

Island eco-tourism: A case study of Andaman islands, India

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Abstract

A pristine world of silver sands, clear blue seas, coral reefs, swaying palms, tropical forests, volcanic mountains and a gently undulating landscape is what the Andaman and Nicobar islands are all about. The islands comprising of 572 islands/islets, extend over an area of 8,249 km². Located between 6° 45" N and 13° 41" N latitudes and 92° 12" E and 93° 57" E longitudes, the islands offer exciting ecotourism products with natural and cultural settings. The present study dealt with tourism products, what attract tourists to the Andaman and Nicobar islands, preferences and choices among the touristic places and products. The scope of the present research work includes the assessment of positive and negative impacts of ecotourism in the Andaman's as perceived by the domestic and international tourists. It provides suggestions and recommendations on the basis of the analysis of field data on the tourist profiles, tourism products and tourism infrastructure. Furthermore, on the basis of the outcome of this research; the research has suggested to the tourism planners and administrators suitable proposals for the development of ecotourism in the Andaman's. More than 60% of the tourists have informed that they received information about the Andaman and Nicobar islands from their friends and relatives. The age composition of the tourists indicates that 57% of the tourists were in the age group of 31-50 years and 92% of the tourists were highly educated and none of the respondents in the sample was illiterate. The occupational structure of the tourists was found mixed, 70% of the total tourists comprised of technicians, government servants, private sector employees, students and teachers. Occupation wise, money spent by the tourists indicates that the government sector tourists earned a mean monthly income of about Rs. 28,000 and spent an average of Rs.72, 000 on their tour. Further, their sources of funding for the tour came from the leave travel concessions (LTC) schemes. According to the scores given by the visitors, for the natural tourism products, landscapes topped with 93.4% of the visitors, beaches with 90.5% and scenery with 88.9%, reserved forests with 86.8% and limestone caves with 68%. Similarly, the cultural and historical tourism products scored 82.2% for the natural history, historical sites 81.89% and museums 74.7% and heritage sites 72.4%. This clearly indicates that the Andaman has abundant natural beauty with a rich cultural heritage to become an ecotouristic destination.

Keywords: Andaman, islands, India, Nicobar, tourism.

Introduction

Travelling from one place to another for different purposes has been a part and parcel of the human civilization since its beginning. In the ancient period, it might not have been organized the same way as we do now, in the modern world. Wealthy people have always travelled to distant parts of the world, to see great buildings, works of art, learn new languages and experience new cultures and to taste different cuisines. Long ago at the time of the Roman republic, places such as Baiae were popular coastal resorts for the rich. The word tourism was used by 1811 and tourist by 1840 (*William & Theobald, 1998*). In 1936, they defined foreign tourist as "someone travelling abroad for at least 24 h". Its successor, the United Nations, amended this definition in 1945, by including a maximum stay of six months (*William & Theobald, 1998*). The history of ecotourism started in the 1950s. Before that, the concept was not widely recognized or understood. In the history of ecotourism, it existed in a few different forms that primarily try to achieve the same thing that the current ecotourism does. Ecotourism was first introduced in Africa in the 1950's with the legalization of hunting (Miller,

2007). This need for recreational hunting zones led to the creation of protected areas, national parks, and game reserves. In the 1980s, the concept of ecotourism became much more widely known and studied around the world.

Over the years, ecotourism has become more and more popular because people have begun to realize the importance of preserving the environment. More and more people are aware and scared of what might happen when the earth's natural resources run out or run low. With knowledge, people are more curious about exploring natural environment and doing good deeds at the same time.

Tourism is travel for recreational, leisure or business purposes. The world tourism organization (WTO) defines tourists as people who "travel to and stay in places outside their usual environment for more than 24 h and not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited" (WTO, 1995). Tourism has become a popular global leisure activity. In 2007, there were over 903 million international tourist arrivals, with a growth of 6.6%. Also the

international tourist receipts were USD 856 billion in 2007 (WTO, 2008).

due to the large intake of money for businesses with their goods and services and the opportunity for employment

