

# A COLLABORATIVE APPROACH BETWEEN TOURISM AND COASTAL COMMUNITIES: A PRESENT-DAY NEED AND OPPORTUNITY FOR MANGROVE MANAGEMENT AND CONSERVATION IN SRI LANKA

**P.U.Ratnayake, MBA (TTHM), Pg Dip. (Tourism Planning & Marketing), BA (Hons) Econ spl.**  
Sri Lanka Tourism Development Authority, 80, Galle Road, Colombo 3, Sri Lanka

e-mail: ratnayake234@gmail.com

## Abstract

Conservation of mangroves is a primary responsibility of mankind as a contribution to society, the environment and related ecosystems. In this regard Sri Lanka has taken many initiatives, a leading example being the restoration of 2004 Tsunami-hit mangroves in lagoons in the east, west and south of the island. The involvement of communities, experts and nongovernmental organisations in this endeavour was commendable. However, the lack of continuous economic benefits to the neighbouring communities, has challenged the long-term sustainability of mangrove rehabilitation efforts in many areas. External intervention and resources, over a considerable period, seems essential to conserve and restore the original flora. Considering current trends, introduction of tourism with visitor facilities for research, study and ecotourism activities will be an opportunity to generate additional or alternative income for mangrove stakeholders. When mangroves are used as a resource base to generate substantial economic benefits from activities such as operating eco-lodges, mangrove tours and other mangrove ecotourism activities, the stakeholders will be motivated to protect their resource base while using it sustainably.

In the study area in Kalpitiya, tourism was the primary source of income for 51.8% of the community and a secondary source of income for 28.5%; the tourist activities were mostly associated with mangrove environments. The study also revealed that mangrove areas generate many non-economic benefits such as providing an environment and nesting sites for birds, enabling the existence and continuity of wetland ecosystems, and protection of rare, site-specific faunal species. Protection against coastal hazards such as erosion and tsunamis and providing a green cover were also noted. Moreover, due to the high tourism demand and visitor interest in nature and related ecosystems, a sustainable independent system capable of generating continuous economic benefits to the community through tourist facilitation could be developed. In turn, the sensitive and important mangrove habitats that are mostly found in lagoons, estuaries and wetlands can be protected sustainably by an independent tourism-centered system and its neighbouring stakeholders.

Keywords: mangroves, conservation, ecotourism, economic benefits, Sri Lanka

## 1. Introduction

Mangrove is a type of forest growing along tidal mudflats and shallow coastal water areas extending along rivers and streams where water is generally brackish. The mangrove ecosystem is dominated by mangrove trees as the primary producer interacting with associated aquatic fauna, and social and physical factors of the coastal environment. Distribution of mangroves species varies in countries and regions;

Country/Region	Australia	Indo-Malaysia	East Africa	West Africa	East America	West America	Sri Lanka
Species found	47	51	11	8	11	12	20

(Source: Alongi (2002) & FD (unknown))

Mangroves possess characteristics that collectively make them structurally and functionally unique. Morphological and ecophysiological characteristics and adaptations of mangrove trees include aerial roots, viviparous embryos, tidal dispersal of propagules, rapid rates of canopy production, frequent absence of an understorey, absence of growth rings, wood with narrow, densely distributed vessels, highly efficient nutrient retention mechanisms, and the ability to cope with salt and to maintain water and carbon balance (Alongi, 1998).

Being the only woody halophytes living at the confluence of land and sea, mangroves have been heavily used traditionally for food, timber, fuel and medicine, and presently occupy about 181 000 km<sup>2</sup> of tropical and subtropical coastline (Alongi, 2002).

