Impact of the Tsunami on the Tourism Industry and Ecosystem of the Andaman and Nicobar Islands, India

Maharaj Vijay Reddy, R
Gareth Shaw and Allan Williams
(Advisors),
Department of Geography,
University of Exeter
United Kingdom

Study sponsored by,
UNESCO-MAB, Paris, France
The Working Papers series is a publication of the South-South Co-operation Programme. The series aims to disseminate the results of research carried out in Biosphere Reserves on such topics as: (i) the prevailing conservation and resource-use patterns and, (ii) the ways of improving the traditional practices and orientations for applied research aimed to a more intensive use of the biodiversity and provide a better livelihood to the local populations in the buffer and transition areas. On more general issues the Working Papers are also an attempt to identify key problems that will become areas of concentration for international co-operation.

The ideas and opinions expressed in this book are those of the author and do not necessarily represent the views of Unesco.

The Working Papers series is published in English, French or Spanish in function of the language used by the author.

© Permission to reproduce any material of the Working Papers series will be given without any authorization, provided that full references to the author, title, title of volume, date, institution, editor and place of publication are given.

Layout: Silvia Diez
Published and distributed in 2006 by
Unesco Regional Office for Science for
Latin America and the Caribbean - Montevideo

All correspondence should be addressed to the Administrative Editor.

Edited by: UNESCO
Division of Ecological Sciences
South-South Co-operation Programme
7, Place de Fontenoy
75 700 PARIS (FRANCE)

South-South Co-operation Programme is also available in INTERNET:
http://www.unesco.org/mab/south-south/index.htm

<table>
<thead>
<tr>
<th>Scientific Editor</th>
<th>Administrative Editor</th>
<th>Publication Editor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignacy Sachs</td>
<td>Miguel CLUSENER-GODT</td>
<td>Claudia S. KAREZ</td>
</tr>
<tr>
<td>ECOLE DES HAUTES ETUDES EN SCIENCES SOCIALES (EHESS)</td>
<td>UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO)</td>
<td>ORGANIZACION DE LAS EDUCACION, LA CIENCIA Y LA CULTURA (UNESCO)</td>
</tr>
<tr>
<td>Centre de Recherches sur le Brésil Contemporain (CRBC)</td>
<td>Division of Ecological and Earth Sciences South-South Co-operation Programme</td>
<td>MAB Programme Unesco Regional Office for Science for Latin America and the Caribbean Edificio MERCOSUR Luis Piera 1992, 2o. piso 11200 Montevideo - URUGUAY Phone : 598-2 - 413 20 75 Telefax : 598-2 - 413 20 94 E-mail: <a href="mailto:cskarez@unesco.org.uy">cskarez@unesco.org.uy</a></td>
</tr>
<tr>
<td>54 Bd. Raspail</td>
<td>1, rue Miollis</td>
<td>75732 Paris Cedex 15</td>
</tr>
<tr>
<td>75270 PARIS Cedex 06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone : 33 - (1) 49.54.20.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telefax : 33 - (1) 45.48.83.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Acknowledgements

The author would like to acknowledge his sincere thanks to Dr. Natarajan Ishwaran, Dr. Miguel Clüsener-Godt and Ms. Maud de Jorna at the Division of Ecological and Earth Sciences, UNESCO, Paris; Professor. Ram Kapse, the Honourable Lieutenant Governor of the Andaman and Nicobar Islands; and Mr. Harry Andrews, the Director of Madras Crocodile Bank and Andaman and Nicobar Environmental Team (ANET) - for all of their support to accomplish this study.

Correspondence

Any correspondence should be directed to:

R. Maharaj Vijay Reddy,
Department of Geography,
University of Exeter.
EX4 4RJ. UK.
Tel: +44-1392-263319.
Fax: +44-1392-263342.
Email: M.V.Reddy@exeter.ac.uk
## Contents

1. Executive Summary ........................................................................................................ 5
2. Introduction .................................................................................................................... 7
3. Aims and Methods .......................................................................................................... 9
4. Significance of the ANI ................................................................................................. 10
   4.1. Fauna and Flora ....................................................................................................... 10
   4.2. Geological features ................................................................................................. 13
   4.3. History .................................................................................................................... 13
   4.4. Population .............................................................................................................. 14
5. Basic Travel and Tourism Information ......................................................................... 15
6. Critical Assessment on the Status of Tourism in the ANI .............................................. 18
7. Impact of the Tsunami on Tourism Industry and Ecosystem ......................................... 21
   7.1. What the Residents say .......................................................................................... 25
   7.2. What the Souvenir Firm Owners say ..................................................................... 29
   7.3. What the Resort Owners and Hoteliers say ......................................................... 31
   7.4. What the Travel and Tour Operators say ............................................................. 33
   7.5. What the Environmentalists and NGOs say ......................................................... 36
   7.6. What the Tourists say ............................................................................................ 40
   7.7. What the Administration says ............................................................................... 42
8. Findings and Recommendation ..................................................................................... 44
9. Conclusion ...................................................................................................................... 47
10. Photo Gallery ............................................................................................................... 48
11. Bibliography .................................................................................................................. 52
1. **Executive summary**

The Andaman and Nicobar Islands, India (ANI), are one among the remotest and most sensitive environments in the world. The impact of the recent Asian Tsunami on the ANI’s tourism industry and the lives of the tourism-dependent poor community has been enormous. The Tsunami has made a substantial impact on tourist arrivals in 2005, and probably beyond. This pilot study was conducted in May 2005 with the support of UNESCO-MAB, Paris to assess the impact of the Tsunami on the tourism industry, natural resources and ecosystem in the ANI. Interviews and discussions with the ANI administration, NGOs on relief work, local environmentalists, the tourism dependent community, hotels & resort owners, travel & tour operators and tourists were completed. The summary of the main findings of the study includes:

1. There were not many tourists died in the Andaman and Nicobar Islands, as was the situation in Thailand and Sri Lanka but there are misconceptions that many tourists were killed on the Andaman and Nicobar Islands.

2. It is clear that the disaster has had a sudden impact on the tourism industry and livelihood of the tourism dependent community. The number of tourists visiting this destination is very much reduced. Hoteliers, Resort Owners, Travel and Tour operators have been having only around 5% of their usual business since the Tsunami.

3. The sudden decline in tourist arrivals has affected the inter-island sales of souvenir goods, and export and import of goods from and to the Indian mainland. The communities who are involved in manufacturing and selling these goods in the ANI mostly have poor economic backgrounds and are very much affected.

4. A strong and immediate promotion campaign (e.g. eye-catching posters, and television advertisements explaining the safe situation in ANI) targeting tour and travel operators in India and abroad is very much needed, in order to bring the tourists back.

5. Environmentalists and NGOs emphasise that ‘the earthquake caused the subsidence of the Nicobar Islands and a portion of South Andaman Island, besides the upheaval (by an average of 1 m) of Little Andaman Island, north-western South Andaman, entire Middle and North Andaman Islands including Landfall Island. This also led to the extensive upheaval of reef flats (from 0.5 km² to 6 km²) along the west coast of South, Middle and North Andaman Islands and along the east coast of North and Middle Andaman Islands. There is also a need to derive the actual extent of beach and reef flat loss, besides re-mapping the entire Andaman and Nicobar Islands and their topography’ (see section 7.5).

6. As far as the impact of the Tsunami on the environment and ecosystem is concerned, significant damage has been caused in all the Nicobar group of Islands, and in the Little Andaman Island but the impact in the Andaman group of Islands has been limited. It is only the infrastructure such as roads and jetties that were damaged but efforts are already underway to rebuild them both by the administration and private owners. The other impacts such as coastal erosion, loss of protected area, monitoring the growth of mangroves, upheaval of the islands and exposure of corals, species extinction, and the diversity of fauna and flora cannot be assessed accurately in the short span of time covered by this report. Nevertheless the report raised substantial concerns that these need to be studied over years.

The pilot study has been conducted to assess the immediate impact of the Tsunami in the short term, i.e. the 6 months after the Tsunami day (26th Dec 2004). It suggests the need for an in-depth research project to be conducted over the medium term period of recovery and rebuilding (Aug/Sep 2005 to Aug/Sep 2007), as well as monitoring and revi-
sion or fine-tuning of the recovery programme over a period of another 3 years, in the long term (Aug/Sep 2007 – Aug/Sep 2010). The main mission of the medium term research has to be to help revive tourism and revitalize the local community, besides assessing the specific impact of the Tsunami on the ecosystem. It is proposed that the medium term of the project should aim to ‘Explore and Promote Community Based Sustainable Ecotourism and Evolve Ecosystem Management Strategies for Tourism locations in the Andaman Islands’.

The project needs to be conducted in all the main tourism locations/islands of the Andaman group of Islands, such as South Andaman Island, Middle Andaman Island, North Andaman Island, Havelock Island, Neil Island, Little Andaman Island and other nearby Villages, Towns and Islands. Engaging all the stakeholders, such as tourism dependent community, residents (employed and unemployed people in villages, towns), school children, college youths, village children and youths (who do not go school), tourism and travel firms, tourists (domestic and foreign) and various departments of the Andaman administration such as the high ranking Local Administration (the Lieutenant Governor & the Chief Secretary, ANI), Tourism, Forest, Industries, Fisheries, Shipping Department Secretaries, Directors and Officials.

A disaster of this kind is a new challenge to the planners and policy makers in this part of the world. However, if carefully and successfully planned with active research exploring and promoting community based sustainable ecotourism and ecosystem management strategies, by engaging the local community in post-Tsunami crisis management discussions, then the reconstruction provides an opportunity for the ANI tourism industry in the post-Tsunami to become a successful example for other Tsunami hit island destinations of the Indian Ocean.
2. Introduction

The recent Asian Tsunami (2004) is expected to have a substantial impact on the tourism resources and island ecosystem of the Andaman and Nicobar Islands of India (ANI). After the first shock of a magnitude of 9.0 on the Richter scale hit Aceh, Sumatra, Indonesia, at 6-30 a.m (IST) on the 26th December 2004, a second earthquake measuring 7.1 occurred at around 9 a.m. with its epicentre in the Great Nicobar Island, the southern-most island of the ANI which is only about 80 nautical miles from Sumatra (see Figure 1). Most of the islands in the ANI group are very small and these small landmasses are poorly equipped to withstand strong earthquakes and the following Tsunamis. Most severe damage was caused by the deadly waves. Linked to this, the impact of the Tsunami on the nature based tourism industry and lives of the tourism-dependent poor communities in the Andaman Islands are anticipated to be widespread and potentially devastating.

The tourism industry in the ANI developed slowly but there was a notable increase in tourist arrivals from 1980 onwards. Prior to the disaster the total tourism arrival figures for 2004 were expected to exceed 120,000, boosting not only the tourism industry but also allied sectors such as the local souvenirs and hundreds of small supply firms. Depressingly, tourism and the lives of the low-income communities involved in tourism have reached what, at best, can only be called a very challenging ‘pause’ stage.

This pilot study, supported by UNESCO, Paris, aims to present the findings of a preliminary assessment on the impact of the Tsunami on the tourism industry, natural resources and ecosystem. The earlier sections of this report address the tourism and natural resources of the ANI and review the status of tourism in the pre-Tsunami scenario. The impact of the Tsunami on the tourism industry and ecosystem are explained through a series of interviews and discussions with the residents; souvenir firms; hotel and resort owners; travel and tour operators; environmentalists and NGOs on relief works; tourists; and the administration. These interviews are presented in the original form and are self-explanatory, so need little additional comment. The main findings and recommendations that are needed to engage the local community and tourism stakeholders more effectively, in post-Tsunami crisis management discussions for the reinforcement of the tourism industry and ecosystem management are discussed in the latter part of the report.

The intensive pilot study has only been able to provide a preliminary assessment of the damage caused by the Tsunami on the tourism industry and ecosystem but has identified salient research priorities for the revival of tourism and ecosystem management in the Andaman Islands. The main aim and key objectives identified for a medium term in-depth research project are briefed in Findings and Recommendations. Overall, this report tends to narrate the available reliable information from a remote and sensitive island archipelago.
Figure 1. Tsunami hit areas in south and Southeast Asia


3. Aims and Methods of the Pilot Study

The main aim of this pilot study is to assess the impact of the Tsunami on the tourism industry, natural resources and ecosystem of the ANI.

The study involved the following methodology;

1) Personal observations in the South Andaman Island, Middle Andaman, Port Blair area, Ross Island, Mahatma Gandhi Marine National Park, Havelock Island, Neil Island, Viper Island, etc, which represent most of the main tourism areas of the pre-Tsunami stage.

2) Informal interviews or discussions with the tourism dependent community, including tour operators, travel agents, hotels and other tourism firms, and the local residents in the above mentioned locations within the Islands. These explored how the disaster has impacted on the industry, their lives and resources.

3) More formal interviews and discussion with the Andaman and Nicobar administration officials and NGOs. These focused on the relief works, the major challenges facing the revival of tourism in the Andaman Islands, and the alternative strategies for engaging the community in the post-Tsunami reconstruction and redevelopment.

The study examined different viewpoints within the local communities, analysed the interviews and discussions with key informants and business leaders, and utilised photographic and satellite images to identify changes in the islands' tourism and natural resource base. The previous fieldwork undertaken by the author during 2001-2004 provided an important baseline for this comparative work with the pre Tsunami period.

