SUSTAINABLE TOURISM DEVELOPMENT:

A STUDY OF KOVALAM BEACH, SOUTHERN INDIA

Chandrasekhar Sreekumar

MBA student

Hotel and Tourism Management Institute Switzerland

ABSTRACT

The word, "conservation" has been heard throughout recent decades. This paper explores the tourism factors related to environmental conservation, in other words "sustainable tourism". Kovalam is a well-known beach destination in India that has a high tourist potential and is the location for the research. The aim of the paper is to investigate the environmental impacts of tourism in Kovalam beach, Southern India, as seen through the perceptions of tourism industry experts including top administrators of the relevant public offices, representatives of relevant non-governmental organizations and the local administrators working at Kovalam beach in various organizations and commercial establishments. The perceptions of these tourism experts are measured using a questionnaire and interviews, from which the data is analysed to formulate an Environmental Impacts Assessment model for Kovalam beach. The findings reveal the most visible physical environmental impacts of tourism and indicate some possible ways to develop sustainable tourism in Kovalam.

INTRODUCTION

The growth and development of the tourism industry as experienced today is a post-world war phenomenon. Mechanisation, urbanisation, the growth of high disposable incomes, high standards of living, demand for leisure and recreation and a quest for knowledge have all contributed to the growth of tourism. By making new and better additions to the stock of tourism products, this dynamic industry has occupied pride of place in the development paradigm of almost all countries. Tourism has emerged as a multi-faceted and multi-dimensional industry, which grew to such extent in the 1970s that the concept of ‘mass tourism' was defined (Swarbrooke and Horner, 1999). Though, in the beginning tourism was considered a ‘smokeless', and hence harmless, industry, mass tourism created dire consequences for society, culture and the environment.
According to World Tourism Organisation statistics, international tourist arrivals worldwide reached 500 million for the first time in 2000 (Birundha, 2000). This major world industry makes a significant contribution to gross national product in many countries and provides much foreign exchange. The World Travel and Tourism Council estimates that travel and tourism accounted for 10.1 percent of global gross domestic product in 2000 (Arockiaraj, 2000). And further, according to Arockiaraj, tourism is an industry with considerable growth potential.

Advocates of tourism, whether mass or alternative, focused their argument on its benefits mainly on the economic front. Since most of the alternative forms are based on nature, environment, culture, tradition, flora and fauna, tourism began to spread from advanced European countries to the third world less developed countries, where untapped tourism resources exist in abundance. Because of its labour intensive nature, less developed nations considered tourism potentially a wholehearted solution for their economic ills. The tourism industry supplies revenue to governments and for some countries is one of the largest items of the world’s foreign trade (Allister, 1982).

Tourism creates jobs for skilled, semi skilled and unskilled personnel by generating direct, indirect and induced employment across the range of tourism activities. When tourists visit destinations, they make use of the facilities and avail themselves of various types of services, for which they make due payment. This results in income to the region. In addition, governments at local, regional and national levels are further benefited through tax payments. Thus, tourism reveals a capacity to generate foreign exchange while promoting regional development.

However, destinations do not necessarily benefit through tourism as there are possibilities for leakages of revenue to outside sources and low local multiplier effects due to the import of goods and services (Brohman, 1996). Thus, the real revenue generated locally may be considerably less than the expected revenue.

Discussions on the social, cultural and environmental impacts of tourism have taken place globally, especially in the context of growing environmental movements and sustainable development. Linking local communities with tourism and promoting participatory tourism development are recognised as effective tools for ensuring sustainability in tourism. Moreover, as most tourism resources fall under public property, it is only through social and political action that the resource base can be protected, thus ensuring sustainability. However, destination communities may also have to embrace the negatives of tourism development, particularly when leakages are high and multiplier effects low (Brohman, 1996). It is in this context that attempts to promote sustainable/responsible tourism have
grown globally. The development of niche tourism products and markets increased the local significance of tourism and micro destinations have gained popularity across the world.

The tourism industry undoubtedly has many negative as well as positive impacts. One of the major negative impacts is its physical impact on the environment, which occurs when the level of the tourists’ use of resources is greater than the ability of the environment to cope up with this use (Cohen, 1979). The physical impacts can include soil erosion, increased pollution (water, air, noise, etc.), discharges into the sea, loss of natural habitats, and the depletion of natural resources and eco systems resulting from increased human traffic, construction activities, infrastructure development, deforestation and unsustainable use of land (ibid).