Mangrove plant communities are a comprehensive economic and non-economic contributor to mankind. Mangroves are a valuable ecological and economic resource, being an important nursery and breeding site for birds, fish, crustaceans, shellfish, reptiles and mammals (Alongi, 2002 & Melana, 2000). Mangroves are a renewable source of wood, accumulation sites for sediments, contaminants, carbon and nutrients, and protect coastal communities against coastal erosion (Liyanage, 2010). Natural hazards such as storms, cyclones and most recently the Indian Ocean tsunami have repeatedly shown the value of mangroves and the need to prevent unregulated, destruction and extraction by man (Melana, 2000). Among the major reasons for the destruction of mangroves are urban development, aquaculture, mining and the over exploitation of mangroves for timber, fish, crustaceans and shellfish. Over the next 30 years, unrestricted clear felling, further development of aquaculture and the continuing overexploitation of fisheries will be the greatest threats. Lesser threats will include alteration of hydrology, pollution and global warming. Loss of mangrove biodiversity is, and will continue to be, a severe problem as even pristine mangroves are species-poor compared with other tropical ecosystems (Alongi, 2002).

Mangrove conservation and restoration are often viewed with suspicion in terms of long-term sustainability, due to a lack of awareness, knowledge and the absence of systemic tangible benefits at the community level. The scarcity of land for human needs that continues to exert pressure on mangrove and wetlands is an enormous challenge. There is a pressing need to develop alternative conservation approaches that link mangrove conservation and restoration with other forms of coastal industry development, especially tourism, as a means to ensure mangroves' future sustainability. If mangrove forests continue to be exploited at the current rate without addressing the need to manage these valuable resources on a sustainable basis, by about 2030, the future of mangroves will depend on the development of technological and ecological advances in multi-species genetics and forestry modelling: the greatest hope for the future of mangroves is for a reduction in human population growth (Alongi, 2002).

## **1.1 Tourism towards environment**

World Tourism is the single largest industry; it generates almost one billion (1Bn) international tourist arrivals and about US\$ 450 trillion receipts globally and is growing at around 3.5-4%, which is again the highest growth rate for a single industry. These facts show the significance and size of the tourism industry in the world economy. Furthermore, the positive relationship between tourism demand and economic development in developed countries ensures that this industry will maintain its growth momentum continuously in the future (UNWTO, 2011).

The potential demand for nature tourism is enormous. UNWTO (2004) showed that nature-related tourism represents about 20% of the total tourist arrivals in the world, and it continues to grow at 10-30% per annum, thus doubling the size of nature tourism subsector every three to four years. Wight (2001) estimated that some 40% of all tourists travel with a view to seeing some degree of wilderness during their trip. Ecotourism comprises about 10% of total tourism demand, and grows at 7% annually (WTTC, 2009) which is much faster than the overall growth of world tourism, estimated at about 4.1% per year (WTTC, 2010). The above numbers suggest that if tourism demand in 2015 is 1.561 billion arrivals, as forecast by WTTC (2009), approximately 312 million tourists would engage in nature-based facilities and activities.

## **1.2 Sustainable tourism and mangrove conservation**

Sustainable tourism development requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus building. Achieving sustainable tourism is a continuous process that requires constant monitoring of impacts and introducing necessary preventive and/or corrective measures, whenever necessary. Sustainable tourism calls for maintaining a high level of tourist satisfaction and ensuring a meaningful experience to the tourists, raising their awareness about sustainability issues and promoting sustainable tourism practices amongst them. Sustainable Tourism (UNEP, 2002) discusses the three interconnected impacts of environmental, socio-cultural and economic issues.

Thus, the mangrove environment provides a comprehensive nature resource base as a foundation to attract tourists. The sustainability concept is widely discussed at present in all tourism initiatives. Coastal tourism resource bases particularly the mangrove ecosystems, a vulnerable and sensitive resource base distributed within limited areas in countries, need special attention for its long-term existence. Using sustainability concept as a tool and vehicle for careful utilisation of the coastal ecosystem, tourism has the potential to help conserve mangroves and its interrelated ecosystems by providing economic gains to immediate stakeholders to ensure the wider non-economic benefits of mangroves (Liyanage 2010 & Ratnayake 2007) .