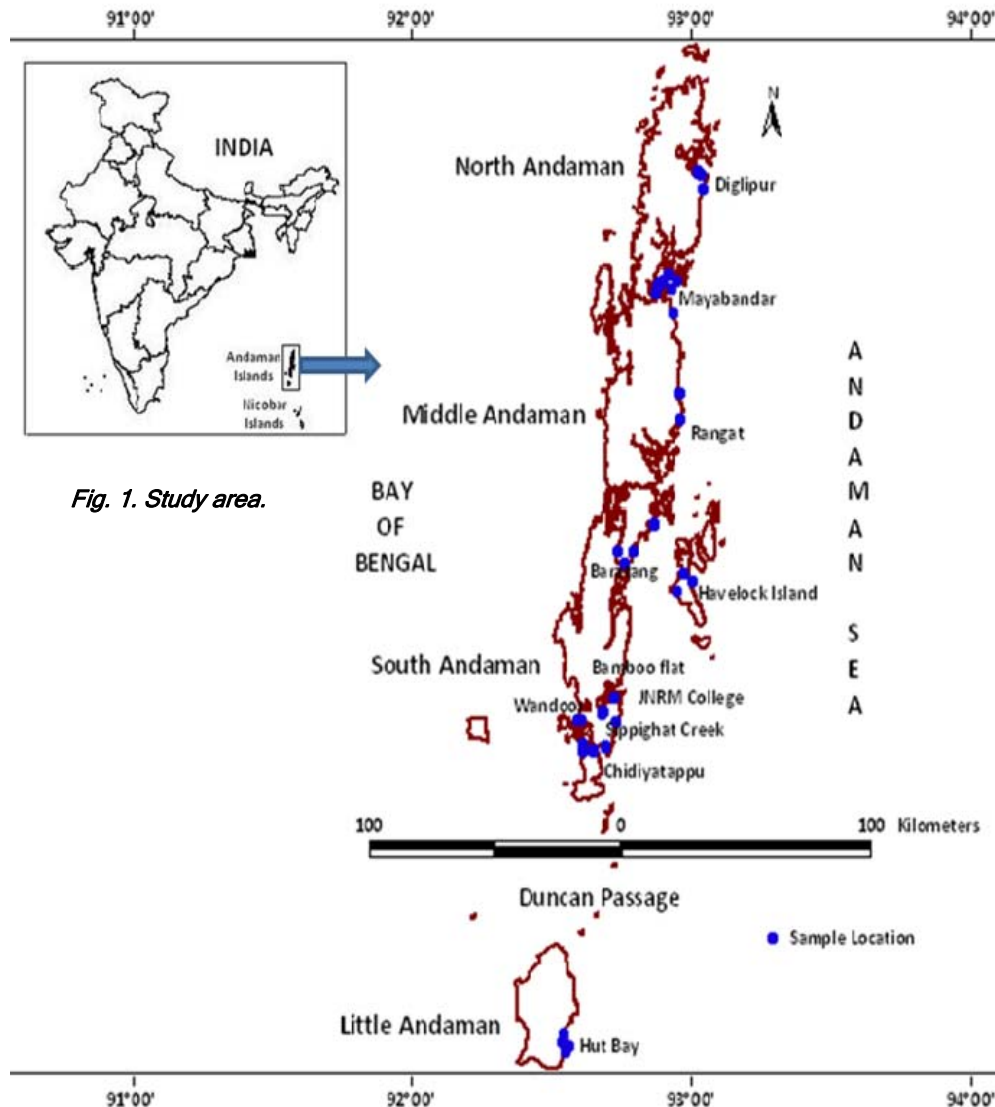


Fig. 1. Study area.

Despite the uncertainties of the global economy, international tourist arrivals during the first 4 months of 2008 followed a similar growth trend than the same period in 2007 (WTO, 2008). However, as a result of the economic crisis of 2008, international travel demand suffered a strong slowdown, beginning in June 2008, with growth in international tourism arrivals worldwide falling to 2% during the boreal summer months, while the growth from January to April 2008 had reached an average of 5.7% compared to its 2007 level. Growth from 2006 to 2007 was only 3.7%, as the total international tourism arrivals from January to August were 641 million tourists, up from 618 million in the same period in 2007 (WTO, 2008).

