UNIT 12 ENVIRONMENTAL IMPACTS: ISLANDS AND BEACHES

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12.0 OBJECTIVES

Tourism is picking up as the fastest growing service sector. In India, two most preferred tourist destinations include mountains and beaches. Unplanned tourism however is taking its toll on the socio-cultural and ecological set up of the islands and beaches, much of which goes unnoticed. The objective of this Unit is to familiarise you with the various ramifications of island and beach tourism. After reading this Unit you will be able to understand the:

- forces at work with respect to island and beach tourism,
- nature and intensity of the problem in the development of island and beach tourism, and
- possible remedial measures that may be initiated to overcome these problems.

All these aspects have been discussed keeping in view the islands and beaches of India.

12.1 INTRODUCTION

Islands and beaches have now become important tourist destinations. Earlier these islands were mainly seen as isolated entities with a particular orientation towards plantation crops. With the advent of modern means of transport and communication, the tourists have been able to visit a wider range of places in significantly greater numbers. Two changes in the post-World War period particularly account for this; the global spread of international tourism and the restructuring of insular economies. Since 1950 tourism has seen phenomenal growth around 5% per year. The same has re-oriented the island economies towards tourism development related construction and associated services.

This Unit starts with an introductory note on the beaches and islands of India. After briefly describing their importance as tourist attractions it mentions the tourism impacts on them. Further, it also discusses some remedial measures as regards the negative impacts.

12.2 SPATIAL DISTRIBUTION – ISLANDS AND BEACHES

Unlike islands and beaches in the west, in India, islands and beaches are very much regarded as a part of the mainland. Though India does not have many islands, the only notable ones being the Andaman and Nicobar and Lakshadweep group, it has some very attractive beaches. Let us have a look on the spatial distribution of these.
12.2.1 Beaches

India has over 7500 kms long coastline indented with beaches. More developed beaches, particularly from tourism point of view (like Kovalam in Kerala or the others in Goa) exist along the western coast because of a regular coastline and strong wave action.

The Western coast covers the states of Maharashtra, Gujarat, Goa, Karnataka and Kerala. Out of these, Maharashtra does not have very developed coasts. The Chowpatty and Juhu beaches of Bombay town open spaces and cater mainly to the resident population.

- **Goa** – It has the most comprehensive beach resort in the country. Goa’s coastline provides endless sun drenched crescents of sand. Vagator, Anjuna, Aguada, Baga, Calangute and Candolin stretch out in an unbroken palm fringed Pine. Other Beaches are at Miramar and Colva. Parasailing, yachting, windsurfing and deep sea diving are some of the popular water sports, facilities for which are available. In addition, every sort of accommodation fringes the beaches, from deluxe resorts to budget lodgings.

- **Diu** – A tiny island off the extreme south of the mainland, it is even now a secluded beach resort near a colonial town of great charm, with whitewashed churches and tile roofed villas.

- **Gujarat** – The state of Gujarat is endowed with lovely beaches. One of them is Ahmedpur Mandvi whose chief attraction is the ethnic beach resort. Cottages modelled on rural Gujarati architecture look out onto a secluded beach, one of the state’s chief centres for water sports.

- **Kerala** – Just 16 km. away from Trivandrum is one of the most popular beaches in the country; Kovalam.

India’s long eastern coast bordering the Bay of Bengal presents a charming scene of sun-drenched golden beaches stretching endlessly over hundred of miles in exotic wilderness. It covers the states of Orissa, Andhra Pradesh and Tamil Nadu.

- **Andhra Pradesh** – The coastal fringe of Andhra Pradesh in particular bound by sea and the lush green Eastern Ghats is a beach lover’s paradise. Against the backdrop of low hills, one would find curvaceous shore lines dotted by secluded creeks and cover where the idyllic waterfronts are caressed by dazzling white surf. The fast developing modern port-city of Vishakhapatnam, or Vizag as it is popularly called, offers tourists and travellers a unique opportunity to explore and enjoy rare views of Gopalpur in Orissa. Bheemunipatnam, just 24 kms away from Vishakhapatnam, is a tranquil beach resort with its aquamarine waters and green groves.