The main outcome is that the study identified the locations and priorities for further in-depth research providing indications of the potential for redevelopment based on the principles of an environmentally sustainable future involving local cooperation with the major stakeholders. Based on the interviews and discussions with the concerned departments such as the Department of Information, Publicity and Tourism (DIP&T), NGOs and tourism stakeholders, the study had also set out a projected time frame for future in-depth research, and the support that is needed for designing and implementation of an environmentally sustainable tourism strategy for the post-Tsunami reconstruction.
4. Significance of the ANI

The ANI, an archipelago of named and unnamed 572 islands (306 Islands and 266 rocks) (Anon, 1986; Andrews & Sankaran, 2002), constitutes a zone of 0.6 million sq. kilometres of marine water, the Indian subcontinent’s richest rain forests, the indigenous human tribes of Negroid and Mongoloid origins (some are not aware of the knowledge of fire even now). The diversified mangroves have been included in the WWF Global 200 list of the world’s highest priority biodiversity ‘hot spots’. Furthermore these islands are included in the UNESCO designated Biosphere Reserve/Zone (Indo-Malayan Bio-geographic Zone). According to the Department of Environment and Forest’s (DoE&F, 2003) records, 87.8% of the ANI’s total geographical area is under forest (45.71% of the forest area is classified as reserved forest category and 42.13% under protected forest category). These have 96 wildlife sanctuaries, 4 national parks, 2 marine national parks and 1 national biosphere reserve.

4.1. Fauna and Flora

‘Coral reefs surround every island and are estimated to cover around 11,939 sq. kms’.

They are the largest reef formations of the Indian subcontinent and contain as many as 197 species belonging to 58 genera’ (Turner et al, 2001) and probably the ‘second richest found in the world’ (Andrews and Sankaran, 2002). These reefs may prove to be an important stronghold of healthy coral within the Indian Ocean and could provide a reliable source for natural seeding and rehabilitation of other impacted coral reefs within the region (UNDP & GOI, 2001).

Mangroves stretch along large parts of the coastlines of the ANI. The total area under mangrove vegetation in India is 4827 sq. kms, as per the estimate of the Forest Survey of India (Anon, 1999), out of which, 966 sq. kms, area constituting 10.85% of the total forest area occur here. About 60 species of mangroves are reported to occur throughout the world and Asia is the richest region of mangrove species diversity with 44 species. There are around 27 species, 5 shrubs, 1 climber and 2 species of palms and ferns each, belonging to 17 genera (DoE&F, 2002). In terms of density and growth, the mangroves of these islands are probably the most important in the country.

The geographic isolation of these islands has resulted in a high degree of endemism. The surrounding seas are equally rich in marine biodiversity. Endemism is more pronounced in land animals (DoE&F, 2001; Andrews & Sankaran, 2002). The faunal distributions have Polynesian, Indo-Chinese, Indo-Malayan and Assam-Burmese affinities. Flora of Andaman group itself consists of about 1454 vascular plants (1076 dicots and 347 monocots) including 682 genera (578 dicot and 164 monocots) belonging to 137 families (112 dicots and 25 monocots) and about 15-20 percent of them are endemic. Tables 1 and 2, present the faunal diversity & endemism and distribution of endemic and threatened plants of the ANI.
Table 1 - Faunal diversity and endemism in the ANI:

<table>
<thead>
<tr>
<th>Animal Group</th>
<th>No. of special Subspecies</th>
<th>No. of Endemics</th>
<th>% Endemism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Terrestrial Fauna</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammalia</td>
<td>55</td>
<td>32</td>
<td>61.5</td>
</tr>
<tr>
<td>Aves</td>
<td>246</td>
<td>99</td>
<td>40.2</td>
</tr>
<tr>
<td>Reptilia</td>
<td>76</td>
<td>24</td>
<td>31.6</td>
</tr>
<tr>
<td>Amphibia</td>
<td>18</td>
<td>3</td>
<td>16.7</td>
</tr>
<tr>
<td>Mollusca</td>
<td>110</td>
<td>77</td>
<td>70.0</td>
</tr>
<tr>
<td>Arachnida</td>
<td>94</td>
<td>38</td>
<td>40.4</td>
</tr>
<tr>
<td>Hemiptera</td>
<td>146</td>
<td>22</td>
<td>15.0</td>
</tr>
<tr>
<td>Diptera</td>
<td>214</td>
<td>24</td>
<td>11.2</td>
</tr>
<tr>
<td>Coleoitera</td>
<td>878</td>
<td>92</td>
<td>10.5</td>
</tr>
<tr>
<td>Lepidoptera</td>
<td>426</td>
<td>52</td>
<td>12.2</td>
</tr>
<tr>
<td>Isoptera</td>
<td>40</td>
<td>19</td>
<td>47.5</td>
</tr>
<tr>
<td>Odonata</td>
<td>36</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td>Annelida</td>
<td>30</td>
<td>9</td>
<td>30.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,366</strong></td>
<td><strong>495</strong></td>
<td><strong>20.9</strong></td>
</tr>
</tbody>
</table>

| **Marine Fauna** |                           |                  |            |
| Mammalia        | 7                         | 0                | 0          |
| Reptilia        | 12                        | 0                | 0          |
| Pisces          | 1,200                     | 2                | 0.2        |
| Echinodermata   | 350                       | 4                | 0.4        |
| Mollusca        | 1,000                     | 18               | 1.9        |
| Crustacea       | 600                       | 6                | 1.0        |
| Polychaeta      | 184                       | 4                | 2.2        |
| Anthozoa        | 326                       | 2                | 0.6        |
| Porifera        | 72                        | -                | -          |
| Meiofauna       | 490                       | 102              | 21.0       |
| **Total**       | **4,241**                 | **138**          | **0.11**   |

Table 2 - Distribution of Endemic and Threatened Plants of the ANI:

<table>
<thead>
<tr>
<th>Island Group</th>
<th>Island</th>
<th>No. of endemic plants</th>
<th>No. of threatened plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andamans</td>
<td>North Andaman</td>
<td>17</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Middle Andaman</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Narcondam</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>South Andaman</td>
<td>61</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Little Andaman</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Nicobars</td>
<td>Car Nicobar</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Camorta</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Katchall</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Great Nicobar</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Recently, Kulkarni and Chandi (2003), Krishnan (2003) and Vijaykumar (2003) reported several freshwater fishes and amphibians from the Nicobars that are new to science. Considering the small area and geographic isolation of these islands, any loss of habitat will lead to species extinction having greater consequences in terms of the loss of genetic diversity (ANET, 2003). This was noted by Newsome, Moore, and Dowling (2001), in other island ecosystems. They explain by mentioning appropriate examples, that Island tourism also embraces the desire to see unusual endemic plants and the impacts on ecosystems can induce the vulnerability of island biota and the protection of invasive species.

Research on the ANI has tended to be under-equipped but is being extended. Nevertheless, local experts remain concerned that the research in the ANI is still poorly developed. The following sections brief the other significances associated with the unique geological features, human settlement and colonial history these islands, to provide a background for the reader.
4.2. Geological features

Barren and Narcondum are the active volcanoes of India, and both are on the eastern side of the Ritchies Archipelago group of Andaman Islands. Barren erupted with lava and fumarolic gases at 190°C to 400°C, in 1991 and in 1994-95, that is twice in the 20th century after 177 years (Oberai, 2000). The Islands very often experience aftershocks, as a result of the earthquakes mostly centered in the Andaman Sea or in the Bay of Bengal. Ravikumar & Bhatia (1999), impart that the Indian plate region (comprising the Himalayas, Northeast India, the Indian shield, South China, Nepal, Burma and Andaman region) is made up of several tectonic features. Earthquakes of high magnitudes, between 8.1 and 8.5 on the Richter scale, were recorded on the 26th June 1941, in the ANI arc, which caused less damage.

But depressingly, the recent Asian Earthquake and Tsunami have caused enormous loss to the ANI, as Indira Point (Great Nicobar Island), the southern-most tip of the ANI/India) is only about 80 nautical miles from Aceh in Sumatra, the epicentre of the devastating 26th December 2004 earthquake. Some of the original islands are still under water whilst some new islands and beaches have now formed. The Nicobars are very remote islands and have been impacted upon most severely by the Tsunami. The sea has encroached upon coastal flatlands that have been inhabited by the Nicobari tribes for thousands of years. Besides the most severe devastation in the Nicobar Islands, the Andaman Islands have also been seriously damaged by the deadly waves. Reddy (2005b) investigates the impacts of tsunami on the human lives, geography, tourism and allied industries of the ANI.

4.3. History

The ‘Tanjore’ inscription, of 1050 AD, reliably first explains the existence of these islands as ‘Islands of Impurity’. The world famous travellers ‘Marco Polo’ (1292) and ‘Nicolo Conti’ (1430) have also mentioned them as ‘Land of Cannibals’. ‘They are reputed to be peopled by a race of cannibals indescribably hideous, who attacked the crew of ships approaching their coasts, murdering and eating all who were unfortunate enough to fall into their hands or to be shipwrecked on their inhospitable shores’ according to an undated 18th century document by R.F.Lewis.

The British East India Company established its hold in Southern India during the mid 18th Century. In 1777, John Ritchie was sent to find a place of shelter for the ships in distress during the monsoon season, in the Bay of Bengal who reported that ‘In whatever light these islands are considered, a through knowledge of them will appear to be of great utility’. Soon after Ritchie, Lt. Archibald Blair, of the Indian Navy was deputed to survey the Andaman Islands, on 19th Dec 1788. Roy & Choudhry (2003), discuss the major factors that seem to have prompted the British Indian Government to open up Andaman Islands for a penal settlement were to: control the security of the sea traffic in the Bay of Bengal and Andaman Sea; build a harbour to repair ships; save mariners from being killed by the dangerous indigenous tribes; and finally to establish a penal settlement for Indian freedom fighters and criminals in remote islands where escape would be impossible. The first settlement was established in the ANI in 1789 in two locations and was closed down in 1796. Indian Penal Settlements were also established at Sumatra and Singapore. After careful surveys, the Indian (British) Government established the Penal Settlement again in 1858, at Port Blair, under the headship of Dr.J.P.Walker and the earlier penal settlements in the South-East Asia were completely withdrawn. As mentioned by Thangaswamy (1996) quoting Louis (1901)’s First ANI Census Report, the total population of the Andaman & Nicobar was – 24649; out of this, 1882 were Andamanese (tribes) and British; 6511 were Nicobari tribes and the remaining 16,256 were on penal settlement from the Indian mainland. The ANI were occupied and brought under the Japanese for a short span of time during the World War II. The ANI were included as a Union Terri-
tory when India became Independent in 1947. Currently, the Indian government administers the ANI under a Lieutenant Governor and Chief Secretary.

4.4. Population

The present population of the ANI is comprised of settlers by government policies, families of freedom fighters, fishermen - settlers, fishermen, Sri Lankan refugees, Bangladesh refugees, Migrants from the Indian mainland states of Tamilnadu, West Bengal, Punjab, Kerala and Andhra Pradesh, defence staffs and the tribes. Figure 2 presented below displays the population figures of the ANI. As can be seen from the figure, the population is steadily increasing as the developmental measures in various sectors have started to take effect after the 1980s. The ANI shelter six ‘primitive’ tribes, viz. the ‘Jarawa’, the ‘Andamanese’, the ‘Sentinelese’, the ‘Onge’, the ‘Nicobarese’ and the ‘Shompens’. The total number of indigenous, primitive tribes living in these Islands is 12,500, based on the census conducted in 1991. Encroachment into the tribal area is strictly forbidden by the government and all the other tribes except the Nicobarese, are protected by specific regulations within prescribed boundaries depending upon their levels of contact with the outside world. The Nicobarese, who live in the Nicobar Islands seem to have learnt outside world’s lifestyles to an extent and constitute the majority of the Andaman and Nicobar tribal population.

![Figure 2. ANI Population. Source: DoS (2002)](image-url)
5. **Basic Travel and Tourism Information**

The Government of India first recognized tourism as an important economic sector as recently as 1982 when the inaugural tourism policy was published (Hannam, 2004), although leisure and tourism activities have prevailed over a far longer period. After a slow start, the tourism industry in the ANI developed following India’s independence but there was a notable increase in tourist arrivals from 1980 onwards (see Figure 3). Now these islands have been recognized as one of the main destinations of India.

The ANI administration is working on more tourism facilities to attract the tourists from Indian mainland and from abroad. Tourists can visit the ANI either by sea or air and Port Blair is the only point of landing. Port Blair, the capital city of the Andaman and Nicobar Union Territory, is situated at the southern part of the South Andaman Island (see Figure 1). The visitors start their inter-island journey from Port Blair and plan their itinerary, according to their purpose of visit (e.g. surfing, snorkeling, scuba diving, nature and forest life, etc) and select their island locations. The ANI have good tourism potential, which attract both the domestic and international tourists. There are no entry formalities in the case of foreign tourists to visit the islands in the Andaman group, in they have a valid Indian Visa. However, the tourism visits by both foreign and domestic tourists are restricted to certain islands, which are indicated below (see Figure 1).

The significant islands in Andaman group are as follows;

1. **South Andaman Island (has the A&N capital town, Port Blair).**
2. **Middle Andaman Island (has two towns namely Rangat & Mayabunder).**
3. **North Andaman Island (has the town, Diglipur).**
4. **Ritchie’s Archipelago Group (Havelock and Neil islands).**

5. **Little Andaman Island.**

These significant islands are large in landmass, when compared to the other small islands, islets and creeks. There are other small islands nearby the bigger ones, which are good for day visits by boats. The Nicobar group starts with the sea passage of 140 kms called the 10-degree channel, after the landmass of Little Andaman. The 10-degree channel is a notorious turbulent sea route with huge tides and water currents, where the passenger ships pass mostly in the night hours.