In summary, mangroves are a unique plant species that contributes direct economic benefits and even more non-economic benefits to society. However, it appears that excepting conservators, others show little regard for this important plant family. Mangroves are the cradle of sea and lagoon life and the related ecosystem. Introducing tourism that will bring economic benefits to the community and other associated stakeholders will bring home the importance and value of mangroves for their livelihood, and motivate them to protect mangroves.

## **2. Materials and methods**

Aim of this study is to assess the long term sustainability of mangrove restoration and conservation effort of the government and non government organisation in Sri Lanka. Main objective of this study was to ascertain the economic and non-economic benefits (both direct and indirect) generated by mangroves. Data required to compile an overview of mangrove restoration areas, their geographical distribution and the local and locational values of the present mangrove ecosystem and social systems was collected. The overview also reflects the contribution by MFF and other conservation initiatives to restore or reinstate disturbed sensitive areas in the country, damaged by nature hazards and records their present status. The study pays specific attention to the communities' knowledge (both general and scientific) about the surrounding mangrove communities and their associated ecosystem and biodiversity. The study also investigated the direct benefits that will gain positive responses and support from the neighbouring coastal community, when tourism initiatives for restoration and conservation are successfully concluded.

The research mainly focuses on how to independently assess which restoration and conservation initiatives are sustainable, for the next generation of the society (by 2030). The final aim of the study is to identify what kind of tourism (tourist, their facilities and activities) and the type of nature research/education are necessary and acceptable to support livelihood development systems in areas where mangroves are most at risk.

## **3. Results**

The 20 species of mangrove found in Sri Lanka fall into four groups based on the frequency of occurrence (Table 1). The four major genera are *Avicennia*, *Rhizophora*, *Bruguiera*, and *Sonneratia*

**Table 1: Mangrove Species of Sri Lanka**

Very common species	4
Common species	10
Rare species	3
Very rare species	3
Total	20

Source: FD (Sri Lanka)

Geographical distribution of mangrove species, by coastal districts:

**Table 2: Extent of Mangrove in Coastal Districts in Sri Lanka (Hectares)**

Puttalam	3210	Gampaha	313
Jaffna	2276	Galle	238
Trincomalee	2043	Ampara	100
Batticaloa	1303	Colombo	39
Kilinochchi	770	Kalutara	12
Hambantota	576	Matara	7
Mullaitivu	428	Total	12189*

\* - total may not the sum

Source: FD (Sri Lanka)

Mangrove restoration has taken place in all coastal districts affected by Tsunami tidal waves in 2004. Restoration had commenced in the southern and eastern regions and later extended to northern and western regions. MFF small and medium grants made a substantial contribution towards mangrove restoration. Researching on damage caused by Tsunami, its future impacts, appropriate mangrove species, replanting methods, locations, and timing link with subsequent implementation and monitoring carried out in those areas. Necessary support from experts and organisations like Coast Conservation Department and Forest Department had been obtained.

Ecological and economic benefits of, and threats to mangrove forests surfaced in the study. Services provided by mangrove forests are:

- Nursery grounds for fish, prawns and crabs
- Harvesting grounds for crabs, shrimps and some fish species
- Produces leaf litter and detritus matter - valuable food resources for animals in estuaries and coastal waters.
- Protects coastal areas and communities from storm surges, waves, tidal currents, tsunami etc.
- Produces organic biomass and reduce organic pollution in near seashore
- Serves as recreational grounds for bird watching and observation of other wildlife
- Provides wood and timber for low-cost housing, firewood and charcoal

Threats faced by mangrove forests are:

- Conversion to fishponds and salt beds
- Reclaiming for various developments
- Indiscriminate extraction of firewood and wood
- Dumping of solid waste
- Tsunamis, tidal waves, soil erosion

Proposed solutions are:

- Establishment of nurseries; management and research centres
- Plantation of mangroves with appropriate species based on scientific findings
- Introduces alternative means of mangrove based economic gains such as ecotourism to coastal communities

The community perception on present economic benefits from tourism in Kalpitiya mangrove restoration areas were assessed using a random sample amounting to 10% of the population. Kalpitiya in the North Western Province, the biggest open lagoon in Sri Lanka, is surrounded by many mangrove islands. Presently, government is developing tourist facilities to promote formal tourism in a selected group of islands and mangrove forests.