In India tourism has a very high potential and is a source of revenue for most Indian states. However, the government and the people show little awareness of the physical impacts of tourism. In most of the tourist destinations there is little proper planning for waste disposal or interest in protecting the biological environment.

The primary issue is depletion of local ecosystems due to tourism activity. This is a major threat to the environment because a dense population of tourists may lead to pollution, destruction of natural habitats, problems with waste disposal and depletion of wildlife and marine life. Many tourist lodging operators dispose of their waste materials directly into the sea, which presents a major threat to local ecosystems. Land depletion is another issue in this regard. Among the solutions to counteract these impacts are better destination planning and creating awareness among tourists, tourism operators and the local people.

The policy of sustainable tourism development is now a popular approach which is beginning to be considered by the country. Tourism must become part of the natural, cultural and human environment while not destroying what is there.

The aims of this paper are to identify the physical and ecological environmental impacts of tourism in Kovalam beach, through the perceptions of tourism experts; to develop an Environmental Impact Assessment to rank the environmental impacts identified; and to make recommendations on ways to reduce the physical environmental impacts of tourism on Kovalam beach.

**DESTINATION PROFILE – KOVALAM**

Kovalam beach, a fishing village in the Thiruvananthapuram district of Kerala state of southern India, is an internationally known destination that attracts people from all over the
world. It enjoys a prominent position among the beaches in India. It comprises a series of four crescent shaped beaches with calm and safe waters and a pleasant climate.

The economic activities in the Kovalam area include tourism, agriculture (coconut is the main crop), fishing, construction and granite quarrying. The Zero Waste Kovalam (2001) study reveals that almost 40% of local people are casual labourers engaged in construction and quarrying, almost 25% depend on tourism directly or indirectly for their livelihood, and less than 20% depend on fishing and agriculture. Quarrying activity has emerged with the boom in construction.

The economic potential of tourism led to people making use of much of the available land to construct houses, accommodation and small shopping centres. The majority of tourism activity has targeted commercial establishments and is concentrated along the lighthouse beach. The constructions at Kovalam, as part of tourism development, do not comply with the Coastal Regulation Zone 1991 Act passed by the Government of India (Jacob, 1998). The growth of the tourism industry in Kovalam has changed the land use pattern.

Kovalam has been experiencing irregular tourism demand over recent years (Dileep, 2007) as shown in Table 1. However, since 2002 growth has been dramatic and sustained.

<table>
<thead>
<tr>
<th>Year</th>
<th>Foreign tourists arrivals</th>
<th>Domestic tourists arrivals</th>
<th>Total tourist arrivals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>35122</td>
<td>28111</td>
<td>63233</td>
</tr>
<tr>
<td>1996</td>
<td>37274</td>
<td>37998</td>
<td>75272</td>
</tr>
<tr>
<td>1997</td>
<td>39384</td>
<td>45407</td>
<td>84791</td>
</tr>
<tr>
<td>1998</td>
<td>39564</td>
<td>9562</td>
<td>49126</td>
</tr>
<tr>
<td>1999</td>
<td>49919</td>
<td>11245</td>
<td>61164</td>
</tr>
<tr>
<td>2000</td>
<td>44440</td>
<td>11519</td>
<td>55959</td>
</tr>
<tr>
<td>2001</td>
<td>29700</td>
<td>26953</td>
<td>56653</td>
</tr>
<tr>
<td>2002</td>
<td>30359</td>
<td>37370</td>
<td>67729</td>
</tr>
<tr>
<td>2003</td>
<td>42766</td>
<td>69382</td>
<td>112148</td>
</tr>
<tr>
<td>2004</td>
<td>46074</td>
<td>83735</td>
<td>129809</td>
</tr>
<tr>
<td>2005</td>
<td>56268</td>
<td>79388</td>
<td>135656</td>
</tr>
<tr>
<td>2006</td>
<td>78999</td>
<td>106566</td>
<td>185565</td>
</tr>
</tbody>
</table>

Table 1: Tourist arrivals to Kovalam 1995-2006
A 2006 study conducted by the Kerala Institute of Tourism and Travel Studies (KITTS, 2006) on behalf of the Government of Kerala Department of Tourism identified 506 tourism related establishments at Kovalam. They include accommodation units, handicraft shops, restaurants, wellness centres, hospitals and financial institutions. Beside sun, sand and sea, Kovalam offers different cuisines, ayurvedic treatments, yoga and classical dance for the tourist.