The significant islands in the Nicobar Group are,

6. **Car Nicobar Island.**
7. **Nancowry Group of Islands.**
8. **Great Nicobar Island.**

Foreign tourists have to confine their visits/stay only to the Andaman group of Islands and the nearby small islands. International tourists are not allowed in all the Nicobar Group of islands. Domestic tourists from the Indian mainland are allowed to visit only the Great Nicobar Island in the Nicobar group. All the visitors require a ‘Landing Permit’ or ‘Tribal Pass’ from the Port Blair Administration, for landing in the Nicobar Islands except the Great Nicobar Island. All the Nicobar Island’s jetties have Police Warning Boards. The Indian Government and the Andaman and Nicobar administration have taken a clear decision of allowing neither foreign nor domestic tourists to most of the Nicobar Islands, although the Nicobar group of islands has great potential resources for international tourism. The Government’s stand of not allowing the tourists to most of the Nicobar Islands has economic consequences in terms of the loss to the country’s tourism income revenue but reflects the Government’s concern in enhancing and preserving the long term cultural interests of the Nicobari tribes.
Table 3 - Travel Information

<table>
<thead>
<tr>
<th>Destination</th>
<th>Distance (kms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chennai (India) – Port Blair</td>
<td>1190</td>
</tr>
<tr>
<td>Kolkota (India) – Port Blair</td>
<td>1255</td>
</tr>
<tr>
<td>Bangkok (Thailand) – Port Blair</td>
<td>480</td>
</tr>
<tr>
<td>Rangoon (Myanmar) – Port Blair</td>
<td>600</td>
</tr>
<tr>
<td>Malaysia &amp; Singapore – Port Blair</td>
<td>700</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Flight arrivals</td>
<td>3 flights (Daily)</td>
</tr>
<tr>
<td>Domestic Ship arrivals</td>
<td>2 ships (Weekly)</td>
</tr>
<tr>
<td>International Ship/Flight arrivals</td>
<td>None.</td>
</tr>
<tr>
<td>Foreigners (tourists)</td>
<td>Allowed only in the Andaman group of islands with a valid visa; none of the Nicobar islands is opened to foreign tourists or foreign researchers.</td>
</tr>
<tr>
<td>Andaman Tribal Reserve Area</td>
<td>Neither foreigners nor Indians are allowed to visit or conduct research (exceptions are for anthropological research of high importance).</td>
</tr>
<tr>
<td>Travel to Nicobar islands</td>
<td>1 ship (weekly) touching most of the Nicobar islands.</td>
</tr>
<tr>
<td>Flight service to Nicobar islands</td>
<td>Inter-island Helicopter operations were introduced quite recently.</td>
</tr>
<tr>
<td>Nicobar Journey Time</td>
<td>3 to 4 days to reach. (Return journey takes 9-10 days by ship).</td>
</tr>
<tr>
<td>Nicobar Travel Formalities</td>
<td>Indian tourists are allowed to visit only one island in the Nicobar group (the Great Nicobar Island). However, a tribal area pass is required to visit the interiors of the Islands as indigenous Shompen tribes live in the deep forests. All the remaining Nicobar islands are designated as ‘tribal areas’ and hence a ‘tribal pass’ is required to visit.</td>
</tr>
<tr>
<td>Accommodation in the Nicobar islands</td>
<td>No private accommodation available; Government guesthouses are open for visitors who have brought a ‘permission letter’ from Port Blair Administration.</td>
</tr>
</tbody>
</table>

Source: Author.

The popular tourist attractions of the ANI include,
<table>
<thead>
<tr>
<th>Tourist Attractions</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cellular Jail</td>
<td>Triple storied eminent Victorian style building, built after the ‘1857 Indian Rebellion’ by the British rulers to deport freedom fighters from the Indian main land. This infamous prison was declared a National Memorial of India in 1979.</td>
</tr>
<tr>
<td>Ross Island</td>
<td>This splendid island is located at the eastern side of the capital city of Port Blair. Ross Island was the seat of British administration till the end of World War II. The ruins of massive buildings built during the British rule remain in these islands and tourist visits are allowed.</td>
</tr>
<tr>
<td>Viper Island</td>
<td>This island was once called ‘chain-gang jail’. 5-6 convicts were chained together with bar fetters and left free in this island before the construction of a jail here in 1867. Convicts were tortured and hanged in the gallows of Viper Island. The two storied gallows and the ruins of the first Andaman jail are open for tourists.</td>
</tr>
<tr>
<td>Water sports complex</td>
<td>This area lies between the city centre and Ross Island. The sport activities include parasailing, wind-surfing, speed boats, aquacycle, etc.,</td>
</tr>
<tr>
<td>Carbyn’s Cove</td>
<td>This ‘C’ shaped, 400 metres long beach is 5 kms away from the city. The easy accessibility of this location favours more tourist visits round the year.</td>
</tr>
<tr>
<td>Mt.Harriet National Park</td>
<td>Mt.Harriet National Park is covered with dense forest. This national park is close to the capital city. The ‘Chief Commissioner’s Bungalow’ here was built in 1862. The trekking route passes through the deep woods of Mt.Harriet, and reaches ‘Madhuban’, the elephant training camp.</td>
</tr>
<tr>
<td>Mahatma Gandhi Marine National Park (MGMNP), Wandoor</td>
<td>MGMNP is one of the two marine national parks of the ANI. The park consists of 15 islands, with rich corals and mangroves covering an area of 281.50 sq.kms.</td>
</tr>
<tr>
<td>Havelock and Neil Islands</td>
<td>Havelock’s Radha Nagar beach is world class and has been given grade ‘A’ status by the UNDP and WTO (1997). Both the Havelock and Neil islands are grouped in the ‘Rani Jhansi Marine National Park’ and are thrilling destinations for ecotourists.</td>
</tr>
<tr>
<td>Long Island</td>
<td>Long island of Middle Andaman is well known for its green hills and silvery beaches. UNDP and WTO (1997) has placed the ‘Lalaji bay’ of long island also under grade ‘A’ of outstanding category.</td>
</tr>
<tr>
<td>Rangat and Mayabunder</td>
<td>Small towns situated in the Middle Andaman island. Some of the significant Middle Andaman beaches and bays are easily accessible from these towns.</td>
</tr>
<tr>
<td>Diglipur</td>
<td>Small town situated in the North Andaman island. Kalipur beach, and Lamya Bay are easily accessible from here.</td>
</tr>
<tr>
<td>Hutbay</td>
<td>Hutbay, an artificial harbour is situated in the Little Andaman island. Butler bay, South bay and the waterfall are the significant attractions of Little Andaman Island. This island shelters the ‘Onge’ tribes. Hutbay is the connecting point between the Andaman and Nicobar group of islands, from where the turbulent sea-passage to Nicobars starts.</td>
</tr>
</tbody>
</table>

Source: Author.
6. Critical Assessment on the Status of Tourism in the ANI

Recently productive tourism development strategies and efforts were taken by the Ministry of Tourism, Government of India to increase the benefits of tourism in the majority of the Indian states. However, the development of tourism in India is interlinked with other ministries, predominantly the Ministry of Environment and Forests, when it comes to tourism development in natural environment and areas that are designated under forests’ category.

Hannam (2004) while discussing the tourism development and power relationships in India mentions that, since 1985, the Indian state has restructured or liberalized the Indian economy, seeking to allow greater administrative autonomy and a wider role for private finance and entrepreneurship. One of the results of this that the state has been forced to incorporate the problem of tourism to its domain, while remaining critical of it. Tourism has entered a power/knowledge play as an activity that has to be categorized and further specified requiring detailed observations and the compilation of reports that constitute a political anatomy of tourism development in specific places. In India, tourism development is encouraged by bringing the potential areas within ‘circuits’ (e.g. Golden Triangle – comprising Agra (Taj Mahal), Jaipur and Delhi). The areas which are not brought under the tourism circuits are paid less attention and the less developed areas, such as the ANI, are not offered special care by the central government of India, in the annual or five year tourism plans. The tourism development in such areas is mainly based on the state departments’ interest and central government’s funding availability.

Nevertheless, tourist flows to Island destinations around the world are increasing because of their many distinctive features including physical separateness, traditional cultural practices, natural resources and environmental conditions, as understood by Conlin & Baum (1995) and Lockhart (1997), and the special social values associated with ‘tropical romance’ (Newsome, Moore, and Dowling, 2001). Services such as tourism, transport and business services are increasingly important to Less Developed Countries (LDC)s, both as a direct source of foreign exchange earnings and for the expansion of the production base and diversification of exports. Tradable services are important to all LDCs, in particular to small island LDCs, which have a limited capacity for merchandise production (UNCLDC, 2001). For these benefits, small Island economies continue to concentrate on attracting international tourists. One such example can be noted from Shaw and Williams (2002), who point out that Seychelles have well-developed holiday tourism which account for more than 90% of international tourism. With respect to the ANI, they have vital resources and potentialities for the development of tourism which perhaps no other part of the mainland of India and no other country in the world possess, because of their special geographical location, lush green scenic beauty, historical importance, multilingual cultural heritage, colourful cultural and social life, fairs and festivals (Rajavel, 1998).

The marine national parks in Wandoor and Richie’s Archipelago are potential eco-tourism paradises with clear white beaches that have been ranked amongst the best in the World by the UNDP and WTO (1997). The 18th century buildings and monuments of these islands are foci for understanding the earlier Indian freedom struggles, foreign rule and architecture under the British and Japanese. After a slow start, the tourism industry in the ANI developed following India’s independence but there was a notable increase in tourist arrivals from 1980 onwards, as mentioned earlier.

By and large, the ANI has considerable tourism potential to attract both domestic and international tourists. There were about 100,000 tourists visited the ANI in 2004 (see Figure 3). It is relatively easily accessible from the Indian main land cities such as Madras, Calcutta and Vizakapatnam, which facilitates domestic tourism. The domestic arrivals were usually highest during November – March every year (see Figure 4), as the ANI administration conducts ‘Island Tourism Festival’ in January. The basic tourism indicators of ANI tourism are presented in the following figures. Figure 3 shows the Tourism Arrival numbers to the ANI, whereas Figure 4 and Figure 5 show the Flow of Tourists in Months and Tourism Income, respectively.


The statistical figures and tourism data available are very limited and have been poorly calculated. Key informants expressed (in an interview during May 2005) that the DIP&T is following a ‘poor’ way of data collection. The tourism income of the ANI, as per the tourism department’s 2002 records (see Figure 5), was Rs.1,11,38,000 (US$ 247,511). These figures are likely to be underestimates as NEERI and UNDP (2000) claim that ‘there is no statistical data on tourism expenditure or its impact on the economy’. The direct employment in tourism, as of 31.03.02, was estimated to be 1781, a figure that had been expected to rise to 2,200 by the end of 2005 whereas indirect employment was expected to reach 4,440 by the end of 2005, according to the ANI Tourism Department – DIP&T (2003). The prime allied industries of tourism include the accommodation, transport and souvenir industry sectors.

The accommodation services available for tourists are limited, although the coastal areas have several private and government beach resorts and ecotourism huts. As the tourist flow to the ANI is increasing, the tourists have started facing limited accommodation options. A study conducted by Rajavel (1998) on the accommodation sector found that 29.2% of tourists considered that the accommodation was unsatisfactory, while 43.3% considered the restaurant facilities were unsatisfactory. However efforts were made to improve the quality of hospitality services and number of beds, rapidly, until the ANI was badly hit by the recent Tsunami in Dec 2004. The 2002 accommodation figures (see Figure 6), confirm that there was a slight increase in the number of beds after Rajavel’s findings.

The ANI had hundreds of souvenir shops in various locations in the South Andaman, Middle Andaman, North Andaman, Havelock, and the Little Andaman Islands. The souvenir industry in the islands was booming, with sales increasing every year, and it is estimated that thousands of people are directly or indirectly involved in the business. The ANI administration’s Directorate of Industries, under the Small Scale Industry (SSI) sector programme, has organised ‘industrial training centres’ to train the locals in the small scale and souvenir industries. The annual sales in the main souvenir showroom ‘Sagarika’ (run by the Directorate of Industries), for the year 2002-2003, was Rs. 1,17,00,000 (US$ 260,000) and is expected to exceed Rs. 1,40,00,000 (US$ 311,110) in 2003-2004, based on an interview with the Manager during Jan-Feb 2004. These figures are based on the reliable Directorate of Industries’ records, and confirm that the official DIP&T data on tourism earnings mentioned earlier are significant underestimations, which adds strength to the criticism raised by NEERI and UNDP (2000). The entertainment and nightlife services available for the tourists are limited except during the ‘Island Tourism Festival’ season, which is conducted for 2 weeks every year in January. Yet, the government of India and ANI Tourism Department need to invest more in infrastructure, as this is comparatively poor in relation to Indian main land destinations and other Indian Ocean Islands such as the Maldives and Mauritius.

Like other Island destinations, tourism has had negative socio-cultural and environmental impacts in the ANI (Reddy, 2004b), which underlines the need to undertake impact assessments. Some local experts are quite confident that the island environment is robust enough to absorb tourism, and has not been spoiled to a significant degree. Government officials interested in marketing the destination argue that tourism is practiced in less than 5% of the total area and that there is considerable scope to make the local tourism dependent community economically stronger. But the local conservation groups and NGOs (such as the Andaman and Nicobar Environmental Team-ANET, the Society for Andaman and Nicobar Ecology-SANE) argue that an extensive environmental impact assessment is needed for the ANI, as most parts of the islands are exploited and/or not well managed.

In the meantime, some insights into these impacts have been provided through the earlier research works conducted by UNDP & WTO (1997) and NEERI & UNDP (2000) assessing the carrying capacities and other impacts in various locations in the Andaman group of Islands. The situation remains identical, as Islands with their environmental and geographical limitations, and distance from the mainland – purported disadvantages – have ideal settings not only to follow a planned and con-
trolled approach to tourism development but also to introduce remedial measures effectively which has been noticed by Kokkranikal, McLellan and Baum (2003) in the case of Lakshadweep Islands of India. There has recently been considerable discussion about the potential for the introduction of sustainable forms of ecotourism in the ANI, with the aim of preserving the habitat, biodiversity, socio-cultural values and practices of the indigenous peoples and aboriginal tribes (Reddy, 2004a).