- **Orissa** – Puri, about 60 kms away from the capital of Bhubaneswar, is a beach that has been relatively overshadowed by the religious importance of the place. Gopal-on-Sea is a quiet beach resort 95 kms away from Bhubaneswar.

- **Tamilnadu** – The Marina Beach is regarded as one of the longest beaches in the world.

12.2.2 The Islands

The Andaman and Nicobar Islands and the Lakshadweep islands form the two groups of islands. Both enjoy the status of union territories administered directly by the federal government. Except for certain similarities like oceanic location and tropical maritime climate, the two island groups differ in a variety of ways. The Andaman and Nicobar Islands are the elevated portions of submerged submarine mountains, a continuation of the Anakon Yoma of Myanmar. The Lakshadweep on the other hand is coral built on the submerged Aravalli strike and nowhere rise above five meters in attitude. In terms of population density though the Andamans and Nicobar islands have an area of 8249 sq. km. (km$^2$) the population density is 34. On the contrary, Lakshadweep which has an area of only 32 sq. km. (km$^2$) has a comparatively high density of population at 1612. In terms of economy while some agriculture in rice, sugarcane and spaces in carried out in the Andaman and Nicobar Islands, the economy of Lakshadweep is completely dependent on coconut plantation and fishing. Coconut covers around 85% of Lakshadweep’s total area whereas land under crops is less than one per cent. In the Andaman and Nicobar Islands, on the other hand, 80% of the area is under forest. Thus forest based industry such as sawn timbers, commercial plywood and match splints continue to prosper. In Lakshadweep, coir processing and copra making for export are major household industries. Tourism has been picking up in both these islands. Andaman and Nicobar group of islands
are more connected in terms of transport with regular air and sea services between the mainland and the islands. While travelling is restricted in Andaman, the islands are open to tourism with lovely beaches and coral beds forming traveller’s delight. They are more famous however for the Cellular Jail, Marine Park and Elephant Nursery while Lakshadweep group of islands are known more for their coral beaches. Tourism’s major focus here also includes water sports. The long areas of crystal clear water surrounded by coral reef offer ideal grounds from everything from snorkelling to wind surfing.

12.3 WHY ISLANDS AND BEACHES

As far as the choice of islands and beaches as tourist destinations are concerned, we may study them under two sets of factors; general and specific. Among the general factors we may cite:

i) **General relaxation** – Two of the most preferred destinations include mountains and beaches. Proximity also accounts as one of the factors.

ii) **Pilgrimage** – This may not be true for all beaches but is particularly true for Puri and the Lord Jagannath Rath Yatra.

iii) **Love for water and sand** – People fascinated with sand, sunshine and water.

iv) **Naturalists, Botanists and Zoologists** – Students and scientists studying marine ecosystems, endemic species, tropical forests, corals etc. may opt to go to Andaman and Nicobar or Lakshadweep islands.

v) **Watersports** – Like scuba diving, snorkelling, deep sea diving, rafting, water surfing attract many sports enthusiasts to islands and beaches. Other sports like golf etc. attract tourist attention.

There are certain factors however very specific to island destinations. While talking of islands specially, scholars tend to attach certain ‘exclusiveness’ to these destinations. Butler while talking of small islands highlights some universally appealing features like physical separateness, political independence, cultural differences and attractive climate and environment. History, customs, hospitality and a sense of isolation feature regularly in tourist marketing and advertisements. Other ‘fascination factors’ include remoteness, access to abundant water and the influence that water has a geo-physical and the cultural environment, a sense of adventure, a particular way of life often at a slower pace than that of the mainland and a preserved culture and language. All these attributes create what is called an ‘island experience’. However, unlike other small island states (SIS) which are politically independent / autonomous, in India, Andaman and Nicobar or Lakshadweep islands are mainly extensions of the mainland political set up.

**Check Your Progress - 1**

1) Discuss the Peculiarity of the geographical distribution of islands and beaches in India in the space given below.

2) Give reasons for choosing islands and beaches as a tourism destination.
12.4 IMPACT OF TOURISM

Tourism can effect socio-economic milieu of islands and beaches in more than one ways. Before analysing the possible impacts of tourism on Indian islands and beaches let us familiarise ourselves with the broad directions or ramifications of such an impact. Such a study could be conveniently carried out under three heads/categories.