The recent increases in tourist arrivals have put great stresses on Kovalam beach. The beach experiences a daily inflow of approximately 2000 day tourists who join locals in using the beach. As indicated in Table 2, this means that the beach carrying capacity is exceeded by over 40% in terms of both its length and area (KITTS, 2006).

<table>
<thead>
<tr>
<th>Factor</th>
<th>Carrying capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Desired</td>
</tr>
<tr>
<td>Resort density (beds)</td>
<td>2655</td>
</tr>
<tr>
<td>Beach capacity based on beach length (persons/day)</td>
<td>3360</td>
</tr>
<tr>
<td>Beach capacity based on beach area (persons/day)</td>
<td>3677</td>
</tr>
<tr>
<td>Water requirement (MLD)</td>
<td>.350</td>
</tr>
<tr>
<td>Parking area for tourists (Ha)</td>
<td>2.52</td>
</tr>
<tr>
<td>Currently available open space (Ha)</td>
<td>3.90</td>
</tr>
<tr>
<td>Shop space (Ha)</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Table 2: Carrying capacity of Kovalam with respect to tourism development

(Source: KITTS, 2006)

Table 2 details how the actual capacity exceeds the desired carrying capacity in all regards except resort density (the number of beds available). This situation presents challenges and is unsustainable if the current growth trends continue.

LITERATURE REVIEW

Tourism growth

International tourism has been growing with the increase from 55 million tourists in 1970 to over 350 million in 2009 and a faster rate of growth is predicted for the period 2000-2020 (WTO, 1995). The factors of increasing income, more leisure time and the lower fares and deregulation of the airline industry continue to stimulate the growth of tourism industry.
The economic impact of tourism has been enormous and has been documented in research studies and organisational reports, including those produced by the World Tourism Organisation, the Organisation of Economic Cooperation and Development and the Pacific Area Tourist Association. Many studies of tourism cross the boundaries between anthropology, geography, sociology and political science. In addition, many government organisations conduct studies pertaining to the social, environment and cultural impacts of tourism.

**Tourism and the environment**

Tourism and the environment are inter-dependent. The natural and man-made environments provide many attractions to tourists, and the development of tourism creates both positive and negative environmental impacts. According to Sinha (2003), it is important to develop and manage tourism so that it is compatible with the environment, does not degrade it and, indeed, generates positive environmental impacts such as the conservation of important natural areas for wildlife and marine life through, for example, the development of national and regional parks and reserves. Singh and Haigh (1995) argue that these approaches allow significant benefits in countries with limited resources for undertaking environmental conservation and also help to justify and pay for conservation activities. It is also important that the benefits of sustainable tourism are obvious to the tourists so that they continue to visit. Sustainable tourism also helps to increase the awareness of local residents and ensure that they are aware of and protect conservation (Sinha, 2003).

If tourism is not well planned and managed, it can generate several negative impacts such as water pollution, resulting from improper development of sewage and solid waste disposal systems for commercial establishments and lodges; air pollution, resulting from excessive use of internal combustions vehicles and airplanes; noise pollution, resulting from tourists and tourists vehicles; visual pollution, resulting from poorly designed hotels and other facilities; and problems of littering and ecological disruption of natural areas by overuse and misuse by tourists. In addition, there can also be damage to archaeological and historic sites if development proceeds in a haphazard fashion (Airey, 2005).

Concerns for the environment have led to the passage of environmental legislation in some countries. The term environment has been widely defined to include not merely the elements of the natural environment (land, air, water and flora) but to cover social, economic and cultural aspects of people lives (Sinha, 2003). Sinha argues that both the natural and man-made environments constitute the basic resources of tourism.

Pearce (1993) states that there has been a general failure to recognise the different ways in which tourism may develop and to acknowledge that similar development processes may
give rise to widely different impacts in different contexts. This failure has consequently led to a generally inadequate understanding of the various impacts of tourism development and has contributed to both unjustified optimism and unnecessary negativism among many public officials (Pearce, 1993).

