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Tourism valuation in Andaman and Nicobar Islands of India: A pre & post tsunami analysis

The Andaman & Nicobar Islands of India are the paragon of beauty and present a landscape with scenic and picturesque extravaganza. The tsunami of December, 2004 completely dislocated the life-style of the islanders and the tourism sector suffered a huge blow. Due to untiring efforts of local administration, the tourism sector not only regained its lost ground after four years of tsunami; the islands registered a higher tourism value in terms of more numbers of domestic and foreign tourists as well as number of tourist spots visited in interior areas. Travel cost methodology (TCM) has been used for discussing the tourism value of the islands from domestic tourists' view point before and after December, 2004 tsunami.

Key words: Tsunami, Travel cost method, Domestic & foreign tourists.

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Introduction

The Andaman & Nicobar Islands of India were shrouded in mystery for years together because of their remoteness and inaccessibility. These islands, rightly called as emerald necklace of India, lie along an arc in long and narrow broken chain of about 800 kms in North-South direction covering a geographical area of about 8250 sq. kms in the Bay of Bengal. These islands are a veritable paradise for ecologically-friendly holidaymakers with about 86 % of forest cover, coral reef varieties, unpolluted waters and wealth of marine bio diversity. Sandy beaches of the islands are known for turtle nesting, important species being Leatherback, Olive Ridley and Hawksbill. The dense masses of mangroves lining the shorelines speak about magnanimous heart of the nature while forming these islands.

The archipelago is divided into two groups- the Andaman Islands in the north and the Nicobar Islands in the south. The two are separated by what is called the Ten Degree Channel. It is a misnomer because the channel is 145 kms wide and looks like a sea (Subramanian, 2007). The islands are divided into three administrative districts: South Andaman, North & Middle Andaman and Nicobar with Port Blair as the capital city. The total population of these districts is about 0.35 millions (excluding aborigines) including 0.10 millions population of Port Blair city.

Aborigines

Six aboriginal tribes are living in these islands. In the Andaman group of islands, there are four tribes, namely the Jarawas, the Great Andamanese, the Onges and the Sentinelese. They all belong to Negrito stock. In the Nicobar group of islands live the Nicobarese and the Shompens, who belong to Mongoloid race. Out of above six tribes, the Nicobarese are in the mainstream of the society, employed in the administration and are quite advanced. Other five

tribes are hunter-gatherers. Population wise, the Great Andamanese are less than 40 in numbers whereas Nicobarese are more than 4000. Other tribes' numbers lie between the above two figures. The Sentinelese, who reside in the isolated North Sentinal island, are still hostile to human beings.

Tourism in the islands

Tourism began in Port Blair (the capital city as well as a bustling commercial hub) in the late 1970s with the opening of a hotel called Andaman Beach Resort by the Travel Corporation of India Limited. In the 1980s and 1990s, more hotels came up in Port Blair. For about 20 years, until 2000-01, tourism grew at a slow pace. It was limited to lower & middle class and backpack tourists. It was not high volume tourism (Jadwet, 2007). Till 2000-01; majority of the tourists roamed in and around Port Blair with main tourist attractions being the Cellular jail, Mahatma Gandhi Marine National Park (MGMNP) near Wandoor, Ross Island, Chatham Saw Mill, Corbyn's cove beach, Mini Zoo and various museums in the city. Out of the above tourist places; MGMNP remained the most important spot as this park could provide a single platform for viewing tropical flora and fauna of the islands including marine diversity. It was established in 1983 with a view to protect and conserve the biodiversity of coral reefs, mangroves and other marine ecosystems. Rich marine life in this park consists of variety of coral reefs, colorful fishes like Starfish & Angelfish; Mollusks, Shells, Turtles and Saltwater crocodiles etc. One can also find a variety of birds here like White-bellied Sea eagle, Andaman Teal, Reef Heron, Terns, Parakeets and Swifts. For the period earlier to 2001, if some one says that it would be difficult to locate a tourist coming to these islands and not paying a visit to this Park, then he was cent percent right (Chaudhry and Tewari, 2005). In other words, number of tourists visiting this park during that period would approximately be same as those coming to the islands (Table 1).

Tourism Valuation

Valuation of non-market benefits or intangible benefits i.e. their proper quantification in terms of money has been a challenging task for the environmental economists since long. Tourism recreational aspect of natural resources like that available in A & N Islands has been one of such non-market benefits. Among various proposed methodologies; travel cost method (TCM) and contingent valuation method (CVM) have received special attention among natural resource economists. TCM is usually applied in estimating the on-site recreation (tourism) use value of a natural area, while CVM is used to find economic value of the most of the non-market goods and services (Manoharan, 1996).

