checklist. In the present study secondary data were used in preparing the resource inventory. In addition some of information like physical infrastructure facilities was collected observing and having formal and informal discussions with park officials and staff of DWC. The information required for criteria no. 5, was collected thoroughly referring to the secondary data available at DWC.

RESULTS AND DISCUSSION

Table 3. shows the summary of resource inventory data for ecotourism potential assessment at each study site under framework of ecotourism potential assessment framework. The results of ecotourism potential assessment were included under five criteria *i.e.* flagship attractions (attractive natural features) complementary & support attractions (natural, cultural and/ or artificial features), Accessibility and regional infrastructure, climate and general political and social frameworks.

Table 3. Summary of ecotourism potential assessment at HPNP and KNP

Criteria	Presence (+) or Absence (-)	
	HPNP	KNP
1. Flagship attractions (attractive natural features)		
◦ manifold landscapes (forest types, lakes/rivers, mountains)	Wet Patanas, Cloud forest, pigmy forest, Chimney pool, Kirigalpotta, Totupola Kanda, BelihuOya, Baker's Fall	Kawdulla Tank
• high biodiversity (flora and fauna)	Upper montane rain forest, therefore biodiversity is high	Dry mixed evergreen forest, biodiversity is comparatively low
• existence of large animals	Sambars	Elephants, Spotted

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		deer
<ul style="list-style-type: none"> existence of a biodiverse avifauna 	Endemic Birds e.g. Sri Lanka Arenga	Forest birds and wetland birds, sometimes migratory birds
<ul style="list-style-type: none"> easily observable animals 	Sambar	Elephants
<ul style="list-style-type: none"> uniqueness of species and natural elements of the landscape 	Wet Patanas, Cloud forest, pigmy forest	Dry mixed evergreen forest, large tank bed area
2.Complementary & support attractions (natural, cultural and/ or artificial features)		
<ul style="list-style-type: none"> opportunity for swimming (waterfalls, rivers, beaches) 	Swimming and bathing are not allowed	Swimming and bathing are not allowed
<ul style="list-style-type: none"> opportunity for sports (e.g., tracking, fishing, kayaking/rafting) 	Not allowed	Paddle boating is allowed
<ul style="list-style-type: none"> indigenous culture (ethnic groups, villages, handicrafts, folklore) 	Park is isolated	Available
<ul style="list-style-type: none"> archaeological and historical sites / features 	Farr Inn building	Kawdulla Tank and other historical monuments
<ul style="list-style-type: none"> visitor centre (exhibitions, museum, films, lectures, library etc.) 	Visitor centre is available	Visitor centre is available
<ul style="list-style-type: none"> accommodation/catering facilities in different price categories 	Two bungalows and two camp sites are available	Bungalows are not available
3.Accessibility and regional infrastructure		
<ul style="list-style-type: none"> distance to international airport or major tourism centre 	Around 200 km	Around 150 km
<ul style="list-style-type: none"> access (roads, railway / domestic flights) 	Road and railways are available, although accessibility to destination is difficult due to terrain	Road and railways are available

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◦ communication facilities / medical care	Satisfactory	Satisfactory
◦ other interesting natural and/or cultural attractions in vicinity	Not applicable	Located in the cultural triangle
◦ interesting landscape en route	Hilly areas and scenic water falls	Fairly satisfactory

4. Climate

◦ daily duration of sunshine; “tolerable” temperatures	Day duration is 12 hours. Cold climate, Mean temperature is 18.4 °C	Day duration is 12 hours. Hot climate. Mean annual temperature of 28 °C
◦ amount and distribution of rainfall	From 2540 mm to 3175 mm	Annual rainfall of 1500-2000 mm,.

5. General political and social frameworks

◦ stable political/social structures in the country / region	Satisfactory	Satisfactory
◦ threats to tourists (criminality, transportation)	Not Applicable	Not Applicable
◦ acceptance of tourism by local population	Fairly satisfied	Fairly satisfied

The values for each aspect in the above format are given subjectively, ranging from 1-5, based on the prepared resources inventory. The expertise knowledge was applied in given values for each aspect. The highest value was 5 and the lowest value was 1. If any aspect is not applicable, then the value is zero. The total value allocated for each site was 110 marks. Table 4 shows the marks obtained by each study. Total marks obtained by HPNP and KNP were 83 and 79 respectively. Some aspects, like opportunity for swimming (waterfalls, rivers, beaches), are not applicable for study sites. The values for biodiversity and landscape are comparatively high at HPNP, although animals are easily observable at KNP. At both study sites threats to visitors are not found and both study sites obtained the optimum marks.