Tourism is vital for many countries such as the UAE, Egypt, Greece and Thailand and many island nations such as The Bahamas, Fiji, Maldives and the Seychelles,

in the service industries associated with tourism. These service industries include transportation services such as airlines, cruise ships and taxis, hospitality services, such as accommodations, including hotels and resorts, and entertainment venues, such as amusement parks, casinos, shopping malls, various music venues and theatre. The narrowest definition of tourism has been presented by the World tourism organization. According to this definition, tourism is any form of travel that involves a stay of at least one night but less than one year away from home. But, generally, tourism is simply defined as domestic or international travel for leisure and recreation (Roe *et al.*, 1997). Within the huge group of different types of tourist activities, we can distinguish some major segments. Basically, tourism consists of two major parts: mass tourism and alternative tourism (Mieczkowski, 1995). The alternative "branch" may be divided into many other parts like: agro-tourism, wildlife tourism, adventure tourism, nature and ecotourism.

Study area

A pristine world of silver sands, clear blue seas, coral reefs, swaying palms, tropical forests, volcanic mountains and a gently undulating landscape is what the Andaman and Nicobar islands are all about. One of the world's last outposts of virgin rainforest islands, the Andaman and Nicobar islands are in the Bay of Bengal. Remote, the islands are preserved the way they had evolved, still inhabited by tribes and considered the oldest living communities in the world. The Andaman and Nicobar islands comprising of 572 islands/islets, extend over an area of 8,249 km² (Fig. 1).

The main islands in the Andaman groups are Landfall Island, Middle Andaman, South Andaman, Port Blair and Little Andaman. The Nicobar, lying to the south comprises of Car Nicobar, Great Nicobar, Chowra, Teresa, Nancowrie, Katchal and Little Nicobar. The two

groups of islands, the Andaman and the Nicobar are separated by a deep, ten degree channel.

The main aboriginal groups in the Andamans are the Onges, who live on the Little Andaman. They are food gatherers who hunt fish and collect honey. Most of the Great Andamanese are settled today on the Strait Island, north of the South Andaman. The Jarawas, who were originally located on the preserved site of Port Blair now live on the western coasts of the middle and the South Andaman, hummed in by the Andaman trunk road (ATR). The most evasive tribe of all, the sentinelese, lives on the north Sentinel Island west of the South Andaman and all are of Negrito origin. The Nicobarese, the largest group, seem to be of mixed Burmese, Malay, Aron and Shan origin. The Shompen of the Great Nicobar live on the coast and barter in honey, cane and nuts.

In the north Andaman, Diglipur and Mayabunder which come under the study areas of the North Andaman islands, whereas the Rangat, Baratang and the Havelock, Neil Island cover the middle Andaman. Similarly, Port Blair, Sippighat Creek, Carbyns Cove Beach, Chatham islands, Ross Island, Rutland islands and Chidiyatapu areas come under the south Andamans and finally the Hut Bay, in the Little Andaman islands. The Andaman and Nicobars are fringed by one of the most spectacular reefs in the world and currently they are not only significant for the Indian Ocean region, but are also, globally (Kulkarni, 2000; Vousden, 2000; Turner *et al.*, 2001; Andrews & Sankaran, 2002).

From a tourist point of view these islands have immense potential. The clear waters and white sandy beaches make the Andamans a perfect tropical paradise. These islands are separated from one another by narrow straits. The four straits which divide the Great Andamans are the Austen strait, Humphrey's strait, Middle or Andaman strait and Macpherson's strait. On the extreme north away from the North Andamans, lies the Landfall Island; the Labyrinth islands are off the south-west coast of the South Andamans off the east coast of the same island lies the Ritchie's Archipelago also known as the Archipelago islands. The Baratang lies in between to the east of the middle and south Andaman and Rutland Island near the southern end of the south Andamans. At the southern end of the southern group of the Andaman lies, the Little Andaman Island. It is completely flat and separated from the Rutland Island by the Duncan passage in which lies the Cinque Island and a few other tiny islets.