Despite the widespread policy discourse on the potential role of ecotourism, there have been significant delays in policy practices and implementation (Reddy, 2005a). There has also been a failure to understand the inter-relationships between the natural and the social worlds, and the structures of power in tourism development. These conflicts between environment and tourism department can also be noticed in other less developed locations of India and perhaps in other countries as well. The issues related to power and legitimation as a challenge for environmental and tourism related planning processes, abound (Jamal, 2004) in the case of Canadian WH national parks. Whilst discussing tourism and environment organisation set-ups and prevailing power conflicts in India, Hannam (2004) emphasised, 'In order to understand the intersection of tourism development and forest management in India and the ways in which the latter limits the former, the state in India and power relations within it need to be theorized. Here (in India), power relations are conceptualized not as a simple binary structure between the dominators and the dominated, but as omnipresent yet localized in their deployment, always unstable and constructed discursively as well as materially'. When thinking about tourism development in remote locations, such as the ANI, where 87.8% of the total geographic area is classified under the reserved forest category (by the MoEF), one can understand the frictions and conflicts between government departments, and also the misconceptions flanked by the local and central government authorities. Into the bargain, Indian Navy administrates some locations of the ANI for example the Ross Island, which majority of the domestic and foreign tourists visit, adds more directions to the contradictions.

7. Impacts of the Tsunami on the Tourism Industry and Ecosystem

The ANI are the emerged part of a mountain chain positioned on a ridge that extends southward from the Irrawaddy Delta area of Myanmar connecting the trend of the Arakan Yoma ranges to Banda Aceh in Sumatra (see Figure 1). Andaman and Nicobar come under the arc like a plate extending from the Indo-Burman Ranges (IBR) in the north and/or Andaman and Nicobar Ridge (ANR) in the south are formed as oblique convergence. This varies from continental type in the Burma region to an oceanic type in the Andaman region with a relatively quiet seismic zone marking the transition. Shallow and occasional intermediate depth earthquakes delineate the subducted slab under the Andaman Nicobar Islands while the seismic trend of the Indo-Burman Ranges comes in contact or join with the Andaman and Nicobar Ridges. That's the reason why very often, a distinct lineation of shallow focus earthquakes passes under the Central basin of the Andaman Sea, towards the eastern Himalayas as Ravikumar & Bhatia stated in 1999.

The ANI land mass is forest-covered, mountainous limestone regions and mainly mixed with calcareous, terrigenous sediments (Chibber, 1934; Andrews & Sankaran, 2002). These are earthquake prone zones with 2 volcanic islands, namely Barren and Norcondum. The strongest recorded earthquake in the islands was in 1941, and measured 8.1 on the Richter scale. It caused considerable damage, although the total population in the islands then was less than 50,000. There were also records of continuous tremors experienced for more than a month during April 1982 causing extensive damage, which when examined were found to be the effect of underwater seismic activity (A&N News, 2005; Frontline, 2005).

Indira Point (Great Nicobar Island), the southernmost tip of the ANI/India, is only about 80 nautical miles from Aceh in Sumatra, the epicentre of the devastating 26th December 2004 earthquake (refer to Figure 1). After the first shock of a magnitude of 9.0 on the Richter scale hit Aceh, Indonesia, at 6-30 a.m. IST, a second earthquake measuring
7.1 occurred at around 9 a.m. with its epicentre at Indira Point. As understood from an anonymous government planning record (1986), ‘about 500 islands out of the total 572 islands cover only 7% of the total area of 8237 sq. kms’. Thus, most of the islands are very small and these small landmasses are poorly equipped to withstand strong earthquakes and the following continuous Tsunamis.

So far there have been more than 300 (as of 15th May 2005) after shocks of 4-6 magnitudes that have occurred as a result of the catastrophe. Some of the original islands are still under water whilst some new islands and beaches have now formed. Most of the Nicobar Islands have moved from their earlier global fix and there is now a compelling need to re-draw maps of the area. The topographic variations of some of the Islands can be seen from the satellite images in figure 7 showing the locations as a Pre-Event (Dec 25, 2004) and Post-Event (Jan 4, 2005). As mentioned earlier, about 88% of the total geographic area of the ANI is classified as protected and reserved forest categories. The Nicobar group of Islands are separated by a turbulent sea passage of 140 kms, called the 10º Channel. These are very remote islands and have been impacted upon most severely by the Tsunami. The sea has encroached upon coastal flatlands that have been inhabited by the Nicobari tribes for thousands of years. Now the waves extend up to the forest slopes leaving very little room for habitation even during the low tide, and the people have moved onto higher ground as discussed earlier. All of the Nicobar group of Islands have been declared as tribal reserves where both tourists and researchers have never been allowed (Reddy, 2003a) and hence the entry of the media and aid agencies was not permitted immediately after the Tsunami.
Figure 7. Satellite Images

(Source: ‘Tsunami Event along the East Coast of India, Dec 2004’ released by the National Remote Sensing Agency, Department of Space, Government of India. 2005)
Another reason why tourists and foreigners in particular, are not allowed to the Nicobar group of Islands is because of the Indian Military/Naval Intelligence Base located in the Car Nicobar Island, as the BBC (2005) reporters narrated in the Tsunami News Coverage. Besides the most severe devastation in the Nicobar Islands, the Andaman Islands have also been seriously damaged by deadly waves. Most of the jetties and harbours have collapsed. The impact on the tourism infrastructure has been enormous and it will take several years to rebuild it. The ANI have moved 1 metre towards the Indian mainland. Barren Island Volcano, which was fuming after the 26th December earthquake, erupted after 10 years on 28 May 2005. The face-to-face interviews conducted with the different stakeholders of the ANI in May are presented in their original form in the following sections (page 25 to 43). These interviews are self-explanatory and reveal the impact of the Tsunami on the Tourism industry and Ecosystem clearly, which require little additional comment.
7.1. What the Residents say?

7.1.1. Murugan & Family

Mahatma Gandhi Marine National Park Entrance, Wandoor, South Andaman Island.


The income generated through tourism was sufficient enough to manage their family consists of 6 adults and one child. They were explaining about their small hotel business, and plan to develop the hotel to cater for more tourists.

Sorrowful Present: The high tides on the Tsunami day devastated Murugan’s Hotel and House. They built this roadside coffee shop just on the day (13 May 2005) the below picture was taken, four months after the shock of the Tsunami which turned their lives upside down. But their earnings will remain drastically reduced until the tourism industry picks up. The next picture shows their small temporary shelter (1st tent) provided by the administration on the roadside for his whole family of 6 adults and one child. The administration told them they would have to manage with this tent for another 18 months and then a shelter would be built to relocate them. Murugan’s mother said that only the revival of tourism could save their living any longer – and that not even God could...”.

“... only the revival of tourism could save their living any longer – and that not even God could...”.

 adults and one child. The administration told them they would have to manage with this tent for another 18 months and then a shelter would be built to relocate them. Murugan’s mother said that only the revival of tourism could save their living any longer – and that not even God could...”.
7.1.2. Mr. Murugesh

Shanthi Internet Browsing Centre, Delanipur.

It was so horrible on the Tsunami day. Sea level increased very much and the water entered near the Marine Jetty Area. I had 5 PCs before Tsunami in my centre near JNRM College. Many tourists and students used to come to my browsing centre. 3 PCs were damaged because the Seawater came inside the centre. I shifted my location now. I don’t think I can make some profit like before. I don’t think tourists and the students would come to this new centre of mine any more. But when compared with the loss to other people – this is nothing. So many people have gone into the sea. Not only that the Island settings itself have changed. Aftershocks are occurring every day.

Each and everybody in the Andaman and Nicobar Islands is affected in some way or other.

“But when compared with the loss to other people – this is nothing.”

7.1.3. Mr. Karthik & Ajal

Fishermen in Beach No.5, Havelock Island.

We are fishermen. Although most of our relatives are involved in tourism, our 2 families are into fishing. We used to catch fish worth of Rs.900/week before the Tsunami. But it is difficult to earn even Rs.300/week for both of our families. The reefs are dead and washed out. Bulks of fish were dead because of Tsunami and now they moved to other areas as the seawater current has changed. Many of our community (fishermen) lost their houses and households although we didn’t face the anger of the deadly waves. Houses were built up of mud clay and leaves and bamboos. The mud walls collapsed as the seawater increased about 6 feet near our area. We have to work many more years to have those house again. Tsunami has changed our lives.

“We have to work many more years to have those house again. Tsunami has changed our lives.”
7.1.4. A Lecturer in Tourism & Commerce

JNRM College, Port Blair.

Impact on infrastructure: The infrastructure has completely damaged. The administration is just managing the travel operations everywhere. This causes huge inconvenience for tourists and the public. For example, whenever there is high tide the Bamboo Flat jetty sinks. People and tourists cannot move to Hope town or Mt.Harriet. The other damaged jetties are Marine, Phoenix Bay and Chatham. Haddo Wharf is not much damaged, as the location is a little away from the sea. Chatham Bridge is not in a good condition – it is shaking whenever vehicles are passing by. The fact is, Ross Island protected the city of Port Blair, a lot. The waves were huddled by the Ross Island. Luckily there was no damage for the monuments in Ross Islands, as the land mass facing the Andaman Sea is in a high altitude. The roads to Wandoor are completely damaged. Tourist’s ferry service to Jolly Buoy Island and other Islands in Mahatma Gandhi Marine National Park has been withdrawn. The roads connecting Wandoor with Port Blair near Siphighat is still covered with water and mud. Mazharbhad road connecting Corbyns’s cove is completely damaged. Roads and Jetties in Little Andaman Island and Havelock Island are also damaged. It is the same situation everywhere.

Impact on Industry: Very worst impact on the domestic and international tourist arrivals. Domestic tourists from West Bengal, Gujarat and Maharashtra occupy the majority of arrivals every year. Now this has stopped. There were about 2500 domestic tourists were there when the Tsunami struck. Most of them were panicked, shouting, crying and screaming with fear. These people would have spread bad news about the Andaman Islands all over India. Mentally the domestic tourists are more scared. I remember even on the Tsunami day, 2 Russian couples went for snorkelling near the North Bay. For them Tsunami is just an accident. I believe foreign tourists are not that much scarred about the situations and are adventurous. I have relatives and friends in mainland and foreign - it looks like people are really scarred to visit the islands anymore. So the fear and unfavourable impression about the Islands among the domestic tourists has to be cleared out, first. The Government need to seriously work on this. Tourism industry relies on 4S, i.e. Sand, Sun, Sea and Sex. Sea and Sand had the severe damage because of Tsunami. Among all the other industries, tourism is the very important one for the Andaman and Nicobar Islands. The other industries include fishing, agriculture and timber. Agriculture lands are very much damaged. Farmers can’t grow any crops for a minimum of another 2-3 years as the seawater entered most parts of the low lands everywhere. Government has certain rules for timber extraction and so its been done in a very limited scale. So the only revenue option for the Island community is tourism and the impact of tsunami on tourism industry is unbelievable. There were about 150 registered and unregistered tour and travel operators operating in the Islands and thousands in other sectors. Tourism is the main source of income for their families and employees. All their hopes have gone. Souvenir, Cottage, Handicraft and small-scale industries are also at great loss, in particular.

Impact on Environment & Ecosystem: The impact on E&E is huge which needs serious and long-term research. There is great loss to tree and other vegetation cover everywhere. Little Andaman and South Andaman Island’s Greenery are devastated or filled or washed with sea water. These 2 islands are important among them, where tourists are allowed and the ecosystem is very much damaged or disturbed. The other small islands include the Islands in Mahatma Gandhi Marine National Park. Coral reefs around almost all the islands in Andaman and Nicobar are very much damaged. Fish and other marine species are very much disturbed.
7.1.5. Mr. and Mrs. Saravanam

Car Nicobar Island.

We lost our younger son on the Tsunami day. He had his morning tea in my hands and went outside. We didn’t see him afterwards. It was a terrific nightmare. It (Tsunami) even changed the shape of Car Nicobar Island. Now we relocated our residence from Car Nicobar to Port Blair. We had lost contacts with our relatives and ancestors in Tamilnadu. But after the Tsunami, our relatives in Tamilnadu (India) are asking us to move permanently to stay with our earlier relatives. It is slightly healing. The government and the military personnel acted very appropriately to manage the situation. They gave food, shelters, medical treatment, and travel arrangements. In addition they gave us some amount of money to run life to an extent. But, we couldn’t stay in those circumstances as it keeps reminding our son. They have taken care of all the Tsunami victims in Car Nicobar Island. We were running a grocery shop with profit in Car Nicobar but Tsunami has changed everything. Here, we have start a new life.

7.1.6. Mr. Dakshinamoorthy

Katchal Island.

My family has been staying in Katchal Island since 1973. On the 26 December morning the seawater receded after the earthquake and the Tsunami came after a while. The waves were about 18-20 metres high. Marine and boat control area, Jetty, Teachers quarters, Supply Godown, Rubber project Office, Andaman Harbour Works were washed out and gone inside the sea. Kapanga, Mildera, Beach area, Julla are the places where people are staying now. Some eyewitnesses say the waves were taller than the Mango tree near Kapanga beach, which means the waves are over 20 metres. The wooden chairs and benches of the Kapanga School were thrown over the high branches of huge trees of about 20 metres.

Thousands of trees of Padauk, Teak, Badham (endemic), Coconut, Acranut varieties were washed out. The new sea level is still causing more coastal erosion. 8 Metres of seawater has come inside and the situation is still the same. Aftershocks are occurring daily even after 4 and half months. There was an aftershock yesterday also. We want the government to move all the families residing in Katchal to other safer islands. The government gave Rs.2,000 as relief money for each family. But we need more support from the government. When compared with the residents of Nancowry Islands, the relief efforts and supplies are very less to Katchal residents. The authorities are saying there is no jetty in Katchal Island to land relief materials and also this is a tribal reserve area where outsiders are not allowed. We desperately need more relief efforts, shelters, supplies, and little investments to engage in fishing or small businesses as before.