According to Pearce (1993), a deteriorating environment and the loss of natural resources represent the main ways in which the present generation is creating intolerable future costs. The use of natural resources for ensuring the material well-being on one hand and for seeking pleasurable experiences on the other, lies at the root of many of the environmental problems generated (Dhulasi, 2003; Arockiaraj, 2000). Therefore, the conservation of natural resources and of the environment are crucial to achieving sustainable development. The importance of combining economic, ecological and environment studies is now increasingly recognised in policy circles worldwide (Tisdell, 1991).

**Sustainable Tourism**

Sustainable development of tourism aims at the continuous maintenance of the outstanding natural features and unique cultural aspects on which the modern tourism industry depends, together with an equitable distribution of socio-economic benefits to the local resident population at the destination (Dhulasi, 2003; Arockiaraj, 2000). The Globe 90 report stressed that sustainable tourism requires the management of tourism resources in such a way that economic, social and aesthetic needs are fulfilled while maintaining traditions and cultural systems (Globe 90, 1990). This implies the need for taking utmost care not to alter the integrity of the resources of the natural environment (Vijayakumar, 1995).

Ideally, sustainable tourism is led by motives like spirit of enquiry, love of beauty, search for knowledge and respect for nature. It aims at quality tourism which creates minimal damage to the natural, social and cultural environments. However, not all forms of tourism can be successful and continue to attract viable numbers of visitors. According to Butler (1990), the principle of product life cycle can be applied to the tourism industry. Butler states that unless specific steps are taken, tourism destination areas and resources will inevitably become overused and unattractive and eventually experience declining use. There have been many worldwide initiatives which have sought to regulate tourism and its impact. The Manila Declaration of the World Tourism Organization in 1980 challenged the industry with a concept of tourism that emphasizes its social, cultural, environmental, economic, educational and political values. In 1992 the UN Agenda 21 recognised the considerable role that tourism can play in bringing about environmental improvement. In 2005 a Tourism Bill of Rights was adopted by Kerala State General Assembly which acknowledges the vital relationship between tourism and the environment.
The Eco-tourism Committee of Kerala was created specifically to find the resources to build up the expertise needed to make tourism a viable tool for conservation and sustainable development in the area. It serves tour operators, conservation professionals, park managers, government officials, lodge owners, consultants and other professionals striving to implement eco-tourism projects throughout Kerala and published eco-tourism guidelines for nature tour operators. (Department of Tourism, at http://www.keralatourism.org/).

From the perspective of tourists, authenticity, love and respect for nature, nostalgia, employment, experience and education are among the driving forces behind eco-tourism (Dhulasi, 2003). The environmental impacts of mass tourism and the way in which it corrupts the local culture, and the manner in which potential economic benefits are filtered away, are the key factors responsible for discontent with mass tourism and the situation against which eco-tourism rebels. According to Dhulasi (2003), the greatest threat to the conservation and sustainability of eco-tourism is the influx of tourists especially when accompanied by local or national incentives for tourist exchange. In an attempt to reduce cost and increase profits many countries neglect the damage caused through deforestation, disruption of wildlife, litter, increased waste problem, congestion and noise pollution as well as cultural disruption.

To counter environmentally destructive mass tourism many countries like Thailand have launched the concepts of eco-tourism. Eco-tourism is environmentally friendly and sustainable tourism, which also benefits the local communities. But in fact, many eco-tourism ventures destroy the very eco-systems they claim to protect. With poor planning, eco-tourism results in environmental degradation (Dhulasi, 2003).

Dhulasi (2003) suggests that the environment will be more effectively protected if tourism is a community effort, managed and run by the community for community benefit. The core issue that surrounds sustainable tourism development is a balanced form of development that allows conservation of the natural environment while also allowing it to be exploited so as to ensure economic growth.

**Environment Impact Assessment (EIA)**

To assess the potential impacts of tourism, Wathern (1988) developed an environment impact assessment method (EIA). The primary function of EIA is to indicate the impacts whose significance cannot be measured in monetary terms (Sinha, 2003). Hence, EIA can be used to measure the ecological impacts of tourism or to assess their impact before the commencement of a tourism project.

Wathern (1998) describes EIA as a tool for identifying the likely consequences of implementing particular activities at a stage in their development when interventions can still be made to change the proposals if the consequences are potentially damaging. The focus
of the EIA assessment tool is on the biological and geophysical environment and human health and welfare. It therefore contributes to decision-making processes when developments are proposed.