**Table 3: Socio-economic characteristics of the Kalpitiya area community**

<b>Primary source of family income</b>	No of House Hold.	%	<b>Secondary source of family income</b>	No.	%
Tourism related	71	51.8	None	75	54.7
Non-tourism related	66	48.2	Tourism related	39	28.5
Total	137	100.0	Non-tourism related	23	16.8
			Total	137	100.0
<b>Contribution of tourism to total family income</b>					
None	53	38.7			
100%	38	27.7			
About 50%	15	10.9			
Less than 50%	31	22.6			
Total	137	100.0			
<b>Level of awareness of the environmental value of mangrove</b>					
Noneil	86	62.7	Limited – a little	27	19.7
Very poor	17	12.4	High; Mangrove protection is essential	7	5.0
Total	137	100.0	Wish to improve awareness about mangroves	106	77.4
<b>How the community presently utilize mangroves</b>					
Fire wood	81	59.1	Fire wood & other uses	34	24.8
Does not utilize mangrove	16	11.7	Uses, other than firewood	6	4.4
Total	137	100.0			
<b>Future plans relating to mangroves</b>					
To start a tourism business	67	48.9	To add more tourism facilities	31	22.6

Results presented in Table 3 show the community's high level of dependence on tourism; tourism is the principal income source for half the community (51.8%) and the secondary source for another 28.5%. However, less than 20% are aware of the environmental value of mangroves, and almost 75% extract firewood from mangrove forests. These numbers depict the gravity of the threat faced by mangroves. The community is largely engaged in providing ad hoc facilities to tourists, especially the domestic tourist. They are using coastal resources for economic gain but sadly are not aware of the value of these resources, nor do they seem to care. Only 11.7% claim they do not harm this valuable ecosystem.

About 27% of the households earned their entire household income from the tourism industry. Around 11% earned about half their household income, and another approximately 23% some part of their income, from tourism. About 38.7% do not derive any income from the tourism industry.

Overall the community knowledge on mangrove was very low. Only 7% had a high level of awareness, and the rest knew little or nothing about mangroves. However, their willingness to learn about mangroves and

readiness to co-operate are important for future development and should be appreciated. Most of them (77.4%) agreed to learn about mangrove ecosystems to enable their participation in tourism/ ecotourism initiatives.

The community is not happy about the present tourism practises which are mostly ad hoc activities, but are willing to work with tourism authorities. Majority (62%) have a positive attitude towards tourism/ecotourism which they regard as a good concept/industry. Their comments show that they trust tourism/ecotourism would develop and be sustainable in their area.

Global tourism shows continuous growth; nature interested travellers and ecotourists are important contributors to this trend. Countries with high nature value landscapes and biodiversity can cater to such tourists. Sri Lanka being a tropical country as well as an island has comparative advantage for this market segment (Table 4).

**Table 4: Global tourist arrivals and estimated nature interested travellers and ecotourists (in millions)**

Year	2006	2007	2008	2009	2010	2011**
A. Tourist arrivals	782	898	924	880	935	1046
B. Nature interested travellers* (20% of A)	156.6	179.6	184.8	176.0	187.0	209.2
C. Ecotourists* (Avg. 7% of B)	10.9	12.6	13.0	12.3	13.1	14.6

\*estimates,\*\*projections ( Source: UNWTO, 2011 & Ratnayake, 2007)

In line with international trends and peace in the country international tourism has started growing very fast (2010 - 46% & 2011 – 31%) in Sri Lanka (Table 5).