“We desperately need more relief efforts, shelters, supplies, and little investments to engage in fishing or small businesses as before.”

Figure 15. Dakshinamoorthy
7.2. What the Souvenir Firm owners say?

7.2.1. The Manager, Sagarika Emporium

Directorate of Industries, Middle Point, Port Blair.

Our sales for last year were Rs.1,30,00,000. We fixed the same amount as the target for this year (2005), but the sales for the past 4 months were very low. The sales have come down drastically. Many people in Souvenir and Small Scale industries are thinking of changing the business, since the number of tourist arrivals has fallen down. We stopped buying and manufacturing goods. There is no point in manufacturing or buying them from small suppliers from other Island locations such as Rangat, Diglipur, Car Nicobar Island and Little Andaman Island, as there is no business. In SISI’s industrial units many employees have left and some gone back to the mainland. The small businesses are in great danger.

People in the mainland should be convinced. Make them to aware and understand that Tsunami is a short-term disaster. Satellite TVs over exposed and spoilt the situations. Advertisements, Press meetings and some interesting packages need to be introduced to bring the tourists back. Re-construction and re-building the coastal areas, roads, jetties have to be completed in a short span of time. Face to face video conferencing can be done between officials such as the Lieutenant Governor, Chief Secretary, Secretary & Director for Tourism with other officials in concerned departments of the other states of India, to discuss the situation. Travel and Tourism Meets can be conducted in Port Blair. Travel and Tourism operators across the country can be invited to visit the islands with small groups. Also safety aids to face future calamities have also to be introduced and explained to people.

Table 5. Sagarika sales (in Rupees) for the first 3 months of the 3 consecutive years:

<table>
<thead>
<tr>
<th>Month / Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>1,208,493</td>
<td>1,166,666</td>
<td>310,808</td>
</tr>
<tr>
<td>February</td>
<td>1,214,520</td>
<td>1,214,520</td>
<td>431,562</td>
</tr>
<tr>
<td>March</td>
<td>1,407,825</td>
<td>1,550,025</td>
<td>527,163</td>
</tr>
</tbody>
</table>

Source: Sagarika Sales Records, 2005.
The above table 5 shows the difference in sales for the first 3 months of the 3 consecutive years. The informant also mentioned that the sales for April and May 2005 are far less than Jan-Mar 2005. The following photographs (both taken during the day time) resembles that the number of tourists visiting the showroom are far less and some of the lights in the showroom are turned off in the daytime.

7.2.2. Mr. S.Rathinam & family

*Gift Centre, G.P.Pant Medical Road.*

I am in this business (souvenir) for 22 years. Tsunami has made a sudden impact in my business. Earlier the average sales in my showroom was Rs.30,000 per month. Now we are selling less than Rs.15,000. About 50% loss in my shop. I had a small factory for souvenir goods and 4 employees were working there. Now the factory is shut and I asked them to leave. I had 5 employees in the showroom before, but now only 2 including my wife. In addition, I used to buy the souvenir goods from Nicobar group of Islands, Havelock and Neil Islands. Now I have stopped buying from them although they are very desperate to supply for their living. I don’t think, the government is taking any steps to improve the tourism industry. As far I know, the government has arranged no meetings. We can tell our problems, if it is arranged. Some TV people came for interview, after the Tsunami. That’s all. But the tourist doesn’t need to fear anymore and the situation is under control. I welcome the tourists.

But the tourist doesn’t need to fear anymore and the situation is under control.”

7.2.3. Mr. Thavaselvam

*Owner, Gift House, M.B.Market, Port Blair.*

We used to sell gifts and souvenirs for Rs.5,000-8,000 in our 2 shops per day, during this season last year. Today, frankly speaking we didn’t even sell for Rs.100 and it is 7pm, we are going to close in few minutes. I would say 100% loss in the souvenir industry. We used to buy gifts and souvenirs from places like Harshinabad, Machilane, Haddo and from other Islands like Havelock, Neil and Katchal, Teresa and Car Nicobar in the Nicobar group of Islands. Their life is more miserable than us. Although they are ready to sell souvenirs to us even now, we are not ready to buy. No tourists are coming and therefore no business at all. If you take the Andaman group, especially in Port Blair there is no death because of Tsunami. But the tourists and media have a misconception and are feared to visit the Andamans. The government can bring tourists by advertising. They have to do something now to save people involved in tourism. Otherwise we will have to switch off to other jobs or move away from the Islands. I started selling Tyres for vehicles (shows the place where he keeps the tyres by moving the souvenir show cases to one corner). I closed our other shop (the New Gift House, Aberdeen Bazaar) completely by moving the stocks to our go-down. I am keeping this shop open only for the employees (see Figure 19) but may shut down this shop as well, if the tourists are delayed to visit the islands. It is the same situation everywhere. I think there may be about 2000 people directly involved in souvenir industry only in the Andaman Islands and about 500 people in souvenir and gift sales. Just a single day has changed all our lives.

“**They have to do some thing now to save people involved in tourism.”**

*Figure 18. Rathinam & family*

*Figure 19. Employees in Gift House*
7.3. What Resort Owners and Hoteliers say?

7.3.1. Mr. Samid
Managing Director, Barefoot Resorts.

We are keeping our fingers crossed. More tourists around the world have come to know about the Andaman and Nicobar Islands as a result of the Tsunami, although tourism is nil now. The tourists will forget the disaster in 2 years and tourism may prosper more in the future. But as far as the domestic Indian tourists are concerned, they would bear the disaster for several years. Government needs to act with plans to overcome this barrier. Master plan for the Islands Infrastructure is needed. Evolving new tourism models are very important for the future of tourism here.

“Evolving new tourism models are very important for the future of tourism here.”

7.3.2. Mr. D.P. Singh
Owner of Hotel Shompen & other well-known Hotels in the Andaman group of Islands.

All the rooms in 3 of my hotels are empty now. We had a little business in January and February because of the visit of the Officials, NGOs, Press persons and Scientists. We couldn’t run our newly opened star category resort in the Havelock Island – we got struck. We just opened it before the Tsunami as this is the peak season for tourist arrival in the Andaman Islands. There is no impact on environment or ecology as far as the Andaman Islands are concerned, except the Little Andaman Islands. In certain Islands like Havelock, the seawater rose to 1 – 1.5 metres and then it receded. We want the government departments to act quickly. They can easily advertise that Tsunami is over in the Andaman and Nicobar Islands in leading magazines, newspapers and satellite TV channels. We made arrangements for operating charter flights from Bangkok and other South East Asian destinations, but everything got struck. The condition of the employees in tourism industry, small resort owners, small-scale tour and travel operators are very miserable.

“The condition of the employees in tourism industry, small resort owners, small-scale tour and travel operators are very miserable.”

7.3.3. Mr. Basudev, Manager
Yatri Nivas-Dolphin Resort, Havelock Island.

On the Tsunami day, all the roads near the Jetty area are filled with Water (1.5 Meters), but not much damage. Some damage resulted in Kalapathar. The roads are damaged everywhere in this island. There are more ups and downs on the route to No. 7 beach. Households are damaged in beach No.5 and No.1. Water sources in Havelock are dried up. In our resort, drinking water well filled with salt water. Garden dried out, about 12 trees, including 2,3 Mango trees and all the flower plants were died. We have 34 rooms but in January we had no bookings; February 1 or 2 bookings per day and March and April 2 or 3 per day. Sometimes empty. 3 DRM (seasonal) employees left their jobs after Tsunami, saying the resort is near the seaside and if something goes wrong again, etc. People are very much involved mainly in Tourism. Fishing, Government Service, and Agriculture are the other sources of income for the people in Havelock. Infrastructure development (Roads, Extension of Jetty, Telephone, Mobile service) and improving the quality of Water are the priorities for tourism development in Havelock Island.

“People are very much involved mainly in Tourism.”

7.3.4. Mr. Karthik Mandal
Receptionist, Hotel Blair, Port Blair.

We have 30 rooms in our hotel and are now facing huge loss in our business after the Tsunami. I would say more than 90% loss (by checking his register). In the past 10 days, we had only 12 bookings and for the past 2 days ‘nil’ booking. We are giving 30-50% discount depending on customers. We have 6 staffs working here, excluding the Manager. We are not even earning for the salary of our assistants. Tsunami has impacted a lot in our business.

“We are not even earning for the salary of our assistants. Tsunami has impacted a lot in our business.”
7.3.5. Mr. Susheel, Managing Director

Jungle Resort, Havelock Island.

“They have been functioning by offering discounts.”

The current status of resorts in Havelock Island appears very problematic. The water quality is poor. Salt water entered in resorts such as the Dolphin Resort (Yatri Nivas). They were completely shut for one month. Wild Orchid – is also facing similar water problems. They have been functioning by offering discounts. Silver Sand – This is a new resort, and they had barely opened before the Tsunami. Now operating with only 4 staff. Only the skeleton staff are functioning, but this resort will be in full shape for the next season. Jungle Resort – No change in the number of staff. We had 32 employees and we are still keeping them as they have been working for us for 8 years. No plans to fire anybody, as we can’t have that loyalty back. Only about 10% of occupancy we had since Tsunami. We had only 20 tourists in our resort until now (mid-May 05). Usually we would have sold about 1200 room-nights between Dec-May. It is a loss of Rs.50,00,000 just in room rates over 5 months. Overall loss, we have calculated it as Rs.80,00,000 during this season. The status of other resorts looks poor. The tourism department’s ecotourism huts near Radha Nagar beach, and 5 other resorts such as Harmony resort, Ecovilla, Greenwood resort are currently shut. Café del Ma had only 4 visitors last month. Over all in the post-Tsunami period, only about 200 visitors would have stayed in Havelock. All the continuing resorts are working with less than 10% of their normal business.

7.3.6. Mr. Rajesh Nair

Manager, Hotel Holiday Inn, Prem Nagar.

All our rooms were full on the Tsunami day. Tourists were really frightened after the earthquake and rushed outside the hotel immediately. Until the afternoon they were sitting on the road. Water wasn’t coming in the pipes, as the underground pipes were broken. No electricity at all for 2 days. Telephones were also not working for 3 days. All the tourists used to sleep in the reception hall with only one candle burning all. It was a bad experience for all the tourists and ourselves. We tried our best to arrange tickets to get back to the mainland. After the Tsunami we are having only 5% business. We are getting this business only through NGOs and researchers who need rooms. One important thing is that the strong earthquake caused scratches in our building. You can see the scratches and holes in all the floors of the hotel and all the rooms. We are filling up the holes in all the rooms one by one. It costs lots of money. The money that we are earning is not at all sufficient for the salaries of employees. We have closed the Internet Café and the Roof Garden Restaurant. Employees who were working lost their jobs. We tried our best to keep all of them but there is no business because of reduced tourist arrivals. I don’t think there is much impact on environment and ecology of the Andaman group of Islands. It is just a fear in the minds of tourists that something bad might happen again in the Andamans. We want the government to help us by bring the tourists back. We want this to be done immediately by giving advertisements in TV.
7.4. What the Travel and Tour Operators say?

7.4.1. Mr. Robert S. Johnson

Manager, Dharsan Tours & Travels, Goalghar.

People who were relying on tourism are 'Zero' now. The future was very bright before the Tsunami. I don’t know whether we can rely on tourism anymore. After Tsunami I had only 4 or 5 travel bookings in 4 or 5 months. This is supposed to be our peak season, I would say. Last year Jan-Apr (2004), tourists were in large numbers. Last year during this time, we served about 4,000 – 5,000 tourists. Even on the Tsunami day we had bookings for about 80-100 tourists. This season, we had only 40-50 tourists so far in 4 months. Before Tsunami we had 30 vehicles (cars and buses). All are stopped now. No business. We had 40 employees before and now only 5 employees including the Manager (myself), Owner and his Wife to assist in the business. People around the world are frightened to visit the Andaman Islands because of the media coverage, I would say. Government should take some steps for this. They promised that they would do many things to bring back the tourists, but nothing has been done. But when the Tourism Minister, Renuka Chowdhry came we were invited for a meeting. No meeting after that at all to listen to our problems. We want the Government to organize publicity mentioning that Andaman Islands are ready for tourists. Our customers (tourists) are asking whether there is still anything left in the Andamans after Tsunami? So publicity is very much needed. A reduction in airfares is also very much needed. I am expecting some flow of tourists in or after October this year. (When asked about the impacts on the Environment & Ecology) Because of the sea level rise and high tide the beach areas are very much reduced. In some places - no beach at all. I am sure this will increase coastal erosion in famous locations. Tourists will also start searching for new beaches and islands in the future, if they come. We are involved in packaged tour and sigh seeing in all the locations of the Andaman groups of Islands. So we know what tourists and people involved in tourism want. Many beach areas are shutdown after the sea level has increased. We had a travel and tour operators association functioning in Bay Island Resort before the Tsunami but now no one goes there. Now there is no office for the Andaman travel and tour operators Guild. Proper planning and local consultation in future tourism management is very much needed.

"Before Tsunami we had 30 vehicles (cars and buses). All are stopped now."

7.4.2. Mr. Bhaskar

Auto Rickshaw Driver, Port Blair.

No business at all for me. Not only for me but for everyone in travel industry. No tourists are visiting. I told my brother to run my auto rickshaw and started looking for new business. I used to earn for my whole family when the situation was normal before the Tsunami but now my brother could not earn even for his expenses. None of the government departments are concerned about the people who are relying on tourism and travel. There is false opinion among them that the Nicobari tribes are the only one community who are affected by the Tsunami, I guess. No one cares about us. All the relief money is mainly given to the tribes. If tourists are visiting as usual then we won’t need of anybody’s help. Sadly, tourists stopped visiting the islands. I have been living in the islands since my birth, for 30 years, but now I am thinking of moving to mainland India with my family in search of living.