EIA has been described by Singh and Haigh (1995) as embodying the preventive or precautionary approach to environmental management. The EIA has wide applicability, particularly in the context of tourism development and although its focus is on biogeophysical impacts, it is argued to be appropriate to encompass potential socio-economic impacts as well.

Dhulasi (2003) has drawn up a check list of the environmental impacts of tourism, which can be used as a basis for assessing environmental impact:

1. Changes in floral and faunal species composition
   a. Disruption of breeding habitats
   b. Killing of animals through hunting
   c. Killing of animals in order to supply goods for the souvenir trade
   d. Inward or outward migration of animals
   e. Destruction of vegetation through the gathering of wood or plants
   f. Change is extent and/or nature of vegetation cover through clearance or planting to accommodate tourism facilities
   g. Creation of a wild life reserve/sanctuary

2. Pollution
   h. Water pollution through discharges of sewage, spillage of petrol/oil
   i. Air pollution from vehicle emissions
   j. Noise pollution from tourist transportation and activities

3. Erosion
   k. Compaction of soils causing increased surface run-off and erosion
   l. Change in risk of occurrence of land slips/slides
   m. Change in risk of avalanche occurrence
   n. Damage to geological features
   o. Damage to river banks

4. Natural resources
p. Depletion of ground and surface water supplies
q. Depletion of fossil fuels to generate energy for tourist activity
r. Change in risk of occurrence of fire

5. Visual Impact
s. Facilities
t. Litter

METHODOLOGY

The method adopted was a mixed method approach, involving a questionnaire and interviews. The data from the questionnaire contributes to the formulation of an Environmental Impacts Assessment (EIA) for Kovalam beach and the interview data contributes to a greater understanding of the impact of various factors on the development of tourism at Kovalam.

A non-probability, convenience sampling technique was used to identify potential participants. This resulted in the identification of a number of key representatives of government offices, tourism offices, non-governmental organizations, academics, and local administrators working in various organizations and commercial establishments. They were all either tourism industry experts or academic experts specialising in research into tourism. All were directly involved in tourism activities in the Kovalam beach area. The advice of the academic experts was sought at an early stage and their guidance accepted in drawing up a questionnaire and interview script for use with the industry experts. The questionnaire sought their perceptions of tourism development in Kovalam. These perceptions are most important, because these are the people who determine what does or does not occur at the destination.

The sample selected comprised:

**Academic experts**

- Reader from Environment Studies Department, University of Kerala
- Head of the Environment-related Consultancy Company to the Government
- Head of Environment Studies Department, University of Kerala
- Principal, Kerala institute of Tourism and Travel Studies
- Principal, Institute of Hotel Management and Tourism, Kovalam
Industry experts

- Director of Tourism Department
- Official in Ministry of Tourism
- Officials from the Water Service Department
- Officials from the Hotel and Restaurants Association in Kovalam
- Officials of the Forest and Animal Protection Department
- Head of Zero Waste Kovalam Project
- Secretary to Travel Agents Association
- Tour operators
- Hotel operators

At the first stage of the research, a preliminary questionnaire was drafted and administered to the academic experts. On the basis of their feedback the questionnaire was revised and the interview script devised for administration to the industry experts.

The tourism industry experts completed a questionnaire reflecting their perceptions of the impact of tourism activity in Kovalam beach on each of the following factors:

- air quality
- sea water quality
- road traffic
- solid waste disposal (including sewage and garbage)
- wild life (including animals and marine life)
- local resources (including land, natural resources, drinking water)
- natural vegetation
- archaeological and historic sites.

For each factor, responses were based on a five point Likert scale with options: 1 - no impact; 2 - minor impact; 3 - moderate impact; 4 - serious impact; 5 - ignorant of issue.

Respondents also had the opportunity to add any additional environmental impact factors not mentioned which they felt to be significant. The interviews supplemented the questionnaire data and gave respondents the opportunity to elaborate on the factors they felt most important. The tourism experts were also interviewed and asked to elaborate on their responses to the questionnaire. Interviews were recorded and subsequently transcribed.
FINDINGS

A total of 17 questionnaires were completed by the tourism industry experts, all of whom were also interviewed.

Figure 1 summarises the results of the questionnaire and indicates the Environmental Impact Assessment for each of the factors.