**Table 5: Monthly and annual tourist arrivals to Sri Lanka**

Month	2010	2011	2012	Average Growth %
January	50,757	74,197	85,874	15.7
February	57,300	65,797	83,549	27.0
March	52,352	75,130	91,102	21.3
April	38,300	63,835	69,591	9.0
May	35,213	48,943	-	
June	44,730	53,636	-	
July	63,339	83,786	-	
August	55,898	72,463	-	
September	47,339	60,219	-	
October	52,370	69,563	-	
November	72,251	90,889	-	
December	84,627	97,517	-	
<b>Annual total (454,475 in 2009)</b>	<b>654,476</b>	<b>855,975</b>	<b>By April 330,116</b>	
<b>Annual growth %</b>	<b>46.1</b>	<b>30.8</b>	<b>18.3</b>	

SLTDA, 2011 & 2012

### 3.1 Environmental and economic benefits of tourism

Development of tourism increases the demand for quality accommodation, food and beverage, and other ancillary facilities. Moreover, visitors now look for specific places to visit, gain knowledge during the tour, respect nature and help maintain its balance. Presently there is a high demand for diversified tourism products with high quality standards and services, pristine locations, and knowledge on valuable ecosystems etc. encountered during their travel.

The main positive economic impacts of tourism relate to foreign exchange earnings, contributions to government revenues, and generation of employment and business opportunities. Tourism expenditures

and the export and import of related goods and services generate income to the host economy and can stimulate the investment necessary to finance growth in other economic sectors.

Tourism can significantly contribute to environmental protection, conservation and restoration of biological diversity and sustainable use of natural resources. Because of their attractiveness, pristine sites and natural areas are identified as valuable, and the need to keep the attraction alive can lead to creation of new non-conventional tourist destinations, activities and facilities.

Sri Lanka has about 36 lagoons and estuaries right round the country. Almost all the areas are either on or near present tourist routes. Even in the north and east, which is emerging for tourism, the mangrove areas are located close to potential tourist routes (Table 2).

Development of visitor facilities for awareness, education, accommodation, research, study and publication, with basic infrastructure, will provide unique value to nature loving visitors and people living in those areas. Networking these facilities, within the country and in other countries, with similar resource bases and visitor facilities will also strengthen their marketing.

To capitalise the potential and international visitor interest, appropriate visitor facilities, knowledge gathering and research centres, activities within and in neighbouring areas, and nature friendly accommodation in close proximity to mangrove areas should be available. These facilities can generate additional income for the communities living close to mangrove habitats.

As a model, three home stay units were initiated in close proximity to Kalipitiya Lagoon, and 12 mangrove tour assistants and 17 lagoon tour assistants were identified. Projected income per year (using the lowest estimates), for each unit (with 30 nature lodges for tourists) is presented below.

Estimates	Occupancy in %	One bed room @ \$ 30	Boating @ \$ 35 per trip
Potential (estmd)	50% & 25% each 6 months (15 + 8 days )	(15 X 6 X30)+ (8X6X30) = 4,140	2 trips per day; 15 days
Income	(15+8)X6 = 138 nights sold	138X 30 = \$ 4,140	For 6 months (2X15X6X30)=\$ 5,400
Estimated total cost		30% = \$ 1,242	30% = \$ 1,620
<b>Additional income per annum</b>		<b>\$ 2,898</b>	<b>\$ 3,780</b>

Hypothetical projections show the financial benefits of tourism. Communities will be able to earn more income by providing camping, research, nature activities, and study tours.