“I have been living in the islands since my birth, for 30 years, but now I am thinking of moving to mainland India with my family in search of living.”
7.4.3. Mr. Deepak Govid

President, Travel and Tour Operators Association, ANI.

Total business loss to the Andaman tourism industry for this year is Rupees 50 Crores (50,00,00,000). Every person in the Islands is directly or indirectly involved in tourism. Therefore tourism is the ‘only’ main industry of the Andaman and Nicobar Islands. But now the situation has completely changed after the Tsunami. About 20,000 - 30,000 people are unemployed. No jobs at all in the tourism, hotel and travel sectors. Hotels and Resorts are empty everywhere in the Islands. 90% of the LTCs (Leave & Travel Concessions offered for the Government employees in India) used to visit the Andamans and now their trips are cancelled. I can say that, only 5% of the business we are doing, when compared with the situation before the Tsunami. I think it will take 1 and a half or 2 years for the situation to improve. Until then, we want the government to waive the soft loan (borrowed by firm owners for hotel, resort and tourism infrastructure development) interests and repayments. The other issue that needs immediate attention is discounts on flight fares to the Andamans. It should not be only for one or two months, but for 6 months – 1 year for everyone who plans to visit the Andamans. It will not be a big problem as you can see Sahara Airlines is offering return fares from Delhi to Singapore for Rs.10,000, whereas the return airfare from Chennai (Madras) to Port Blair is Rs. 16,000. More connectivity, more charter and regular flights need to be introduced (for example. Madras – Port Blair – Bangkok). Infrastructure such as roads and jetties need to be reconstructed and developed. The islands where tourists were fond of visiting are damaged by the Tsunami, sea water level is increased in the beaches, and roads and jetties to reach the locations are damaged (for example. Jolly Buoy Island and Wandoor Beach Area). So more locations and alternative Islands need to be opened for tourism. All these need immediate attention to revive tourism and revenue opportunities for the local community in the Andaman Islands.

7.4.4. Mr. Krishna

Auto Rickshaw Driver, Neil Island.

I used to earn at least Rs.300 per day before the Tsunami. Now there is no one (tourist) visiting the Neil Islands. The others who were running the Resorts and Scuba Diving Centres in my Island shut down their operation completely. I was waiting in the Island for about 4 months but couldn’t find an alternative for my income. So I moved to Port Blair (Capital City). But the situation remains the same here. It is very difficult to find a job as all the businesses are running at a loss. I didn’t decide whether to stay in Port Blair or travel to the mainland. It would be difficult for me to visit my family if I decided to move to the mainland. It (travel) is costly as well. We don’t see any signs of tourist arrivals like before. I don’t think the government can do much to bring the tourists. It is tourists’ own wish to visit any place. I hope the industry will pick up in 2 years, but until then we need some support from the government. That would be very helpful for tourism dependents like myself.

“It is very difficult to find a job as all the businesses are running at a loss.”

“We don’t see any signs of tourist arrivals like before. I don’t think the government can do much to bring the tourists. It is tourists’ own wish to visit any place. I hope the industry will pick up in 2 years, but until then we need some support from the government. That would be very helpful for tourism dependents like myself.”
7.4.5. Mr. Dharshan
Manager, Jet Airways, Port Blair.

We used to operate 2-3 flights daily to Chennai during this time. I mean before the Tsunami. Even then the tourists will be waiting in the office and airport for last minute cancellations, apart from those who were on waiting list. In addition, we used to operate 2 extra flights also for business groups and tourists every week. This year we are operating only one flight to Chennai, which is for residents and NGOs to go to and come back from the mainland. There is a sudden fall in the arrivals of tourists after the disaster. There is a ray of hope that some domestic tourists may visit during the summer holidays. If the Government doesn’t do anything quickly to attract the tourists, they could loose the Andaman tourism market. Even the domestic tourists would start visiting other locations, for example Singapore, Malaysia and other South-East Asian destinations and the Middle East.

Airfare reductions?

We have already done that and we are still continuing the discounts in our airfares. Immediately after the Tsunami, Jet Airways operated 3 extra flights daily to help the people and tourists who want to evacuate the Islands. So in total we operated 6 flights daily from the 1st January to 7th January 2005. For all the Tsunami victims we gave an immediate discount in the fare during this period. We charged only Rs.4,500 out of the regular air-fare of Rs.10,510. Indian Airlines also played a major role in helping the public and tourists. They are also offering more ‘slabs’. We were selling the reduced tickets for Rs.7,500 out of Rs.10,510 after the Tsunami. I studied the Andaman and Nicobar market and suggested to Jet Airways Head Office’s marketing and sales department to reduce the fare further. I got the approval for this with no major conditions. If someone wants to book an air ticket anytime before 5 and half hours to departure, then we are selling them only for Rs.6,300 out of the regular airfare of Rs.10,510. Same time they can also just ring the Office help desk or Airport office 1 hour before departure to cancel and rebook the ticket by paying just Rs.500. Indian Airlines are also offering discounts from their marked regular price. If someone books a ticket with Indian Airlines before 28 days, then the fare is Rs.4,855; for bookings before 21 days the fare is Rs.5,885; for bookings from 14 to 7 days before departure the fare is Rs.7,325. It is not true that the airlines are not offering any discounts. We tried our best to reduce the airfares to the Andaman Islands. The government should do something now...mainly advertising to get the tourists back. I would want the tourism department to initiate a meeting for all tourism stakeholders. That would be really a great first step, towards improving tourism. I definitely would like to meet all the officials in the meeting to discuss and help everyone to improve the situation.

“If the Government doesn’t do anything quickly to attract the tourists, they could loose the Andaman tourism market.”
7.5. What the Environmentalists and NGOs say?

7.5.1. Mr. Harry V. Andrews

Director, Andaman and Nicobar Environmental Team (ANET).

We (ANET) conducted observations and rapid assessments of the coastal habitats that include beaches, reef flats, littoral forests, mangroves, creeks and inland marshes and wetland areas were conducted by ground surveys in and around major Islands both in Andaman and Nicobar groups.

The earthquake caused the subsidence of the Nicobar Islands and a portion of South Andaman Island, besides the upheaval, by an average of 1 m, of Little Andaman Island, north-western South Andaman, entire Middle and North Andaman Islands including Landfall Island. This also led to the extensive upheaval of reef flats (from 0.5 Km\(^2\) to 6 Km\(^2\)) along the west coast of South, Middle and North Andaman Islands and along the east coast of North and Middle Andaman Islands (see Figure 43 and 44 in Photo Gallery).

The subsidence is the Nicobars and South Andaman Island by almost 1 m has caused high tides reaching inland and flooding lowland flat lands including agricultural lands, human habitation, mangroves and littoral forests. The upheaval and the tsunami caused drying of frontline mangroves along creeks, in marshes and littoral forests on some small islands. The substratum from the bottom of most creeks have been swept out into bays causing large extensive mud flats, and in some bays, closing of the mouth of creeks and covering coral reefs. Mud volcanoes in Baratang, Middle and North Andaman Islands were active for two weeks after the tsunami (see Figure 50). Several new vents emerged around old existing mud volcanoes and long, 15-30 cm wide, cracks were also observed around these.

Barren Island volcano is active and is still rumbling, smoking and several new smoking ground vents have developed including a large vent on one side of the volcano (see Figure 51).

No major impacts were observed on coastal forests in the Andamans. There is scope for quick regeneration in impacted areas on the main and small islands. Regeneration rates observed for mangroves resulted in an average of 12 seedlings in 1m\(^2\) plots, (Range 6-25), of 24-30 cm stem height; this rate of regeneration is very good. In coastal littoral forest 5 m\(^2\) plots that were checked, on large and small islands, resulted in an average of eight plants, 3-4 species with a stem height of 4 m.

In the Nicobars, being very close to and north of Sumatra, almost all coastal habitats in all the 23 islands have been affected to a great extent, beaches and coastal habitats have been swept away. The entire coastal areas and habitats have been completely affected and destroyed impacting all coastal flora and fauna and affecting some of the mega species.

(Harry Andrews)... In the Galathea area (Great Nicobar Island) and the entire South Bay, the wave, at a height of 30 m had gone inland almost 1.5 km (see Figure). This has destroyed all the beaches, mangroves and the entire coastal habitat of the South Bay, including the areas around the Lighthouse at 51 km.

Currently there is debris, 4 to 10 m high, consist of fallen trees, plastics, timber and other materials from the sea that drift on to the land area at each high tide. The high tide line reaches the slope forests and existing mangrove species and other coastal flora are drying up. The same effect was observed for the west coast of Great Nicobar and islands in the central group and on Car Nicobar Island.

Of major concern in the Nicobars and mainly on Great Nicobar Island are domestic animals that have become feral. These include pigs, goats, cows, dogs, cats and chickens, all of which were observed in January 2005 and this will have major ecological consequences.

Observations in the Nicobars found that all coastal habitats are now under water with high tide reaching slope forests and inland wetlands. This is currently killing mangroves, mainly along Nan-
The entire coastal areas and habitats have been completely affected and destroyed impacting all coastal flora and fauna and affecting some of the mega species.

Nancowrie, Kamorta, Trinket and Katchal Islands.

Loss of all tracts of Pandanus in the Nicobar group of islands will, to a great extent, affect the dietary habits of some Nicobarese (tribes) people and all the Shompen (tribes) people, also due to loss of mangroves and associated food resources. In addition, the loss of Nypa fruticans used commonly by both communities, for roofing of their traditional habitations, will not be available for many years to come.

There is an urgent need to survey and assess the reefs around the Andaman and Nicobar Islands and as of now we are still unaware of their extent and diversity. Previous studies and surveys are only from very few sites in the Andamans and considering the estimated extent these studies and surveys, has become anecdotal and in no way represents the diversity of the coral reefs of these islands. There is a need to conduct extensive amphibians studies in the central Nicobar group as most inland freshwater marshes and streams are inundated by saltwater. Further land surveys are required with the aid of GPS for ground truthing and GIS to derive the actual extent of beach and reef flat loss, besides remapping the entire Andaman and Nicobar Islands and their topography. Monitoring of the natural mangrove regeneration and the inland wetland habitats are required for the next three years, at least, to conclude status and permanent changes that will occur. There is also an urgent need to review fisheries practices around the islands.

7.5.2. Ms. Reshmi Nair

Society for Andaman and Nicobar Ecology (SANE).

Nicobar group of Islands and the Little Andaman were the worst affected areas. Impact on environment and ecosystem cannot be examined in a short span of time. This has to be studied over years.

(Reshmi Nair).... However there are variations in sea level. The level of seawater reaching the creeks has changed. The creeks in Digilpur in North Andaman have dried up. The fishermen in these areas, who used to fish in these areas, have been affected. Mangrove vegetation has acted as indicators of change; species change may be a probability.

Definitely there will be lots of changes in the diversity of fauna and flora in the long run. Environmental and ecological impacts can also be noticed in all the coastal areas in the South Andaman, Middle Andaman, North Andaman, Havelock and Neil Islands. Definitely these areas need ecological impact assessments. I recently visited the Neil Island where basic needs are in peril. Water has always been a scarce resource there. Not much effect on the environment and ecology of the Neil. However, the
coral reefs near the Jetty were partially affected; some coral boulders were dislodged.

There were two fresh water lakes in Neil, which had dried up some time after the island was colonized. In one of these lakes, at Bharatpur, the channel connecting the lake to the sea has widened causing the lake to go saline. The water supply was disrupted for the first ten days after which the supply was reinstated. However it can be mentioned that the availability of water in the Nicobars is still almost non-existent.

Post-tsunami, whatever measures we take to bring things back to normal, we have to keep in mind that we are fighting against the forces of nature and it is a natural disaster we are trying to cope with. The land use pattern will change drastically, with over 1600 ha of cultivable land having being inundated with seawater. Therefore all the strategies and plans that are to be implemented have to be sustainable.

Measures like creation of earthen bunds, which is actually being done in these areas, are a counterproductive exercise. They not only prevent the leaching of the excessive salt from the soil but also lead to washing off of silt into the sea nearby, thereby choking the corals. We cannot assume our actions to be more powerful than those of nature.

Tourism is the main industry in these locations and it is very badly affected. Significant efforts for ecological and environmental protection have to be made while reviving tourism in all these areas. Tourism industry in the Andaman Islands definitely needs the right planning. Tourists are very much expected by the local communities here.

As the NGOs and environmentalists say the Supreme Court of India has also allowed the sustainable utilization and management of the local resources. But tourism development in the Andamans needs ecologically sensitive planning and sustainable management priorities.

Government officials have restricted thinking. They just think as facilitators while privatizing and developing the industry. Forbidding the backpackers and catering to the right tourists to save these ecologically fragile destinations should be given importance, at least during the revival stage. If this will be done, then tourism can be a promising revenue option for most of the people here.

7.5.3. Mr. Sivaram Raghavan

UNICEF – New Delhi, Tsunami Relief Camp Office, Port Blair.

Our main priority immediately after the Tsunami is to prevent water born diseases, and evacuate children and adults to safer area. We formed temporary shelters, prevention of malnutrition, psychosocial counselling to bring them out of trauma, etc, in collaboration with the Government of India and the A&N islands administration. We are working on over a period of first 6 months. Long-term plans include Heath and Sanitation, Water Tanks, putting children back in schools, etc. There is no water born disease or sanitation problems we have noticed in the tourism allowed Islands. It is quite safe for the tourists to visit now. I would recommend the Andaman Islands for anybody who’s interested in visiting, quiet and calm natural environment and beautiful Islands and beaches.

“It is quite safe for the tourists to visit now.”

Figure 24. Sivaram Raghavan

“... whatever measures we take to bring things back to normal, we have to keep in mind that we are fighting against the forces of nature ..."
7.5.4. Ms. Sahba Chauhan

Regional Knowledge Management Coordinator, South Asia Regional Centre, Oxfam GB, New Delhi.