Figure 1: Environmental Impact Assessment, Kovalam beach
As can be seen in Figure 1, and as would be expected from a knowledgeable group of tourism industry experts, no one was ignorant of the potential impacts of the factors identified.

The eight factors under consideration are placed in rank order in Figure 1. The greatest impacts of tourism development at Kovalam are reported to be solid waste disposal and the effect on sea water quality. These are considered to be of at least moderate impact by all respondents and of serious impact by 93% and 86% respectively. [It is noted that caution is needed in interpreting percentages as the sample size was small]. The majority of respondents (at least 60% in all cases) reported the moderate or serious impact of tourism on local resources and wildlife and arising from road traffic. For only two factors, impact on air quality and archaeological and historic sites, the majority considered tourism to have no impact. These overall findings indicate the need for tourism to grow in Kovalam in a planned, sustainable way.

Waste disposal was identified as one of the two major impact factors resulting from the development of tourism at Kovalam. The interviews substantiated this questionnaire finding. According to one respondent, who is a tour operator, “Even though government authorities have proper waste disposal methods, the majority of the local people and tourists are ignorant on waste disposal methods”. An official from the Tourism Ministry indicated that both the tourists as well as the local people around the beach are responsible for this negative impact. “The tourist uses the beach, throws away plastic bottles, plastic carry bags, batteries cells on the shore. The commercial establishments, as well, dispose their waste on the beach area, there is no proper waste management system in the beach”.

Waste disposal also impacts on other factors, including the quality of the sea water and wildlife, as indicated by these two respondents: “these wastes which are disposed of very near to the beach get washed to the shallow sea during high tide and these particles floats over the sea water surface creating a threat to the marine life by increasing the turbidity of the water” and “the wastes which is being washed away during high tide floats on the sea surface even very far from the sea, and it’s a common sight of these wastes in fisherman’s fishing nets, when they arrive back at the beach after fishing”.

Sea water quality is not only affected by litter left on the beach, but also by the disposal of sewage. According to an Official in Water Service Department “most of the commercial establishments and hotels dispose sewage into the sea water, despite the state tourism board laws prohibiting this”. Another respondent went so far as to say “mass tourism in the beach affects the sea water quality, even the colour changes during the peak tourism season to mud colour. This is because of the waste water disposal in to the sea”.
This disposal of sewage directly into the sea water also affects the marine life and has a very serious impact on sea water quality in Kovalam beach, which is found to contain “many foreign bodies including parasites and animal debris; it may also contain dissolved nutrients, toxic trace elements, air pollutants and synthetic organic pollutants resulting from the mass human activities in the beach”. In turn, over the last ten years, a significant loss in the quantity of fish been captured from this area has been observed. This has serious consequences for the local economy as fishing is the second major occupation of the residents of Kovalam beach.

The small proportion of respondents (13%) who responded that sea water quality is only moderately, rather than seriously, affected argued that Kovalam beach comes under the Zero waste management system, a waste management system promoted by the government and hence sea water quality is under control.

The majority of respondents agreed that there is a serious impact on local resources, mainly because the overuse of water has led to water depletion. Drinking water shortage is a particular problem as few hotels have a well with in their property and hotels utilize a large quantity of water daily.

Wildlife, particularly marine life, is affected by tourism in the area of Kovalam beach. Indeed, one respondent indicated that in his opinion, “this is leading to marine life extinction in the beach area”. According to the Official of the Forestry and Animal Protection Department, the impact is mainly seen in jelly fish, squids and algae. These marine creatures live in the shallow sea water area and are seriously threatened by the waste materials which float over the sea surface and the contamination of the sea water quality. According the Chairman of the Hotel and Restaurants Association, it is a common sight to see dead jelly fish on the shore and it is also becoming “a common scene that some tourists are teasing the marine life, especially crabs, tortoise and jelly fish”.

Road Traffic undoubtedly impacts on the environment of Kovalam beach. One of the main problems mentioned in interviews was the lack of infrastructure development. Vehicles queue up at least 1km away during the peak tourist season, which causes air pollution and trouble for the local people in the beach. According to an official from the Directorate of Tourism “as Kovalam is situated 10 kilometres away from the city, 90% of the tourists arrive on their own vehicles or hired vehicles. Traffic congestion is a common scene. There is no control over these vehicles arriving at the beach. They are allowed to enter very near the beach and also to park near by the shore”.