Proposed tourism facility development models for mangrove areas:

Model (options)->	I	II	III	IV
Visitor day activities	Nature walk/ tracking	Boating/ watching bird	Observation and recording	Nature walk/boating
Accommodation	Home stay	Camping	Ecolodge/s	-
Knowledge centre	Nature Information Centre	Nature Library	Nature Research Centre	Nature Information Centre

Visitor activities 1	Reading/video	Reference/ recording	Reference/data collection	Tourist Information
Restoration	Nursery work	Replanting	Restoration/replanting	Area cleaning
Monitoring	Watering/fertilising	Aftercare of plants	Aftercare of plants	-
Visitor activities 2	Village walk	Go fishing	Help agriculture	Visit attraction
Visitor activities 3	See culture	Round tour	Excursions-other areas	-

Based on tourism initiatives in mangrove areas and lagoons, there will be non-economic benefits such as a protected environment for breeding and nesting for birds, enabling the wetland ecosystems existence and continuity and protection for rare site specific fauna species. Use of mangrove for fire wood adversely affects all non-economic benefits; it can also lead to more serious environmental issues in the long run. Most of the community who collect (extract) fire wood from mangrove forest are not aware of the possible environmental problems. Financial difficulties drive them to use fire wood for cooking. This suggests that alternative sources of income may indirectly protect the mangroves and associated ecosystems.

Controlling the number of facility units in a given area, and number of visitors at a given time of the day will increase the financial returns to the community without harming the resource base. Income generation based on mangrove resources will provide the necessary motivation to protect the mangroves with minimal intervention. Linked with effective management methods this will be sustainable in the long run, and ensure the environmental benefits of mangrove forests without any disruption.

#### 4. Discussion

Clearly, mangrove environments have a very high potential to attract the positive attention of the tourism sector, due to mangroves natural biodiversity and the diversity of the associated ecosystem. The diversity of mangrove communities and their geographical locations (Table 2) offer considerable potential for the development of research centres, eco-friendly accommodation, nature trails, bird watching, game fishing, observation platforms and interpretation services by village people. Nature based activities could include replanting mangroves jointly with visitors, and research projects conducted by visitors in collaboration with local youth. These activities could open up a variety of avenues and opportunities for income generation for the communities neighbouring mangrove habitats.

Initial inputs and support are required to train local personnel, and technical inputs are needed to create awareness among local people, to facilitate introducing tourism initiatives. Once the initiatives are in place and communities begin to generate alternative incomes using mangroves as a resource base, communities will start protecting mangroves motivated by income and respect for mangrove resources. The community will have opportunities to generate income by organizing tourism programmes to mangrove areas and by providing facilities to tourists. The revenue capacity of mangroves, as alternative income from domestic and international tourism, will increase with nature activities. Providing facilities for education and researching are such alternative opportunities now available to conserve sensitive mangrove areas. This helps the community to think on the value of cutting and leaving mangrove in their areas. This model can be replicated in any area or country after a careful assessment of the area targeted. Opportunity cost of cutting mangrove be realised to... the community, thereby they will gradually move towards protection of mangrove rather than removal due to financial motivation. As a result, sustainability of the conservation initiatives can be ensured in the long run.



## 5. Conclusions and recommendations

Introduction of new activities to sensitive environments need to be linked to careful studies, systematic management methods and strict guidelines for stakeholders (Wood, 2002). Therefore, it is necessary;

- i. To carry out comprehensive studies on the resource base, its sensitivity and ecosystems at maximum intervention levels i.e. carrying capacities in the long run.
- ii. To identify areas that have to be conserved with no intervention. In other areas identify appropriate tourism facilities and activities e.g. introduction of one of the proposed models.
- iii. To assess the level of community awareness and the assistance that will be needed to form community business centres in the identified areas
- iv. To identify the training needs such as capacity building and skills development for undertaking tourism activities/facilities
- v. Effectively manage the services developed with due care for the sensitive resource base
- vi. To assist with technical and financial (borrowing) support to develop tourism facilities
- vii. To use ecotourism as a tool for the conservation of mangroves while generating income
- viii. Extend marketing support by linking with other similar products, found locally and internationally, at least during the first two years in order to establish market sustainability
- ix. Set up a mechanism to monitor interventions and take corrective action to support sustainable conservation of mangroves.