- Physical environment
- Socio-cultural impact
- Economy of the region

Let us briefly touch upon all these areas.

12.4.1 Physical Environment

As far as the physical environment is concerned, though it has generally been argued that existence of tourism provides positive avenues for environmental protection like designation of national parks, restoration of historic buildings, creation of pedestrian precincts, there are many studies which suggest as conflict between the two. Destruction of coastal habitats, conflicting claims over land between tourism and agriculture, endangerment of the marine and aquatic ecosystems, dumping of building wastes and haphazard urbanization are some cases in this regard.

12.4.2 Socio-Cultural Milieu

The host – guest interaction augurs a plethora of problems. Undesirable socio-cultural spill-over include commercialisation of arts and culture, rising level of crimes, erosion of local social values, drugs and gambling etc. ‘Demonstration Effect’ involving the adaptation of foreign lifestyle by the local inhabitants particularly the younger generation is a very common phenomenon. Disillusionment among local residents also results from substantial leakages of income overseas, high levels of expatriate ownership and management. Such alienation often breeds hostility or indifference.

Doxey (1976) has developed an irritation index which traces the local community’s reaction, beginning with a level of euphoria associated with early tourist arrivals through the antagonism when a place becomes saturated with tourists. Lockhart (1994) in his study of Mediterranean islands employed what is known as ‘contact ratio’; a local population / tourist bed-capacity ratio. It is generally recognised that a ratio of less than eight local inhabitants to one tourist at any point of time is undesirable and likely to lead to social and psychological problems for the host community.

12.4.3 Economic Impacts

The role of tourism in resource augmentation of a tourist destination is universally recognised creation of employment, skill training and the multiplier effects of foreign exchange earnings play an important role in the economics of the destination. Tourism has thus emerged as the largest service activity in many islands and beaches. Such an attractive proposition however, is not without some negative accompaniments. Domination by multinational or external companies, low levels of local involvement, expatriate asset ownership and management and high leakage rates of tourist expenditure go against the potential resource accumulation.

The incidence of impact can be greater in the case of island economies which are very vulnerable. Lack of diversification because of resource scarcity, income volatility because of extreme openness and export concentration and an inability to generate self sustained growth because of capital shortage and small market size. According to the World Bank, remote islanders also suffer reduced real income and basic services because of high transport costs associated with dependence on essential imports and scale diseconomies. Unique natural and cultural patrimony constitutes the one enduring insular comparative advantage. However, insular environments are very fragile, characterised by high endemism but weak species diversity, making them vulnerable to external impacts from introduced predators, over harvesting, invasive crowding and natural disasters. Likewise closely interlocking insular terrestrial and marine ecosystems are extremely permeable to all sorts of transport and construction activities. McMurray and Smith point out that the decline of renewable agro-forestry
and fishing pursuits, traditional cultural roots have been weakened by the presence of affluent visitors and lifestyles and the lure of western media.

Mass tropical tourism has also threatened islands’ bio-cultural diversity. According to a 1999 UNEP Report, the majority of global bird distinctions have occurred on islands. Although, over one of six plant species grew on islands, one of three of all known endangered plant species grow on oceanic islands. Even islands containing fresh water resources are threatened by hotel and condominium developments on steep slopes, harming watersheds, causing erosion and lagoon pollution. Reefs are at risk because of run off and sedimentation and discharges of untreated municipal and hotel waste. In Indian ocean, heavily populated areas have been affected by over fishing, reef harvesting for trade in rare species, sand-mining for construction, as well as mangrove destruction, erosion, siltation and coastal pollution through unplanned urbanization. Let us look at some examples. In Comoros, deforestation is proceeding rapidly at the rate of five per cent per annum. The natural vegetation of Mauritius has been virtually eradicated for sugarcane. Mauritius and Seychelles are ranked second and third in terms of endangered native plant species. In some islands over half of the endemic species are threatened.