Travel Cost Method

It is an indirect valuation method where visitors' travel costs to a "recreational site" are used as proxy for the price of the "recreational activity" and the visitation rate (V_j/P_j) expresses the amount of recreational experience bought. Variation in travel costs and visitation rate can be used to estimate overall tourism recreational value or use value of the recreational site. This approach was originated by Harold Hotelling and the methodology was subsequently developed in the late 1950s and 1960s mainly by Trice and Wood (1958), Clawson (1959) and Clawson and Knetsch (1966). Since then, TCM has been applied for valuing recreation in variety of circumstances.

There are two main variants of the travel cost (T.C) model namely (a) the zonal T.C. model (ZTCM) and (b) the individual T.C. model (ITCM). In ZTCM, the unit of analysis is "zone" whereas in ITCM, the unit of analysis is "individual".

The zonal travel cost model defines a trip demand curve for a recreational site from zone as:

$$V_j/P_j = f(TC_j, X_j) \quad (1)$$

Where,

V_j = the total number of trips by individuals from zone j to the site per unit time

f = the function that relates travel cost and socio-economic characteristics to visitation rates

P_j = population of zone j

TC_j = travel cost from zone j to the recreational site

X_j = socio-economic characteristics of the population of zone j

Pre-tsunami tourism valuation in the islands

Chaudhry and Tewari (2005) used ZTCM in estimating recreational use value of MGMNP during 2001-02 using different states of India as zones in the study. Regression analysis was conducted by fitting equation 1 to the primary data of domestic tourists coming to the islands. This led to creation of “whole experience demand curve” based on visitation rates. The “whole experience demand curve” was used to estimate the actual number of visitors and to visualize as to how the numbers would change according to different hypothetical entrance fees at the recreational site. It was assumed that an entrance fee would be viewed by the visitors in the same way as travel costs to reach the site and that each household had equal taste and preferences. The total area under this demand curve provided the tourism or use benefits of the site to the visitors (US Water Resource Council, 1983).

In total 1597 domestic tourists from 13 states of India were covered in the said ZTCM study. Maximum tourists came from West Bengal and Tamil Nadu states while northern states of Punjab, Haryana and J & K contributed least numbers. The demand curve

generated through regression analysis between visitation rate and Travel costs is presented in Figure 1. This demand curve was used for creating “net recreational demand curve” (Figure 2). The area under this curve presents the annual tourism recreational value of the park which was estimated around Rs.25 millions. Since travel costs incurred by the domestic tourists in visiting MGMNP are the actual travel costs for arriving in A & N islands and the park being most favored or number one tourist spot in the islands; Rs. 25 millions represents mainly the annual tourism recreational value of the islands before tsunami, though this estimate seems to be on conservative side as foreign tourists were not included in the analysis.

Post-tsunami tourism valuation in the islands

Tsunami of Dec 26, 2004, which ravaged 38 islands of the archipelago, including the inhabited islands, was a serious blow to fledgling tourism. More than 3500 persons were reported dead or missing and more than 50,000 people were affected. About 10,000 houses were destroyed and incursion of sea water ruined about 10,000 ha of agricultural land (Subramanian, 2007).

The annual tourist arrival in the islands, which was below the figure of 50,000 in late nineties; started growing continuously in the years just before tsunami and the tourist arrival figure was around 1.10 lakh in 2004 but the tourism sector suffered a serious setback in 2005 due to tsunami and barely 30,000 domestic tourists visited the islands (Table-2).

Due to intensive efforts of A & N administration, a tourist boom is underway in the islands at present with Port Blair as the fulcrum. Prior to tsunami, mainly in the late nineties; hardly ten percent of the tourists used to visit tourist spots outside Port Blair city. Earlier tourists used to visit the islands mainly between Oct. to Feb months, but now they are arriving throughout the year, thanks to the wider publicity and campaigns by the Directorate of Tourism, information

and publicity of the islands. At the same time tourists are arriving in droves at Port Blair and more than two thirds of them are traveling out to the outer places of tourist interest in these islands like Havelock Island for its serene beaches, Baratang Island for Mud volcano and peculiar luminous limestone caves, Diglipur for Saddle peak, Mayabunder for Karmatang beach and Rangat for Curtbert bay beach. Tourist arrival is gradually increasing after tsunami and has touched the annual figure of 1.46 lakh in 2007 (Table-2). Other reason for tourist influx might be that some public sector undertakings like Steel Authority of India have announced policy of air travel between mainland of India and Port Blair for maximum categories of their employees during leave travel concessions (LTC). Otherwise, LTC can be availed of only for travel by train or ship (Subramanian, 2007). Travel costs to these islands from mainland India have remained almost constant after tsunami in comparison to the years 1997-01, in spite of world wide upsurge in fuel charges. Main reason for this miracle seems to be better availability and stiff competition among various airlines operating at present and the concept of apex fares, which was not available before 2002-03. The point to be emphasized here is that the travel costs remaining almost same whereas average number of tourists increasing to almost three times during the calendar years of 2006 and 2007 in comparison to the years 1997-2001 (Table 1&2). Therefore annual tourism recreational value of the islands which was estimated as Rs. 25 millions during 2001-02, might be safely pegged at Rs. 75 millions in the year 2007-08 i.e. three times than that estimated before tsunami.