## Acknowledgements

Sincere thanks to IUCN Sri Lanka & Bangkok officials, Kalpitiya Tourism Integrated Project (KTIP) of the Sri Lanka Tourism Development Authority of Sri Lanka, Sri Lanka Navy based in Kalpitiya, Turtle Conservation Project (TCP) and the fishing community in Kalpitiya.

## References

Alongi, D.M., (1998). *Coastal Ecosystem Processes*. New York, USA: CRC Press: 419 pp.

Alongi, D. M., (2002). Present Status and Future of the World's Mangrove forests. *Foundation for Environmental Conservation* 29 (3) 331-347, Australia.

Melana, D.M., J. Atchue III, C.E. Yoo, R. Edwards, E.E. Melana and H.I. Gonzales, (2000). *Mangrove Management Hand Book*. Department of Environment and Natural Resources, Manila. Philippines through the Coastal Resources Management Project, Cebu City, Philippines, 96p.

Liyanage, S., (2010). Pilot Project: Participatory Management of Seguwanthive Habitat in Puttalam District, Sri Lanka. *Wetlands International*, 180-187

UNDP & IUCN (2008), 'National Strategy and Action Plan (draft)' under Mangroves for the Future (MFF)', India

SLTDA 2011, Annual Statistical Report, Sri Lanka Tourism Development Authority, Colombo

ESCAP. (1999). *Economic Impacts of Sri Lanka. Economic and Social Commission for Asia & the Pacific. ESCAP Tourism Review*. New York, USA: UN

FD (unknown), '*Mangrove Ecosystems in Sri Lanka*', Forest Department of Sri Lanka (Handbook), Sri Lanka

Kotagama, S. (2005). [Online] Retrieved on Dec. 20th, 2006 from <http://geic.hq.unu.edu/env/files/Eco-tourism%20and%20community%20development.pdf>

Department of Wildlife Conservation of Sri Lanka (ND)., Ecotourism Definition [Online] Retrieved on Oct. 15th , 2006 from <http://www.dwlc.lk>

Ratnayake, P.U.(2002), *Tourism Potentials Towards Ecotourism in Sri Lanka*, MsM , Netherlands.

Ratnayake, P.U. (2007), Challenges to Ecotourism Development in Sri Lanka: an Assessment, Prince of Songklar University, Phuket Campus, Thailand

SLTB. (2003a). *Ecotourism Development of Sri Lanka: National Policy, Regulations and Guidelines*. Colombo, Sri Lanka: Sri Lanka Tourist Board and Ministry of Tourism.

SLTB. (2003b). *Ecotourism Development Strategy of Sri Lanka*. Colombo, Sri Lanka: Sri Lanka Tourist Board and Ministry of Tourism.

UNWTO 2011, Vision 2030, Madrid, Spain

UNEP. (2001). Ecotourism and Sustainability, Industry and Environment. United Nations Environment Programme. vol. (24) No 3-4 p. 8

**UNEP (2002). *Ecotourism: Principles, Practices & Policies for Sustainability***, United Nations Environment Programme (UNEP) & The International Ecotourism Society (TETS), Paris, France.

Wight, P. A. (2001). Ecotourism: Not a Homogeneous Market Segment. in Weaver, D. Ed. *The Encyclopaedia of Ecotourism*. UK: CABI Publishing. 2001 pp. 37-62.

World Travel and Tourism Council -WTTC. (2009). [Online] Retrieved on Jan. 20th, 2010 from <http://www.wttc.org/>

World Travel and Tourism Council -WTTC.(2010). [Online] Retrieved on Jan. 20th, 2010 from <http://www.wttc.org/>

#### Abbreviations;

MFF	- Mangroves for the Future
UNDP	- United Nations Development Programme
IUCN	- International Union for the Conservation of Nature
NSAP	- National Strategy and Action Plan
FD	- Forest Department
UNWTO	- United Nations World Tourism Organisation
HH	- House Holds