### 12.5 INCIDENCE AND MECHANISM OF IMPACT

Tourism impacts are difficult to measure. They are pervasive, involving a service of products/services consumed and they include difficult to quantify cultural and ecological externalities. There are no universally accepted comprehensive measures of overall tourism impact. Tourism does not always have negative implications. The negative effects of tourism however result from some factors like quality and profile of the tourists, their expectations and desires, the number of tourists visiting a region, their period of stay, the destination’s carrying capacity vis a vis infrastructural development etc. Most efforts to define carrying capacity in the islands have focussed on qualitative definitions of saturation: infrastructure breakdown, subsistence disruption, congestion reality inflation, rising host hostility, declining cultural values and visitor satisfaction and the replacement of lost natural amenities with man made attractions. Quantitative measures of tourist penetration have focussed either on economic impact (contribution to GDP and employment) or on social impact (visitors per host population) or on environmental pressure (hotel rooms per unit of land area). Scholars are now coming up with new concepts of tourism impact: Socially Optimal Visitor Flew (SOVF) – Input-Output Ratio, Tourism Penetration Index (TPI). These categories and concepts developed particularly in the context of independent small island states may not be replicated exactly in the context of Indian islands and beaches but can provide valuable insights in the coastal area management. Let us now have a look at some of the mechanism of impact. These also account for the pressures generated by tourism.

i) Pollution by waste water, garbage, heating, noise and traffic emersions

ii) Encroachment of buildings, facilities and roads close to show

iii) Beach erosion due to building, dune removal and dredging

iv) Excessive use of natural areas

v) Destruction of natural areas to accommodate tourists and other needs

vi) Inter sectoral competition and conflict over (marine and terrestrial space)

vii) Exclusion of local communities from decision-making

viii) The loss of natural and architectural heritage in the face of rapid expansion

ix) Strain on public utilities and facilities

x) Displacement of local population

xi) Creation of restricted exclusive zones that are off-limits for the local people

xii) Loss of business by local enterprises as all inclusive resorts supplies all the guest requirements

xiii) Recreational activities can also have a significant impact on the coastal zone
a) gold course impact can be considerable, with those situated directly on coastal habitats (specially sand dunes)
b) erosion of reefs and coral from divers and swimmers
c) pollution from boats and jet skis
d) noise from motor boats and jet skis, cars and buses, nigh life and other activities.

12.5.1 General Impacts

Let us now analyse some general impact of tourism and associated activities on islands and beaches. Human interference as we have already seen, manifests itself in so many different ways – industrialization, construction, dredging, solid wastes, urbanization, agriculture and farming etc. An attempt is being made here to study the impact under various heads for the sake of convenience.

- **Tourist Movements** – When the tourists wade out from the beach into the reef flats at low tide, a large portion of the coral and fish life around the boat jetties and hotel beaches are killed. **Trampling** of shallow water corals in the Lakshadweep region is very common. Further in the form of souvenir trade (shells, shell jewellery and ornaments) what happens is a removal of life forms. Many souvenir shops come up on the island close to the point of disembarkation.

- **Dumping of Solid Wastes** – Dumping of wastes is becoming increasingly common in the era of consumerism. Thus plastic cans, bottles, polythynes, eatables, leaflets, coconut wastes are a common sight on many islands and beaches. They continue unhindered despite presence of many regulations. Thus, dumping of religious olyeets, articles in and around Puri region is highly common. This not only pollutes the beach surface but also the surrounding waters. Similarly beer bottles and cans can be easily seen on beaches like Goa. What is more important is that in the absence of a proper waste disposal mechanism, the wastes either keep lying on the beaches or are washed by the waves. Many of the leftovers are non-biogradable and thus take a very long time to decay. They thus not only destroy the scenic beauty but also the physical landscape and marine ecosystems. Likewise dumping of human wastes and defecation are a major problem on many beaches. In Lakshadweep, in the absence of sanitary facilities and public bathrooms, beaches are unhygienic.

- **Fresh Water Problem** – The oceanic islands have no supply of fresh water and the use of salt water causes bacterial breakdown of the sewage. The discharge of wastes causes damage to the marine life. The purification of salt water is a costly process.

- **Oil Seepages and Spills** – Motor boats ferries, and ships used for transportation of tourists and goods discharge oil in the ocean waters. Losses due to transportation, collision, fire explosion, etc. have an adverse effect on fish, coral and mangrove vegetation. Observations have revealed significant concentration of petroleum hydrocarbons in the Indian Ocean. Tanker accidents and associated oil spills in high seas like those of 1974, 1978, 1979, etc. has taken a heavy toll of marine life.