Discussion and Conclusion

The Andaman and Nicobar islands have a natural, untapped beauty that is simply enchanting. The turquoise blue sea, talc-like beaches and sheer richness of tropical flora & fauna are the necessary ingredients available for a booming tourism industry. The administration has to frame proper policies to develop adequate infrastructure for realizing the

tourism potential. Prior to India's independence, these islands were known as "Kala Pani" (dreaded black waters for torturing freedom fighters of India by the British) but now A & N administration is determined to bridge the geographical gulf between the islands & the mainland India by creating an infrastructure that would attract both middle class & high-end tourists to these islands and at the same time administration is committed to both revenue & employment generation through tourism (L.G, 2007).

There are certain gaps to be filled up urgently by the administration for sustainable development of tourism in these islands. The most important is about overcoming the water scarcity problem, especially during January to May months. In spite of receiving an average annual rainfall of about 3500 mm for more than two hundred rainy days; scarcity of water for the residents and tourists at Port Blair during lean period is a sad situation. Disposal of solid waste of the Port Blair city is another major issue to be sorted out; otherwise water/air pollution is bound to eat up all sort of paradise beauty of the islands.

Village based eco-tourism has tremendous potential in these islands. Raw material for construction of eco-friendly tourist huts in the coconut and areca nut orchards in and around Port Blair is available in plenty. Local people/settlers having farm and orchard lands can be encouraged by local administration for this venture by providing appropriate subsidy for attracting domestic and foreign tourists for staying in eco-friendly huts located in palm groves and to have a feel of sincerity & serenity of village life in the islands. Location of such huts (over private lands) adjoining tropical rain forests would provide a wonderful opportunity to nature lovers for observing rare endemic birds, animals, butterflies etc. of the islands.

Jadwet (2007) has advocated for lesser number of tourists who can pay more and emphasized need for good and high-value resorts. For this kind of strategy to succeed, connectivity to Bangkok, Phuket, Singapore and Kuala Lumpur was also essential and that way the profile of tourists visiting islands could be changed. An example from Phuket city of

Thailand, which is hardly 45 minutes flight distance from Port Blair but still not connected, is worth mentioning. The economy of this island city is wholly dependent on tourism. Tsunami of 2004 caused lot of damage to this city but the beauty of Phuket's beaches, different islands, National Parks etc. was restored very quickly, thanks to the timely and untiring efforts of Thai government and citizens. Phi-Phi Island of this city is one of the most attractive islands in the world. Main reason being minimal use of vehicles and people use bicycles for local traveling. Pollution is almost absent and this helps in maintaining island's beauty (Joshi, 2008). A & N administration and local political parties need to take a clue from this example and at least three to four islands in this region must be maintained as vehicle and pollution free. This will attract better quality tourists who can pay more and local people can be compensated suitably by the administration for this act of providing pollution free atmosphere and attractive beaches to the tourists. Though tourism value of these islands has increased considerably after tsunami, a lot remains to be done to achieve sustainable and progressive tourism in near future.

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Table1. Number of tourists visiting MGMNP, A & N islands during pre tsunami period

| Year | No. of Tourists | |
|------|-----------------|------------|
| | Indians | Foreigners |
| 1997 | 21415 | 2446 |
| 1998 | 23755 | 2033 |
| 1999 | 30862 | 2358 |
| 2000 | 40078 | 2008 |
| 2001 | 48482 | 1780 |

Source: DCF, Wild Life-1, Port Blair

Table2. Number of tourists visiting A & N islands during post tsunami period

| Calendar year | Domestic tourists | Foreign tourists | Total numbers | Remarks |
|--|-------------------|------------------|---------------|--|
| 2003 | 93899 | 4281 | 98180 | Pre- tsunami period |
| 2004 | 105004 | 4578 | 109582 | Pre-tsunami period |
| Deadly tsunami waves hit islands on Dec 26th, 2004 | | | | |
| 2005 | 30225 | 2164 | 32389 | Post-tsunami period showing fall in tourist population |
| 2006 | 118580 | 9045 | 127625 | Post-tsunami period indicating recovery in tourist arrival |
| 2007 | 136015 | 10975 | 146545 | Post-tsunami period indicating fledgling tourism |

Source: Directorate of Information and Publicity, Port Blair