Diglipur and Mayabunder come under the north Andaman group of islands. Diglipur is a small town situated in the north Andaman Island (290 km away from the Port Blair). It is the northern most point of the Andaman chain. 9 km in land from its harbour at Arial Bay is a bazaar. There are small beaches beside the mangrove swamps. A sandy beach, 11 km further one at Kalipur is connected by road and further Lamya Bay beach are easily accessible. The thickly forested, Saddle

peak the highest peak of these islands is 732 m and permission must be obtained from the range offices at the Arial bay. The nearby Austin islands are also worth a visit. Mayabunder which is a small town situated in the North Andaman Island (242 km away from the Port Blair) and the district headquarter for the north and middle Andaman district.

The Rangat and Baratang come under the middle Andaman group of islands. Rangat which is a small town situated in the middle Andaman Island (170 km away from Port Blair). The grand trunk road links Port Blair to the middle Andamans. The Baratang contains the mud volcanoes and the beautiful limestone caves are a major tourist attraction in the islands. The other volcanoes in the area are the Barren islands volcanoes, which are the only active volcanoes and also the known examples of volcanoes in India. These have erupted sporadically, with recent eruptions of 2005 believed to have been associated with the 2004 Indian Ocean earthquake. The previous major eruption recorded was on 18th Feb 2003 and the Narcondum volcano is considered as a dormant volcano.

Port Blair, Chidiyatapu, Wandoor, Rutland and Havelock islands come under the South Andaman group of islands. Port Blair, the capital city of the Andaman and Nicobar islands is the communication link to the Indian mainland. Wandoor is the central part of the south Andamans, which lies in an area of primary forest patches, mangroves, farmland and paddy. The Mahatma Gandhi marine national park (MGMP) is one of the two marine national parks of the Andaman and Nicobar islands (30 km away from the Port Blair city). The park consists of 15 islands, with rich corals and mangroves covering an area of 281.50 km². Chidiyatapu is a small village at the southeastern tip of the south Andamans, some 30 km from Port Blair.

Methodology

The study was based on both primary and secondary data. The data for the study had been collected through questionnaires from major tourist places in Andaman islands namely- Port Blair town, Cellular jail, Carbyns cove, Ross Island, Jolly Bouy, museums, zoo, mount Harriet, Neil island, Havelock island, Baratang and all the resorts on the beach and hills.

Altogether 305 samples were taken, 286 from the mainland Indian travelers and 19 from the foreign nationals from different countries. The data have been collected from the different tourist places but sequential period from April 2008 to June 2008. The secondary data have been collected from the department of forest, tourism department and other wings of Andaman and Nicobar administration have also helped to provide such needed help in the form of photographs, documents and literature. The demographic details have been collected from the census office at Port Blair.

The interviewing process consisted of a direct personal approach to 305 tourists within the study area, the respondents from various parts of India as well as various parts of the world (national & international tourists). Qualitative and quantitative methods were combined to obtain data about the structure of the ecotourism and the tourism attitudes and perceptions. The questionnaires focused on 4 categories of questions: (1). Personal information, (2). Tourism products, (3) Tourism Infrastructure, (4) Tourism planning and development. The response rate was high with very few individuals approached refusing to participate in the survey (Appendix 4.1 for the questionnaire used in the study).

Data collection

The extent of data that had to be collected and the location-based challenges, a range of instruments was used for data collection from different groups. Both qualitative and quantitative data from primary and secondary sources were collected. The choice to use qualitative research methods for a research will be shaped by the dimensions of research questions. For the collection of primary data from the field, along with observations, the questionnaire and personnel interview with the tourists are done. A simple random sampling method (SRS) has been used for the collection of information from the tourists from selected tourist spots by using the questionnaire. The secondary data have been collected from various organizations like the department of tourism, the forest department, department of Statistics and state library of the Andaman and Nicobar islands and census of India, India tourism development corporation and online information through Internet. For the present study, field observation has been used as another important instrument for collection of qualitative data, especially for that on the socio-cultural and environmental impacts of tourism activity. At each field site, we observe tourist behaviour, the interactions of tourists with local people and the impact of such interactions. Further, interviews have been conducted with the tourists for seeking their views on development of the Andamans as an ecotouristic destination, the positive and negative factors existing in the tourism practiced. The statistical analysis was undertaken using procedures from the statistical packages for social sciences, known popularly as the SPSS and described in Brayman and Cramer (1997). This package has been used to develop an in-depth analysis of questionnaire surveys. The frequency distribution, cross tabulations of various indicators, correlation between variables, pie charts and graphs have all been generated using SPSS, to strengthen the analysis and recommendations.