- **Discharge of industrial waste** – The discharge of industrial effluents along with those arising from agricultural and domestic activities cause marine pollution and destroy aquatic life. The marine ecosystem of coral island in the Kutch region is gravely endangered by the siltation due to encroachments by cement factories, fishermen, firewood collectors and others.

- **Infrastructural Development** – Tourism requires building up of resorts, hotels, laying down of transport and communication lines, setting up of golf courses, eating joints etc. Construction activities would then account for a major portion of tourism infrastructure. In 1991, the Ministry of Environment and Forests issued a notification under the Environment Protection Act for regulating the activities in the coastal zone. The coastal stretches which were influenced by tidal action (in the landward side) upto 500 meter from the High Tide Line (HTL) and the land between Low Tide Line (LTL) and the HTL were declared as Coastal Regulation Zone (CRZ). Within the CRZ certain activities like setting up of industries, handling hazardous substance, warehousing, waste disposal etc. were banned. However, in spite of CRZ regulations, such policies continue to be flouted openly as the government regulations on building of structures. Construction activities also involves dredging. The death of benthic organisms a the site of dredging is a natural
corollary. The after effects of dredging is even more severe as it causes stirring up of sand and its transport downstream. This results in death of many filter feeding animals either by clogging of their digestic tracts or by their total burial. The drastic change in the ecosystem and the mass mortality of the corals due to continuous dredging of lagoons and blasting of reef flat has enhanced the sea erosion of the coast and large scale shifting of bottom sand towards the southern half of the atoll. Dredging is done in many atolls in Lakshadweep.

- **Deforestation** – Removal of forest cover to develop beach resorts, hotels, develop fishing forms, laying lines of transport, accommodation facilities and to cater to other direct and indirect requirements of tourists has spelt disaster for the ecosystem of the islands. The removal of the evergreen tropical forests in Andaman and Nicobar islands by the timber industry, clearing of forests and consequent exposure of land to direct sunlight may ultimately lead to depletion of ground water resource. This would also affect the coconut plantations. Coastal mangrove forests also face a similar threat.

- **Water and Adventure Sports** – Scuba diving, deep sea diving, snorkelling etc. if done on a massive scale affect marine ecosystems. Snorkelling is taking toll on the corals of Lakshadweep. Marine life is also affected by high speed cruising tourist boats. Similar is the case with fishing. Over fishing at times upsets sensitive and ecologically fragile ecosystems. Golf courses with rolling turfs, engaging waterways, sandy stretches and trimmed tries are typical cases of ‘deceptive greens’ affecting the local biodiversity. Plans of expansion of golf courses to Goa, Puri-Konark and Andaman and Nicobar regions have been beset with problems.

### 12.5.2 Socio-Cultural Impacts

Less perceptible in material terms though more far reaching impact of tourism is in the cultural field. The tourists especially the foreigners bring along with them their dress code, value systems and lifestyles. The ‘demonstration effect’ takes toll on the local customs and traditions. Spendthrift habits, juvenile delinquencies, crime particularly among the local youth is becoming increasingly common. Also certain things like nudity, alcoholism, casino culture, prostitution and in many cases paedophiliaim prosper on the beaches. This was particularly true of Goa. Beach patrols were introduced at Kovalam to take care of drug menace. “All night parties”, constant roar of scooters and motorbikes have replaced the relative tranquillity of the Goan beaches. The earlier hippies are gone leaving 90’s ‘ravers’ and pill poppers who often stay on a long term basis. Availability of drugs and mugging are common beach incidents. Likewise inflation, ‘siphoning of capital’ by way of economic leakages has gone a long way in breeding alienation of the local inhabitants.