Table 4. Rating for ecotourism potential assessment at HPNP and KNP

Criteria	Presence (+) or Absence (-)	
	HPNP	KNP
1.Flagship attractions (attractive natural features)		
• manifold landscapes (forest types, lakes/rivers, mountains)	5	3
• high biodiversity (flora and fauna)	5	3
• existence of large animals	3	5
• existence of a biodiverse avifauna	5	5
• easily observable animals	3	5
• uniqueness of species and natural elements of the landscape	5	3
2.Complementary & support attractions (natural, cultural and/ or artificial features)		
• opportunity for swimming (waterfalls, rivers, beaches)	0	0
• opportunity for sports (e.g., tracking, fishing, kayaking/rafting)	0	2
• indigenous culture (ethnic groups, villages, handicrafts, folklore)	0	4
• archaeological and historical sites / features	2	5
• visitor centre (exhibitions, museum, films, lectures, library <i>etc.</i>)	5	5
• accommodation/catering facilities in different price categories	5	0
3.Accessibility and regional infrastructure		
• distance to international airport or major tourism centre	5	4
• access (roads, railway / domestic flights)	4	4
	2	4

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◦ communication facilities / medical care		
◦ other interesting natural and/or cultural attractions in vicinity	5	4
◦ interesting landscape en route	5	3
4. Climate		
◦ daily duration of sunshine; "tolerable" temperatures	5	4
◦ amount and distribution of rainfall	5	4
5. General political and social frameworks		
◦ stable political/social structures in the country / region	4	4
◦ threats to tourists (criminality, transportation)	5	5
◦ acceptance of tourism by local population	5	3

5= very high/highly satisfied, 4- high/satisfied, 3-moderate/fairly satisfied, 2-low/less satisfied, 1-very low/unsatisfied 0- not applicable

A paired *t*-test was done to compare the ecotourism potential, and the *t* value was 0.41, and therefore, null hypothesis could be accepted so that value of ecotourism potential at both two sites is equal. The potentials of biodiversity including large mammals and avifauna, uniqueness, landscape, climate, accessibility to study sites, presence of visitor centres and museum could be used in recreational planning.

Further, these two sites were compared using Wilcoxon test and the signed ranks for the pair of study sites were given in Table 5.

Table 5. Signed ranks for the pair of study sites

HPNP Values	KNP values	XA-XB	Absolute value	Rank	Signed Rank
5	3	2	2	9	9
5	3	2	2	9	9
3	5	-2	2	9	-9
5	5	0	---
3	5	-2	2	9	-9
5	3	2	2	9	9
0	2	-2	2	9	-9

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0	4	-4	4	15	-15
2	5	-3	3	14	-14
5	5	0
5	0	5	5	16	16
5	4	1	1	2.5	2.5
4	4	0
2	4	-2	2	9	-9
5	4	1	1	2.5	2.5
5	3	2	2	9	9
5	4	1	1	2.5	2.5
5	4	1	1	2.5	2.5
4	4	0	---	---
5	5	0	---	---
5	3	2	2	9	9
83	79				W = 6

$$N = 21, N_r = 16$$

$$Z = \frac{W - 0.5}{\sigma_w}$$

$$\sigma_w = \sqrt{\frac{16(16+1)(2 \times 16 + 1)}{6}}$$

$$\sigma_w = 30.67$$

$$z = 0.53$$

$$W_{.05, 16} = 29 \text{ (from the } W \text{ value table)}$$

$$W = 6$$

$$W < W_{.05, 16}$$

Therefore, the analysis failed to reject null hypothesis and therefore median difference between these two sites is zero. Further, it could be considered that the ecotourism potential of both study sites is almost the same.

HPNP has a unique potential in the park system for development of hiking due to the absence of elephants and cooler weather. Heavy investment in interpretation services is warranted, given the significance of the site in terms of biodiversity and visitor flows. HPNP is home to many rare, endemic and endangered species in all the major groups. Little is known about many of these species and there is excellent potential to develop HPNP more as a site for "science tourism", where scientists will contribute their knowledge but also assist in revenue generation. A park

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interpretation plan was devised by Perera (1995) that contained many good suggestions to be implemented, and most of proposals have been implemented. Visitor centre, improvement of nature trails and establishment of exhibits are some of implemented suggestions in HPNP.

KNP has an excellent potential overall for further ecotourism development due to ease of access for its visitors to one of Sri Lanka's premier tourist areas, the "Cultural Triangle". The Department of Archaeology statistics show nearly 100,000 foreign tourists visiting Polonnaruwa and purchasing 'All Round Passes' in 2013. If current levels are sustained these tourists could be attracted to KNP. The type of visitors attracted to this World Heritage Cultural Site should also be interested in the high quality ecotourism sites in the vicinity. Already several of the premier resorts/hotels in the area are promoting themselves as "Culture and nature" sites. As of yet the DWC has benefited little from this potential.