For the purpose of description of sample and respondent related characteristics, a frequency and

percentage analysis has been done for all variables extracted from the questionnaire and put into data set. First a simple frequency of each of the fields with column percentages has been made and then two way tables using certain pairs of variables have been carried out, in order to analyze variations. The analyst begins to explore the data, by measuring the central tendency of the data, and more importantly, the dispersion of the data around this central tendency. Frequency analysis is particularly useful for describing discrete categories of data having multiple choices or Yes/No response formats. This analysis involves constructing a frequency distribution. The frequency distribution is a record of the number of scores that fall within each response category. The frequency distribution, then, has two elements: The categories of response; and The frequency with which respondents are identified with each category. The only technical requirement of the frequency analysis is that the categories of response be mutually exclusive and exhaustive. This means that the same observation cannot be counted as belonging to more than one response category. The frequency analysis must be exhaustive in the sense that all respondents must fit into a category. The tables so generated are numerous, only select tables are therefore included in the text while others are so as to show the variations therein.

Results and discussion

This has spoken of the national and international arrivals in the Andaman and Nicobar islands and the personal details of the tourists, their purpose of visits, frequency of visits, sources of information, their expectations, age composition, educational levels, occupational structure of the tourists, incomes and money spent by the tourists, funding sources for the tours and finally the visitors' satisfaction

about the tour/visit episodes. Apart from this, a detailed analysis of the different tourism products and infrastructure services and the nature of visitor services, hospitality services and the tourism products such as the natural, ecological, cultural and historical were made in order to understand the responses and scores and also the perceptions of the tourists to the islands. Finally, as per the views and suggestions expressed by the tourists,

tourism planning and development was also dealt with in some detail. The nationality of the tourists is predominantly domestic (93.8%) and only 6.2% was of the international arrivals. This may be due to the off season for the foreign tourists when the field data was collected (Table 1).

As regards the purpose of visits, 91.8% of the tourists have come to the Andamans for holidaying only and the remaining (6.6%) have come for employment purposes (Table 2). 90% of

Table 1. Nationality of tourists.

Country	No.	%
India	286	93.80
Australia	05	1.60
U.K	04	1.30
Canada	03	1.00
Finland	02	0.70
The Netherlands	01	0.30
Israel	01	0.30
New Zealand	01	0.30
Switzerland	01	0.30
Italy	01	0.30
Total	305	100

the tourists were the first timers who have never visited the Andamans before (Table 3). Out of the remaining 10% only a few were repeaters for the second and the third time.

Of the samples surveyed, 61% have informed that they received information about the Andamans from their friends and relatives (Table 4). Another 28% of the tourists have received information from books and media. Only 4% of the visitors have shown that they have received the information from the tourism department. It is important therefore that the tourism department and the government must take adequate steps for proper dissemination of information for the benefit of the tourists and tourism development for the Andamans.

As for the expectations of the tourists, 84% of the visitors have said that their expectations were true and found what they expected to get (Table 5). In the age composition of the tourists visiting the Andamans, 57% were in the age group of 31-50 years and the educational level of a majority was of the University level (71%) and another 21% were of the collegiate level (Table 6 & 7). Accordingly, it may be concluded that about 92% of the tourists were highly educated and none of the respondents in the sample was illiterate. The occupational structure of the tourists was found mixed, comprising of technicians, government servants, private sector employees, students and teachers. These groups represented about 70% of the total tourists visiting the islands (Table 8). As for the average incomes and monies spent by different age groups of tourists, it has been noticed that generally the higher monthly income groups spent more money, with an exception of the age group 60 plus years above. The visitors below 20 years of age had shown a very low average monthly income, even though their share of expenditures was relatively high. This was due to the fact that the age groups were generally dependents on the income earning members of the family (Table 9).

Table 2. Purpose of visits of tourists.

Purpose	No.	%
Holiday	280	91.80
Employment	20	6.60
Medical tourism	03	1.00
Business	02	0.70
Total	305	100

Table 3. Frequency of visits of tourists.