### 12.6 THE WAY OUT

The islands and beach tourism needs proper planning and attention. The importance of such an issue is increasingly being recognised globally. The United Nations Commission on Sustainable Development (1999) perhaps echoes a similar concern *‘the survival of small island developing states is firmly rooted in their human resource and cultural heritage, which are their most significant assets, those assets are under severe stress and all efforts must be taken to ensure the central position of people in the process of sustainable development’*. Some of the possible suggestions could include:

i) In the short run attempts can be made to regulate tourism by way of legislations (like that enacted by Goan government) on physical pollution of beaches. Beach patrols like those on Kovalam could act as possible disincentive to cultural pollution. Similarly tourist educational camps could especially vis-a-vis ecologically sensitive tractions could also help the cause.

ii) The ultimate solution however lies in a **long term planning**. As such an Integrated Coastal Area Management (ICAM) is the need of the hour. Ingredients of such a management plan could be the following:

   a) New tourism development plans should be planned taking into account municipal, industrial, agri/acqua-cultural and nature protection activities to allow for multiple complementary usages.
b) Such plans should act in tandem or work in collaboration with other area development or regional plans or components of national plans.

c) Local culture, traditions should be taken into account and attempts should be made to promote local ownership and management of programmes and projects.

d) Tourist traffic should be based on the carrying capacity of the region. Quality tourism based on social and ecological carrying capacities should be encouraged which are economically sustainable as well.

e) Local Agenda 21 plans should be implemented. This could be done by way of a task force or Sustainable Tourism Working Group. Attempts should also be made to establish transnational partnerships. Netherlands has initiated a new mechanism for such transnational partnerships called ‘Local Agenda 21 Charters’.

f) Such a management plan which incorporates the concerns and interests all possible stakeholders; the local people, the NGO’s, tourist agencies, small and medium enterprises, industry representatives. Lessons learnt in one community should be accessible to others. This would start the ICAM process.

g) Environmental Impact Assessments (EIA) and Environmental Audits could be possible legal mechanisms of such a plan.

h) Above all, awareness generation and tourist sensitisation to the local socio-environmental milieu needs to be undertaken.

Check Your Progress - 2

1) Discuss the general impacts of tourism on islands and beaches.

2) Suggest some remedial measures to offset the impacts of tourism on islands and beaches.

12.7 ANDAMAN AND NICOBAR ISLANDS: A CASE STUDY

The Andaman and Nicobar group of islands present a clear example of how tourism and associated activities have played havoc with the sensitive ecosystems of the region. Island ecosystems are based on inter-dependence of various physical, chemical and biological processes in the life-support systems. Their vulnerability to disruptive influence are greater because of their composite small area. The forested hills controlling drainage, the coastal mangrove tapping nutrients from the surface run off, the coastal coral reefs sheltering the coast as well as the recycling nutrients washed away to the sea, are all interdependent components or processes maintaining high productivity or dynamic stability of such islands. Developments initiatives to promote tourism in the region by way of clearing of forests, construction of roads and infrastructure, extension of cultivation does not augur well. Already lot of forest lands have been lost due to earlier policy of settling people from the mainland India. Attempts to settle the migrant population has resulted in large scale clearing of forests. Later extensive extraction of a few selected species like ‘padauk’ and ‘gurgan’ by the timber industry has led to large-scale deforestation. Attempts to promote monocultural teats plantations has been a failure. Reckless felling of tropical forests is going on without adequate understanding of their ecological
sensitive species endemism and genetic potential. Oil palm plantation has also been undertaken at the
cost of forests. The Great Nicobar Islands has unique animals such as giant coconut robber crab and
crab eating macaque and birds like Nocobar megapod, the Nicobar pigeons. Similarly there are many
plant species endemic to the region. The Little Andaman is the only home of the Negrito Onge tribe
while the Mongolian tribe, Shompens is found only on the great Nocobar Island. Large-scale
modification of these islands has deprived them of their territory and led to socio-cultural alienation.
The construction of roads through Jarwa Reserves is debatable. Development schemes by way of
imposition of agriculture, animal husbandry and teak, coconut or oil palm plantations upon an
unsuitable soil has resulted in further impoverishment of the islands.

![Diagram of Andaman Islands – Tourism Linkages, Type I]

The development of this area would mean destruction of the vegetation not only within the port area
but also in the hinterland. The harbour and other construction works will make inroads into the
surrounding areas for sand and stone, both scarce commodities.

The influx of a large population will need a chain of service facilities. As there is no local supply to
meet the needs of such a port, most things, from food to fuel will have to be imported. Skilled
manpower will also have to come either from the mainland or from the countries of Southeast Asia. The
free port will thus influence the whole Island if not the entire group of Islands.