Oxfam’s role: Oxfam is involved in the Tsunami relief and rehabilitation works in the Andaman and Nicobar Islands. I should say immediately after the Tsunami, no aid agencies were allowed in the areas where tribes live. During mid-February 2005, government cooperation was achieved and now the departments are cooperating well. The Government offered immediate shelters and food for the community. We also offered shelters for the short term but our plans include long term strategies such as involving the community in rehabilitation, tribal welfare, increased public health, disaster management preparedness programs, forming ‘roof top’ rainwater harvesting structures to increase fresh water storage, etc. The rainwater harvesting strategy worked very well in South India, as we are aware of the cultural and life style habits of the people in coastal South India.

Impact of the Tsunami: The main industries like tourism and fishing are at a huge loss. Souvenir industry is also at loss, through which the local community were benefiting. Because of the high tides people moved to the highlands. Nicobaris moved from their dwelling. Their lifestyles and hunting behaviour have changed. Their fishing and hunting areas have also changed. Now they will be using protected forestland for dwelling, creating loss of vegetation cover for house building, and hunting. All these create impacts on animal ecosystem, environment and ecology. Although they had no private properties, families are in small units of about 5, whereas earlier they used live in large groups with 15-20 members. As a result of the temporary shelters, there are socio-cultural impacts.

Challenges: We don’t know the cultural habits of these people. Their lifestyle has changed even more. People lost their assets and some of them in trauma because of the loss of lives. Involving the tribes in reconstruction is very much needed. Transport facilities have to enhance and the availabilities has to be increased. Our key people working in rural areas are struck with no Internet and telephone. We could do more in the Islands if the transport difficulties are solved.

Research: Initially we planned to stay here for 6 months, but now we think 3 more years are needed to change the rehabilitation steps into developmental programs. Our priorities are livelihood assessments; disaster preparedness from monsoon, floods, earth quakes and after shocks; gender equality in rehabilitation; public health promotion; water sanitation and the availability of clean water; HIV in the Islands; Shelter provision; Advocacy and lobbying in economic development of the Islands; and influence in public policy for inclusion of women and marginalised communities in rehabilitation packages.

"People lost their assets and some of them in trauma because of the loss of lives."
7.5.5. Mr. Jnan Prokash Poddar

_In charge of Tsunami relief work operations, West Bengal Voluntary Health Association (WBVHA)-Calcutta, in Port Blair._

We landed in the Andamans on the 28th of December and started the relief works - that is immediately 2 days after the Tsunami. We helped about 180 families mostly the fishing community by giving materials for 60 boats, plywood, stoves for cooking, cloths, plates, soaps, etc. We conducted about 15 medical camps, about 40 counselling camps (for Trauma and Psychologically affected people), gave about 150 sewing machines and, books for about 200 students. In addition to these, we conducted training and development programmes for community development. We selected 30 boys and girls and offered them a ‘Community Health Development’ course and Vocational Programmes on Tailoring. In the future, we want to educate the people on health issues to prevent core diseases and help them to set up small-scale businesses for economic development.

“But the one thing I want to mention here is the habits of some people are bad when they get relief money. They spend it on ‘Ganja’ (Hashish) and ‘liquor’. They spend 60 Rs on liquor and give 40 Rs for family expenses. Therefore it needs to be regularised. Permanent solution for economic development has to be found. I asked in one village, how many of you have passed Higher Secondary School. They said only 7 or 8. So education is also very important for the Andaman Villagers. They should understand ‘self-help’ is the way for development. Of course, tourism is the very important long-term economic opportunity for the Andamans. In fact, tourism is the only short-term or long-term way, through which they could keep their family earnings running, as the majority of the people here not well educated or trained. Economic condition of the poor people here can be developed only through tourism.”

7.6. What the Tourists say?

7.6.1. Mr. Rajnish & Rithwick

_Research students from the Indian Institute of Sciences, Bangalore._

“We didn’t think of the impact of the Tsunami. If one has to die, one will die anywhere. Moreover earthquakes have occurred in Bangalore as well. We were not scared to visit the Andaman Islands. We were looking at several options. Andaman Islands suited our budget. The Andaman Island’s website gives useful information about Hotels, Ecohuts, Wildlife and Corals, etc. It is very nice to visit the islands. We had a nice experience here especially in Havelock Islands. It is quite convenient to move around in Port Blair – Autos, Buses, Taxis, ATMs are available. The one major problem is the restaurants. It takes time to find good restaurants to eat and you have to order on time. As far as we have noticed, nothing much has happened to the Environment and Ecological resources of the Andaman Islands. Even the public who live in the tourism locations haven’t mentioned anything about this. I definitely would suggest others to visit the Andaman Islands. Fabulous location.”

“I definitely would suggest others to visit the Andaman Islands.”
7.6.2. Ms. Anna

Tourist from the USA.

The airfare from Calcutta and Madras is huge. If the government could reduce the fares, then they can see a real difference in bringing the tourists back. I like this peaceful environment in the Andaman Islands. There is no fear to move anywhere in the Islands anytime. People everywhere treat us well and sometimes give great respect for tourists. They seem to be aware of what tourism means to them, after the disaster and to the economy of the Islands. I would like to visit again and possibly would suggest others to visit the Andaman Islands.

“People everywhere treat us well and sometimes give great respect for tourists.”

7.6.3. Mr. Zeev

Tourist from Israel.

This is my first visit to the Andaman Islands. I heard the Tsunami and continuing aftershocks are over and the situation is quite favourable. These islands have some of the clearest beaches and virgin environment among the places I visited in my lifetime. I used to visit the South East Asian destinations quite often, but now I think, we will start visiting the Andamans frequently.

“... but now I think, we will start visiting the Andamans frequently.”

7.6.4. Mr. Shane

Tourist from the UK.

I was about to go to Sikkim. I heard from my travel agent in Varanasi that the Tsunami is over in the Andaman Islands. I changed my plans and came here. The Tourism Department should make big posters saying that the Tsunami is over and advertise with travel agents and tour operators all over India. This would bring tourist arrivals just like that, as everyone knows about the Andamans Islands now.

Probably some 10,000 foreign tourists in India at present could visit the Andaman Islands instantly. To recover from the current situation, the Department should target the back packers first, as backpackers are the one who can change their travel decisions just like that. No one will be disappointed when they come here, as this destination is wonderful.

“No one will be disappointed when they come here, as this destination is wonderful.”
7.6.5. Mr. Partha

Tourist from Mumbai

Our children are having holidays now. We came here to spend their vacation after visiting their grandparents in Chennai. I visited the Andaman Islands, 8 years before. After the earthquake and Tsunami, I wanted to see the places and to show them to our children. My wife was hesitating to come here but then we planned to visit the Andaman Islands last year itself – so we landed here this year.

We have stayed here for 6 days and visited some of the beautiful beaches in Havelock and South Andaman Islands. I rarely noticed the impacts of earthquakes and Tsunami. Maybe we didn’t travel in the Islands extensively. In fact, the Andaman Islands look very much developed with so many new buildings and beach resorts when compared with those days, 8 years before.

I think, the locations here can be developed to attract more tourists. It is very close to India and this is a big advantage.

7.7. What the Administration says?

7.7.1. Exclusive Interview

His Excellency. Prof. Ram Kapse, Lieutenant Governor of the Andaman and Nicobar Islands.

Q: How important is tourism for the local community in certain locations of the Andaman Islands and the overall economy of the Andaman and Nicobar Islands?

A: Tourism is very important, wherever it is practised in the Andaman Islands. Local community is largely depending on tourism in most of the tourism locations. The number is large. Last year (2004) more than 100,000 tourists visited the Andaman Islands. There were about 4,000 tourists staying in the Andaman Islands even on the Tsunami day. For the economy of the Andaman and Nicobar Islands, tourism is the main source of income. The Andaman and Nicobar administration is encouraging tourism continuously. The Islands have very good potential for further tourism development.

Q: What impact has the Tsunami had on a) tourism industry, b) local community, c) infrastructure, and d) Island environment and ecosystem? In the short term?

A: Worst hit. We lost one good season. Tourism industry is at loss. The local community who are involved in tourism are suffering. No major impact on the infrastructure. The government and the administration handled the situation in a very appropriate and immediate way. No impact on the environment and ecosystem. Everything looks all right.

Q: What impact has the Tsunami had made on a) tourism industry, b) local community, c) infrastructure, and d) Island environment and ecosystem? In the long term?

A: The government and the Andaman and Nicobar administration are keenly interested in promoting tourism to bring back the situation as before. However the decision on future plans has to come from the Central Government (Government of India). We have recommended (to the Government of India) and are keen to develop ‘High-Value & Low-Volume’ tourism. We are taking steps to promote tourism education standards and achieve meaningful employment through tourism. Infrastructure will increase in proportion to the ‘High-Value & Low-Volume’ tourism. This will not be a problem. In all the long-term development programmes before and after the Tsunami we are always paying attention to protect the Forest Environment, Coastal Area Environment, Marine and Underwater species. All these are our wealth. We are already maintaining pollution less...
and crimeless tourism in the Andaman Islands and these will be taken care in the future as well.

(Lt. Governor’s exclusive interview….)

Q: What are the main challenges facing the planned improvements?

A: No problems. We can go ahead most definitely.

Q: Please could you suggest some strategies for engaging the local community in post-Tsunami reconstruction and tourism development?

A: Collective discussion with all the community members and collaborative planning will ultimately result in successful tourism development. We have already taken help from local leaders, political parties, NGOs and the public. Apart from this, we allowed private enterprises to engage in post-Tsunami reconstruction. We will support research on this direction.

Q: Please could you advise on the research priorities / objectives for the ‘revival of tourism and ecosystem in the aftermath of the Tsunami’?

A: As I said, we have allowed various groups to participate in the re-construction. Research works and discussions are going on in all directions and are yet to be submitted and confirmed. We support research related to tourism and all researchers are welcome.

Q: Your message to the tourists, travel and tour operators in India and abroad?

A: We are safe here and tourists are most welcome to visit our Islands. We have conducted an appropriate 6 days programme from 29th March to 3rd April engaging all groups. We invited many travel and tour operators to show the safe circumstances here. Tourists in India and around the world should understand that it is safe to visit the Andaman Islands. Even this monsoon season looks great and the tourists should experience it. We invited bigger groups of travel and tour operators along with the Ministry of Tourism for a 3-day trip starting from 14th May. Ministry of Tourism (in New Delhi) has been informed about giving more advertisements. My message to the tourists, travel and tour operators is that all are welcome.

Figure 29. Lieutenant Governor of the Andaman and Nicobar Islands.

“My message to the tourists, travel and tour operators is that all are welcome.”

The study involved all the tourism stakeholders in the ANI in a short span of time. However, the Environment and Forest Department was not able to assist the study. Although there are information about the environmental and ecological impacts and damage noticed in some places, such as the Great Nicobar Island, Katchal Island, Camorta Island, Trinket Island (see Figure 7), Little Andaman Island, Interview Island, and other Islands surrounding South Andaman, Middle Andaman, North Andaman Islands, there has not yet been any scientific assessment of the impacts caused. Based on the formal and informal interviews and discussions with the tour operators, travel agents, hotels and other tourism firms, the local residents, the Andaman and Nicobar administration officials and NGOs on relief works, the study briefs the major challenges facing the revival of tourism and natural resources in the Andaman Islands in the following section on ‘Findings and Recommendations’. 
8. Findings and Recommendations

1. It is evident that the disaster has made a sudden major impact on the tourism industry and livelihood of the tourism dependent community. The number of tourists visiting this destination is very much reduced. The secondary source on the tourist arrivals in January – May. (2000-2005), supplied by the DIP&T (2005) confirms that there is substantial difference in the tourist arrival numbers when compared with earlier years.

2. As most of the informants stated, it is a misconception that many tourists died in the Andaman and Nicobar Islands, as happened in Thailand and Sri Lanka. In fact there was no record that tourists died in the Andaman group of Islands. The worst affected community are the residents of Nicobar group of Islands, in terms of number of the causalities. However, none of the Nicobar group of Islands are opened for tourism except the Great Nicobar Island. Only the domestic tourists are allowed to visit the Great Nicobar Island and hardly any tourists go there. Therefore, it is difficult to estimate the number of tourists visiting the Great Nicobar Island but the numbers would be a handful per month. Therefore, it can be clearly said that none of the tourism permitted Islands are badly affected. But this is not to deny that the people of the Nicobar Islands have been badly affected.

3. Such information needs to be passed on to the domestic tourists and foreign tourists. As emphasised by many informants, advertisements through eye-catching posters targeting the tour and travel operators in India and abroad are needed. Other Indian states (e.g. Kerala Tourism) are advertising in global broadcasting channels, such as CNN. The Tsunami affected Maldives also advertises its tourism potential as a measure of reviving tourism in the CNN. A similar promotion campaign is required for the ANI.

4. As the industry is operating at a loss, hoteliers, resort owners, travel and tour operators who have taken loans for developing their hotels, resorts, and of vehicle purchase, are not in a situation to repay interest or such loans. A relaxation or waiving of the repayments for 1 or 2 years until the tourism industry picks up would of major assistance. The possibilities of relaxing or waiving of the repayment looks feasible, as the government of India and the ANI administration seem to understand

<table>
<thead>
<tr>
<th>Year / Month</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>9577</td>
<td>7615</td>
<td>6979</td>
<td>5821</td>
<td>5884</td>
<td>35876</td>
</tr>
<tr>
<td>2001</td>
<td>8368</td>
<td>7017</td>
<td>6304</td>
<td>7096</td>
<td>7662</td>
<td>36447</td>
</tr>
<tr>
<td>2002</td>
<td>7599</td>
<td>9366</td>
<td>7363</td>
<td>7411</td>
<td>6085</td>
<td>37842</td>
</tr>
<tr>
<td>2003</td>
<td>7919</td>
<td>8654</td>
<td>7699</td>
<td>7967</td>
<td>7052</td>
<td>39291</td>
</tr>
<tr>
<td>2004</td>
<td>13309</td>
<td>12011</td>
<td>12222</td>
<td>8647</td>
<td>8931</td>
<td>55120</td>
</tr>
<tr>
<td>2005</td>
<td>1335</td>
<td>1313</td>
<td>711</td>
<td>207*</td>
<td>91*</td>
<td>3657</td>
</tr>
</tbody>
</table>

(* - Denotes the foreign tourist arrival figures for April and May 05. Domestic arrival figures are not collected at the time of writing this report). Source: DIP&T, June 2005.
the situation and already some relief money has been offered by the ANI administration for each household in the Andaman and Nicobar Islands.