Frequency	No.	%
First time	275	90.10
Second time	21	6.90
Islanders	07	2.30
Third time	02	0.70
Total	305	100

Table 4. Information sources of tourists.

Sources	No.	%
Friends	131	43.00
Relatives	56	18.40
Books	50	16.40
Media	34	11.10
Internet	13	4.30
Tourism dept.	12	3.90
Islander	08	2.60
Employment	01	0.30
Total	305	100

Table 5. Meeting expectation of tourists

Expectation	No.	%
True	257	84.30
Real	48	15.70
Total	305	100

Table 6. Age composition of tourists.

Age (Years)	No.	%
Up to 20	33	10.80
21-30	49	16.10
31-40	93	30.50
41-50	80	26.20
51-60	47	15.40
Above 60	03	1.00
Total	305	100

Table 7. Education of the tourists.

Education	No.	%
Elementary	02	0.70
Secondary & Senior secondary	21	6.80
Collegiate	65	21.40
University	227	71.00
Total	305	100

Money spent by tourists belonging to different occupations indicated that the government sector tourists earned a mean monthly income of about Rs.28,000 and spent an average of Rs.72,000 (Table 10). Further, their

sources of funding for the tour were: 32% government and semi-government where the money came from the leave travel concessions (LTC) schemes. The affordability of the government and semi-government employees were due to the LTC facilities extended by the government to visit the Andamans after the Tsunami. Further, 87.5% of the tourists expressed that they were fully satisfied with their visit to the Andamans.

A number of suggestions were put forward by the visitors. Some of the important views regarding the problem with the present Andaman tourism had lack of transportation, accommodation and food and drinking water. As for the positive things about the Andamans and ecotourism potentials, the visitors showed that beautiful landscapes and beaches, good climate and corals and underwater life as potential elements. Replying to the tourism planners' concerns, the tourists suggested that the Government should take full responsibility for tourism development and the planners should carefully develop nature-based tourism. The tourists suggested that all basic facilities of transport, accommodation and food and beverages should be developed through proper government interventions.

Conclusions

The nationality of the tourists is predominantly Indian (93.8%) and only 6.2% was of the international arrivals. This was due to the fact that the interviews were held not in the 'season' for international arrivals. As regards the purposes of visits, 91.8% of the tourists have come to the Andamans for holidaying. Regarding sources of information about the Andaman and Nicobar islands, 61% of the tourists received information from their friends and

Table 8. Occupational structures.

Occupation	Frequency	%
Banking	25	8.2
Business	2	0.7
Defense	6	2
Doctor	6	2
Engineer	24	7.9
Government	51	16.7
Home maker	15	4.9
IT	8	2.6
Medicos	3	1.0
Private	40	13.1
Student	44	14.4
Teacher	29	9.5
Technician	52	17
Total	305	100

Table 9. Income by ages of tourists & money spent.

Age (Years)	Monthly mean income	Money mean spent
Up to 20	4,788	68,083
21-30	18,827	39,828
31-40	30,120	62,692
41-50	26,875	69,162
51-60	29,585	77,848
Above 60	20,333	67,333
Total	24,517	63,725

Table 10. Income by types of education & money spent.

Educational type	Mean monthly income	Average money spent
Liberal	14,079	45,088
Professional	22,545	64,007
Students	1,923	51,000
Technical	37,028	69,761
Total	24,517	63,725

relatives. As regards the expectations of the tourists, 84% of the visitors said that their expectations were fulfilled and they indeed found what they expected to get from the islands. In regard to age composition, 57% of the tourists visiting the Andamans were in the group of 31-50 years. For a majority, their educational level was of the University (71%) and 21% were of the collegiate. Accordingly, 92% of the tourists were highly educated and none of them was illiterate. The occupational structure of the tourists was mixed: 70% of the tourists comprised of technicians, government servants, private sector employees, students and teachers. Occupation wise, money spent by the tourists indicated that the government sector tourists earned a mean monthly income of Rs.28,000 and spent an average of Rs.72,000. Their sources of funding for the tour were: 32% government and semi-government where the money came from the leave travel concessions (LTC) schemes.

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