The Great Nicobar is extremely rich in natural wealth especially in its unique vegetation. Not much of
this will remain once the area is “developed”.

Speculation about the possibility of a free port has already raised land values. The commitment of the
settlers to farming is being further eroded because of rumours of a “Hong Kong type” of development.

CONCLUSIONS

1) The Andaman and Nicobar Islands are endowed with a great deal of natural beauty. The flora and
fauna is of a special type, rich in species diversity with high endemism. The forest ecosystem is
fragile and easily degraded. The land surface is limited.
Figure II: Andaman Islands – Tourism Linkages, Type II

Figure III: Andaman Islands – Tourism Linkages, Type III
2) The Negrito tribals number about 450. The tribes that have been befriended are on the verge of extinction. The tribes that have remained isolated continue to be vigorous. The Nicobarese have fared much better and have increased in numbers.

3) There has been a large influx of mainland people. Their numbers are increasing rapidly. Besides those who are official settlers there are other unofficial or illegal entrants into the Islands.

4) The Islands are deficient in the resources needed to support such a number of immigrants. Most of the day-to-day needs are met by heavy imports, which do not reach most of the Islands in sufficient quantities and at the right time.

5) Travel and electricity are highly subsidised. Settlers are accustomed to large allotments of land and other subsidies. The land is underused and the subsidies are undermining personal initiative.

6) Forestry and forest-based industries are important aspects of the island economy. However, the increased rate of extraction consequent on the phenomenal growth in the installed capacity of the saw mills and plywood factories does not seem sustainable without causing severe damage to the island ecosystems. The Forest Department needs to be supported not merely for timber extraction but more especially in its role as a guardian of the natural riches of the Islands.

7) Agriculture cannot entirely support the population. Paddy cultivation needs to be improved. The hilly terrain given to farmers is in a bad state. The technology developed for hillside multiple cropping has not been taken up by the common farmer.

8) There is a vast potential for the development of inshore and deep sea fishing as well as mariculture. The deep sea fishing is initially capital intensive but coupled with proper processing and marketing facilities could form the mainstay of the island economy.

9) Passenger ships, inter-island vessels and ferry boats are the means of day-to-day movements. These should be increased, modernised and run economically. Inter-island cargo vessels with bulk transport facilities are inadequate and should be increased in number and frequency.

10) Land transport is being improved by the construction of roads and frequency of buses. However, the road through the Jarawa Tribal Reserve and the East-West Road in Great Nicobar are of debatable value.

RECOMMENDATIONS

Long Term

1) The long-term developmental strategy needs a change in emphasis. Land-based planning should take a secondary place in the development of the Islands and exploitation of the resources from the sea should be given greater importance.

   The marine wealth has to be harvested by deep-sea fishing through a well equipped and properly manned fishing fleet. An adequate infrastructure of fishing harbours, freezing, processing and canning facilities has to be created without delay.

   Mariculture also has great potential. The Fisheries Department should adapt recent technologies to local conditions and in collaboration with CMFRI, CIFNET and other expert groups initiate work without delay. Here also facilities on land and in water should be built up.

   Since earlier attempts at deep-sea fishing and mariculture have not been successful, the causes of this failure need to be identified and appropriate remedial measures undertaken.

   There are two groups in the Islands which have exhibited familiarity with the sea – the Nicobarese and Karens. These should be motivated to participate in this development. Any new immigration into the island should be of specialised groups capable of exploiting the sea resources.

2) The land area and the land resources are basic for the survival of the Islands and their inhabitants. The present manner of utilising them is not conducive to prudent use. Given the ecological role and linkages of the forest utmost priority is needed in preserving the forest cover. Therefore: (a) there should be a progressive reduction in timber supplied to industries or to the mainland (including the Railways and Defence). (b) Protection of forests being necessary, adequate staff with required support and means to enforce the law needs to be provided.
3) Forest land should not be converted into revenue land except in very exceptional circumstances. Strict action against new encroachments must be taken.