CONCLUSIONS

The ecotourism potential ratings at HPNP and KNP were 83 and 79 out of 110 marks respectively and statistically proved that ecotourism potential at these both sites are not same. Although these two sites are totally different and located in two different climatic and topographical zones, there could be an inherent ecotourism potential is found. That potential could be useful in recreational planning in these national parks.

REFERENCES

- Aylward B., Allen K., Echeverria J. and Tosi J., (1996). Sustainable ecotourism in Costa Rica: the Monteverde cloud forest preserve. *Biodiversity & Conservation*. 5:315-343.
- Boo, E., (1990). Ecotourism: the potentials and pitfalls: *country case studies*, WWF.
- Boyd, S.W. and Butler. R.W., (1996). Managing ecotourism: an opportunity spectrum approach. *Tourism management*. 17:557-566.
- Central Bank of Sri Lanka, (2010). *Annual Report*. CBSL, Colombo, Sri Lanka.
- Department of Wildlife Conservation, (1997). *Management Plan for Horton Plains National Park*. Colombo, Sri Lanka.
- Department of Wildlife Conservation, (2001). *Fauna and Flora Protection Ordinance (a Concise Introduction)*, Colombo, Sri Lanka.
- Elperwood, M., (2000). The Ecotourism Potential of Sri Lanka. *Unpublished report*, The International Ecotourism Society.
- Gobena, A., (2008). Assessment of Ecotourism Potentials for Sustainable Natural Resources Management in and Around Abijata-Shala Lakes National Park in the Central Ethiopian Rift Valley. Addis Ababa University.
- Government of Sri Lanka, (2010). *Mahinda Chinthana Idiriri Dekma*. In: DEPARTMENT, INFORMATION. (ed.). Colombo, Sri Lanka.

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- Herath G., (1996). Ecotourism Development in Australia. *Annals of Tourism Research*. 23(2): 442-446.
- Lindberg, K., Enriquez, J. and Sproule, K., (1996). Ecotourism questioned: Case studies from Belize. *Annals of Tourism Research*. 23: 543-562.
- Mackinnon, J., Mackinnon, K., Child, G. and Thorsell, J. (1986). *Managing Protected areas in the Tropics*. Dehradune, India, Natraj Publishers.
- Mandziuk, G., (1995). *Ecotourism: A marriage of conservation and capitalism*. *Plan Canada*.35: 29-33.
- Ministry of Forestry. (1995), *Forestry Sector Master Plan*. Ministry of Environment, Rajamalwatte, Battaramula, Sri Lanka.
- Moyini, Y., (2006). *Uganda Ecotourism assessment*, Ministry of Tourism. Trade and Industry/United Nations Conference on Trade & Development (UNCTAD) Export Development Programme Implemented by UEPB, Uganda.
- Nelson, J.G., (1994) The spread of ecotourism: Some planning implications. *Environmental Conservation*. 21:248-255.
- Orams, M.B., (1995). Towards a more desirable form of ecotourism. *Tourism Management*. 16(1):3-8.
- Perera, M.M.W.D.S., (1995). *Development Concepts for Horton Plains Heritage Interpretation*. University of Peradeniya, Kandy, Post Graduate Institute of Agriculture.
- Praksh, S., Wiering P.B., Poles E., Boatang F.S., Gyampoh B.A. & Asiseh F. (2005) Potential of ecotourism development in the Lake Bosumtwi Basin: a Case Study of Ankaase in the Amansic East District Gahana. *Working paper Number 15*. Working Group Social Economics of Forest Use in the Tropics and Sub tropics, University of Freiburg, Germany.
- SLTB, (2003). *Ecotourism Development Strategy of Sri Lanka*. In: BOARD, S.L.T. (ed.). Colombo, Sri Lanka Tourist Board, Sri Lanka.
- Valentine, P.S., (1993). Ecotourism and nature conservation: a definition with some recent developments in Micronesia. *Tourism management*. 14:107-115.
- Wight, P.A., (1993). Improved business positioning: Environmentally responsible marketing of ecotourism. In *Expanding responsibilities: A blueprint for the travel industry*. the 24th TTRA Conference. *Whistler, British Columbia*: 200-7, Wheat Ridge, CO: Travel and Tourism Research Association.
- Wilcoxon, F., (1945). Individual comparisons by ranking methods. *Biometrics Bulletin*. 1(6):80-83.
- Williams, P., (1992). *A local framework for ecotourism development*. *Western Wildlands*. 18:14-19.
- WTO/UNEP, (1992). *Guidelines: Development of National Parks and Protected Areas for Tourism*. In: SERIES, J. T. R. (ed.). Parris.