5. Earlier research conducted by the author during 2001-2004 revealed that the souvenir firms purchase and sell products both from inter-island and from the Indian mainland. Now the souvenir industry is operating at great loss, as the interviews presented in section 7.2 confirm. This has affected the inter-island sales of souvenir goods, and export and import of goods from and to the Indian mainland.

6. There is another problem highlighted by some of the informants. If the administration delays efforts to bring back the tourists, the market could become a vacuum and would take years to fill-up. The private budget Airline industry in India is progressing competitively and companies such as Jet Airways and Sahara Airlines are offering the South East Asian tour packages with return flights for just Rs.10,000.

7. As far as the impact of the Tsunami on the environment and ecosystem are concerned, significant damage has been caused in all the Nicobar group of Islands and in the Little Andaman Island, but not much impact in the Andaman group of Islands. It is only the infrastructure such as roads and jetties that were damaged but efforts are already underway (see Figures 30, 31 and 32) to rebuild them both by the administration and private owners. The other impacts such as coastal erosion (see Figure 40), species extinction, loss of protected area (see Figure 45), upheaval of the islands (see Figures 47 and 48) and exposure of corals (see Figures 43 and 44) cannot be studied in a short span of time. Nevertheless, this needs to be studied over years. Some of the informants noticed very significant impacts and suggest that these should be included as future research priorities (see Interviews 7.5.1, 7.5.2 and 7.1.4).

8. Tourism revival is of major importance to the economy and local empowerment of the ANI, as other industries such as fishing, agriculture and timber extraction may not bring a prosperous future for both the skilled and un-skilled dependents of the tourism industry. Excessive fishing is controlled by the ANI administration and there are restrictions on the extraction of timber. Recently, the lowlands used for agriculture were inundated with seawater that will not favour cultivation for a few more years.

9. Based on the above discussion and understanding that the tourism industry is at a considerable loss, this study also identified salient research priorities for the revival of tourism and ecosystem in the Andaman Islands. The pilot study suggested the need for an in-depth project with a main aim to ‘Explore and Promote Community Based Sustainable Ecotourism and Evolve Ecosystem Management Strategies for Tourism locations in the Andaman Islands in the aftermath of the Tsunami’. As most of the key informants agree, the forthcoming project needs to be conducted over a period of 2 years – the medium term (Aug / Sep 2005 to Aug / Sep 2007) with monitoring and revision or fine-tuning of the project to be carried out over a period of another 3 years – the long term (Aug / Sep 2007 – Aug / Sep 2010), with effective local co-operation.

10. The suggested objectives of the main (medium term) project should include:

1) Conduct overall socio-economic assessments – a). pre-Tsunami perspective, b). post-Tsunami perspective,

2) Assess the specific impact of the Tsunami on the Tourism Industry and Ecosystem,

3) Explore the impact of the Tsunami on the livelihood of the tourism dependent local community,

4) Assess the current livelihood status for potential empowerment of the local community,

5) An assessment of tourist motivation and behaviour in the face of perceived risks to natural disasters,
6) Assessment of the Medium and Long term management priorities for the Ecosystem, Marine and Coastal Environments, and

7) Exploring and designing Community Based Sustainable Ecotourism Models and Ecosystem Management Strategies for the Andaman Islands, with effective local community involvement.

11. The pilot study also suggests the following outcomes for successful applicability of the project for environmentally sustainable tourism development;

1) Publication of ‘Community Based Sustainable Ecotourism Promotion and Ecosystem management in the Andaman Islands – Action Plan: a compilation of Medium and Long term Strategies,

2) Inter – Departmental Workshops and Meetings (1 or 2 events for 2 days),

3) 10 Village Level meetings (e.g. 5 for Youths and 5 for local stakeholders) possibly 3 meetings in South Andaman Island, 2 in Middle Andaman Island, 2 in North Andaman Island, 1 in Havelock Island, 1 in Neil Island and 1 in Little Andaman Island,

4) Production of Environmental and Ecological Awareness brochures, posters, leaflets and information for residents, schools, colleges, youths and children (in English and local languages),

5) Guidelines for travel and tour operators, tour guides, hoteliers and tourists (in English and local languages),

6) Guidelines to identify the gaps and impacts for monitoring, revision of the project for the Andaman Administration, Tourism & Environment Departments, village presidents, NGOs and environmentalists; and

7) A website explaining the project, findings and other specific information.
9. Conclusion

Tourism is the main generator of infrastructure development in the ANI as discussed before, especially within important locations such as Port Blair, Wandoor, Carbyn’s Cove, Havelock Island, Neil Island and Hud Bay, and economic activity in these locations has now been devastated by the Tsunami. Arguably, overall the contribution of tourism has had a noticeably positive socio-economic impact on the ANI during the pre-Tsunami stage. There are thousands of local people involved in tourism and it is the dominant economic activity in locations like Wandoor, the adjacent Mahatma Gandhi Marine National Park, Havelock Island, Neil Island, Little Andaman Island, and in villages near towns like Rangat, Mayabunder and Diglipur (Reddy, 2004b). Depressingly, tourism and the lives of the low-income communities involved in tourism have currently reached what, at best, can only be called a challenging ‘pause’ stage.

November to March is supposed to be the peak tourist season in the ANI (see Figure 4). In particular, domestic and international tourists attend the Island Tourism Festival in January. The Andaman Public Works Department complex used for the Island Tourism Festival is, at the time of writing, being utilised as a rehabilitation camp for the Nicobari tribes, and the festivities for this year have been cancelled. Although there were widespread discussions to try and engage the local community in tourism more effectively before the Tsunami, ‘there were no innovative plans and strategies from the administration side to homogenise the local community involvement in tourism, and to make tourism into a more productive revenue earning option’ (Reddy, 2003a & 2003b). There is now an urgent need for the authorities to overcome power share disagreements and failures, and to engage the local community in post-Tsunami crisis management discussions, in order to work for the reinforcement of the tourism industry. The disaster incident response evaluation (DIRE) method of conducting loosely structured interviews, explained by Faulkner and Vikulou (2001), could be an appropriate model to engage the stakeholders in a post mortem of the event, reconstruction and reassessment. A strategic and holistic approach to crisis planning and management for long-term recovery of the tourism industry from disasters and chaos (Ritchie, 2004), is what is needed here.

As has been observed in other destinations subject to major catastrophes from diverse causes, such as Bali (terrorism), Turkey (earthquake), New York (terrorism), the UK (foot-and-mouth disease), and Southeast Asia (SARS), tourism in the ANI will pick up in the future, sooner or later, although a disaster of this kind is a new challenge to the planners and policy makers in this part of the world. The tourism industry will never be exactly the same again, as some of the Tsunami-induced changes are irreversible. However, if carefully and successfully planned, the reconstruction provides an opportunity for the ANI tourism industry in the post-Tsunami to become a successful example for other Tsunami hit island destinations of the Indian Ocean.
10. Photo Gallery

Figure 30. Repairing works in a Havelock Island

Figure 31. Road construction in South Andaman Island Resort.

Figure 32. Road construction in Garacharma now

Figure 33. Passengers and Vehicles crossing a Road – filled with mud.

Figure 34. Removal of Soil & Vegetation for new Road construction.

Figure 35. Local community cleaning the Village Pond now filled with seawater.
Figure 36. Village pond with no damage.

Figure 37. Village pond dried and Salt Water mixed.

Figure 38. Salt Crust in Paddy fields in Wandoor

Figure 39. Dead Mangroves in South Andaman Island.

Figure 40. Coastal erosion in New Wandoor.

Figure 41. North & South Cinque Island Sand Bar.
Figure 42. Deep Channel between the Islands in 41

Figure 43. Exposed Corals (4.5 km$^2$): North Reef Figure Upheaval, North Andaman Island.

Figure 44. Exposed Corals (4.5 km$^2$): North Reef, Andaman Island.

Figure 45. Forest Debris in Galathea Biosphere North Reserve, Great Nicobar Island.

Figure 46. 1800 Panorama of Island uplift, West Coast of Interview Island.
Figure 47. Uplift of Little Andaman Island where Reefs are dead covering an area of 5km².

Figure 48. Area near West Bay to South Bay in Little Andaman Island has risen more than 1 metre above Sealevel.

Figure 49. A new beach (about 5km long) has formed near Jackson creek, Little Andaman Island.

Figure 50. Mud Volcano in Baratang, South Andaman Island.

Figure 51. Side vent (Fire) and Fumes from Barren Volcano after the disaster and before eruption in May.

Figure 52. Barren Volcano eruption on the 28th May 2005 – soon after the Pilot Study.
11. References


Front cover figure

Sitapur Beach, Neil Island (Photo: Author, 2004).

Page 56 figures

Figure A – Shows the Lighthouse and the Lighthouse staff quarters at the Indira Point, Great Nicobar Island (pre-Tsunami).

Figure B & C – Show no remains of vegetation cover as the Tsunami waves of 30-35 metres height devastated the area leaving only sand residuals. The seawater entered about 1.5 kilometres into the land area as the Great Nicobar Island was very close to Banda Aceh (Sumatra). The Photographs were taken at 13:57 (IST) on the 28th Dec 2004.

Figure D & E – Show no remains of the quarters near the lighthouse on the 9th Jan 2005. According to GSI (2005) there were 8 aftershocks on the 28th Dec 2004. After Figures B & C, the Great Nicobar Island has slightly tilted south(down)wards (possibly at about 17:00 on 28th Dec 2004) and the Lighthouse staff quarters disappeared from the scene.

Figure F – Shows the leaning Lighthouse on the 9th Jan 2005 (post-Tsunami).

Figures A-F are collected by the Author from various sources in 2004 & 2005.


N° 3 (1995): The Mae Sa-Kog Ma Biosphere Reserve (Thailand), by Benjavann RERKASEM, Kanok RERKASEM.

N° 4 (1995): La Réserve de la Biosphère de Dimonika (Congo), par Jean DIAMOUANGANA.


N° 7 (1995): A Study on the Home garden Ecosystem in the Mekong River Delta and the Hochiminh City (Viet Nam), by Nguyen Thi Ngoc AN.

N° 8 (1995): The Manu Biosphere Reserve (Peru), by Luis YALLICO, Gustavo SUAREZ DE FREITAS.

N° 9 (1995): The Beni Biosphere Reserve (Bolivia), by Carmen MIRANDA L.


N° 12 (1995): Environnement naturel et socio-économique de la forêt classé de la Lama (Bénin), par Marcel A. BAGLO, P. COUBEOU, B. GUEDEGBE, B. SINSIN.

N° 13 (1995): The Calakmul Biosphere Reserve (Mexico), by Eckart BOEGE.


N° 15 (1996): Resource-Use Patterns: The Case of Coconut-Based Agrosystems in the Coastal Zones of Kerala (India) and Alagoas (Brazil), by Vinicius NOBRE LAGES.


N° 17 (1996): Kinabalu Park and the Surrounding Indigenous Communities (Malaysia), by Jamili NAIS.

N° 18 (1997): Puerto Galera (Philippines) : A Lost Biosphere Reserve?, by M. D. FORTES.

N° 19 (1997): The Palawan Biosphere Reserve (Philippines), by Ricardo M. SANDALO, Teodoro BALTAZAR.


N° 21 (1997): Biodiversity Conservation through Ecodevelopment Planning and Implementation Lessons from India, by Shekhar SINGH.

N° 22 (1997): The Tanjung Puting National Park and Biosphere Reserve (Indonesia), by Harry Djoko SUSILO.

N° 23 (1997): Biodiversity Conservation in Mozambique and Brazil, by Maria Teresa RUFAI MENDEZ.

N° 24 (1998): Social Sciences and Environment in Brazil: a state-of-the-art report (Brazil), by Paulo FREIRE VIEIRA.

N° 25 (1998): La implementación de Reservas de Biosfera: La experiencia latinoamericana (Argentina), by Claudio DANIELE, Marcelo ACERBI and Sebastián CARENZO.


N° 27 (1998): Environmentally Sound Agricultural Development in Rural Societies: A Comparative View from Papua New Guinea and South China, by Ryutarou OHTSUKA, Taku ABE and Masahiro UMEZAKI.

N° 28 (1999): Reunión internacional para la Promoción del desarrollo sostenible en los Países Africanos de Lengua oficial Portuguesa (PALOP) mediante la cooperación internacional, por M. T. R. PITÉ, E. MÜLLER.

N° 29 (2000): La reserva de la biosfera Los Tuxtlas (México), por S. GUEVARA SADA, J. LABORDE DOVALI, G. SÁNCHEZ RÍOS.


Nº 34 (2005): Águas da Mata Atlântica - Programa Águas e Florestas da Mata Atlântica por C. FERREIRA LINO e H. DIAS.

Nº 35 (2006): Nuevas perspectivas para el programa MAB y las reservas de biosfera - Lecciones aprendidas en América Latina y el Caribe, por Tilman JAEGER / New prospects for the MAB programme and biosphere reserves - Lessons learned from Latin America and the Caribbean by Tilman JAEGER.