IMMEDIATE ACTION

1) The present population of the Andaman Group of Islands exceeds the carrying capacity of local resources. Food, clothing, building material, paper and petroleum products come from the mainland and some of these are in very short supply. Fresh water, available only by precipitation, is in short supply during the dry months or during long dry spells during the monsoons. Therefore: (a) there is need to check immigration into the islands by instituting an entry permit for a specified stay even for mainland Indian citizens. (b) Households should be encouraged to store rain water and house architecture must include rain-water collecting and storing facilities. (c) Proper town planning and installation of sewage treatment plants should be part of urban growth especially in Port Blair, Mayabundar, Rungat, Campbell Bay, Malacca, etc.

2) Inter-island communication (VHF or satellite) needs to be improved. So also inter-island shipping, both for the passenger and cargo traffic, needs to be modernised and improved.

3) Agriculture production needs to be encouraged. The know-how for better rice crops, vegetable gardens, hill-side multiple cropping should reach the farmers and be carried out on a larger scale. Farmer education and motivation needs to be improved. Unutilised excess land may have to be resumed by Government and redistributed.

4) Uncontrolled multiplication of low-yielding cattle and of goats is becoming a menace in urban agglomerations. Vegetable crops and tree saplings are being destroyed. The ‘hump sore’ disease is spreading. Proper livestock improvement and control is needed.

5) A land-use survey is being conducted by another group appointed by the Government. The enclosed land-use map is based on information kindly supplied by the Andaman Forest Department. Revenue lands, tribal reserves and forest reserves are indicated in these maps.

6) Reserves set aside for the aboriginal tribes – Jarawa, Sentinelese, Onge and Schompen – should be inviolate whatever be the pressures for land and timber. Attempts at winning over “hostile” groups and in resettling the Orige and Schompens are suspect and must be immediately evaluated by the A.S.I.

7) Tourism of a selective nature, which does not harm the aesthetic and environmental values of the Island should be promoted. Attempts at easy gains through casinos and saunas should be seriously discouraged as they will destroy the Islands and the people. The area from Chiriyatapu to Cinque Islands could be developed for international tourism.

CONSERVATION

i) A greater appreciation of the natural wealth and beauty of the Islands must be inculcated among the young and old.

ii) There are two major areas which should be set aside as biosphere reserves with appropriate legislation in Parliament and the necessary ground staff. Core areas and manipulation zones should be properly demarcated. Scientific studies should be encouraged (Fig. VI).

   a) The area recommended for biosphere reserves are:

   b) The Central portion of the Great Nicobar including the catchment areas of the five perennial rivers as indicated by Dr. N.P. Balakrishnan.

   c) The Marine National Park (1983) in the Labyrinth Islands at Wandoor. Here also core and manipulation zones should be clearly marked. The area should be out of bounds to tourists who should be confined only to Jolly Buoy and Grub Islands. The Fishermen’s Colony should be relocated, while fishing is to be encouraged, poaching of protected sea turtles should be prevented. Support to the wildlife wardens is urgently needed.

iii) Wild Life Sanctuaries as indicated by the Forest Department should also be legalised and protected, especially:
a) The Hornbill Sanctuary,
b) The Indian Goat Sanctuary,
c) The Crocodile Sanctuary, and
d) The Megapode Sanctuary.

iv) National Parks should be set up to preserve smaller areas in the larger Islands, e.g.,
a) The Mt. Harriet National Park in South Andaman,
b) The Cuthbert Bay National Park in Middle Andaman, and
c) The Saddle Peak National Park in North Andaman.

12.8 LET US SUM UP

The foregoing discussion makes it clear that though on the one hand tourism has brought massive revenues, on the other hand it is also endangering the very logic of development in islands and beaches. What is required therefore is not a segmented approach but something like an integrated coastal area management. Islands and beaches are eco-fragile zones. They require a very sensitive handling. Any and all kinds of developmental activities in the name of tourism promotion cannot be accepted for these regions. In fact there has to be a balanced growth in these areas that must necessarily account for the fragility of islands and beaches. Successful tourism in these regions shall have to accommodate developmental activities within the larger parameters of ecological and environmental determinants.

12.9 CLUES TO ANSWERS

Check Your Progress - 1
1) See Sec. 10.2.
2) See Sec. 10.3.

Check Your Progress - 2
1) See Sub-sec. 10.5.1.
2) See Sec. 10.6.