According to a small number of respondents, land degradation is one of the major issues in Kovalam beach. When the rainy season starts the sea safety wall around the beach gets
damaged and the authorities are not willing to repair it frequently, One of the respondent, a tour operator, suggested that, if the authorities would repair the safety wall after the rainy season, it would prevent subsequent land degradation during the peak tourist season. Because of erosion and damage, land is taken away by the sea each year.

The Principal of Kerala Travel and Tourism Studies Department raised another land degradation issue: “the destruction of the coconut estates is another impact due to tourism, vast areas of coconut estates near the beach are destroyed for construction purpose due to the high demand for space at the beach”. Another respondent indicated that buildings are allowed to be built very near the sea, which impacts on the surrounding vegetation and results in an environment which is largely “visually spoiled. The tourists may not feel that they are in an exotic tourist destination, rather they will feel as if they are in a beach destination which is almost the same as in a city”. A similar point was made by the Head of the Environment Studies Department: “the tourist lodges, which include ordinary category to five star category hotels, restructure the land in order to create private parking areas and landscapes. This affects the balance of the eco-system and affects ground water systems. There is no law governing private establishments to keep away from restructuring of land areas”.

The majority of respondents did not believe that tourism had any impact on the air quality at Kovalam beach. Those who did think there was some impact mainly referred to vehicle exhaust emissions as the main source of air pollution. These vehicles include small cars, motorbikes and heavy tourist buses, all of which park near the beach. One respondent thought it would be helpful if government authorities put legislation in place to ensure a reduction in environmental pollution due to transportation; another suggested making parking lots at a distance away from the beach and arranging a conveyance of Eco–gas bus vehicles to transport tourists to the beach. Implementing such a small charge would both reduce air pollution and make an income for the tourism department.

Air quality is also reduced because some commercial establishments and small cafes burn their waste on the beach. This waste includes paper bags, disposable cups, plates, plastic carry bags, etc. In turn, tourists seeing this debris deposit their waste on these burn sites. Although there is a system in which a cleaning company comes and collects the garbage from all the commercial establishments in the bay, the company charges by the weight of waste generated, hence to reduce this charge burning waste on the beach occurs, especially at night.

The majority of respondents did not see any impact on archaeology due to tourism in Kovalam beach. One tour operator did think there was an impact and quoted the example of
the palace which has got high historic value in Kovalam, but is presently leased to a private hotel group by the government. From his point of view the palace has got high historic value and should be protected, but because of the high demands of tourism it is leased and run as a hotel. Another respondent pointed out that the light house in Kovalam beach is very old and it has been well protected and maintained as a museum because of the tourists visits, thus illustrating that not all impacts are viewed as negative.

The findings of this research indicate that the environmental impacts of tourism are mainly related with waste disposal and resulting pollution. It is notable that the majority of the respondents said, waste disposal is the most serious issue and many argued that all the impacts are linked with the pollution caused by the poor waste disposal methods adopted at the beach. This linkage is illustrated in the following quote:

“when there is waste at the beach, during the high tide the wastes are washed away by sea waves and the beach area gets cleared, at this time the waste collecting contractors arrives at the beach to clean, and this makes their work easy. Soon as they have gone the wastes in the sea water get scattered everywhere on the shore and until the next day will be on the shore. The waste at the beach also attracts crows and stray dogs to feed. These dogs are creating a big threat to the tourists on the shore. Recently the dog catcher has got 23 stray dogs from the beach. This is all caused by the improper waste handling methods”

From the authorities’ point of view, Kovalam is well known for its cleanliness and there are policies in place to cope with waste disposal. The Zero Waste Kovalam (2001) project has been successfully implemented over the beach area, however waste disposal problems still remain. Another aspect of waste is the related of problem disposal of litter, which links to impacts on local wildlife. An environmental specialist indicated that:

“plastics are major threat to wild life. In a beach, especially a mass tourist beach, people come with a lot of plastic items, which can reach the shallow sea during high tide, These plastics, especially polyethylene paper bags, glittering plastic strips used as decorative items in parties and barbeques can all reach the marine life. They feed on these things and die. Later these dead bodies are washed to the shore, which again decomposes at the shore creating bad smell and other animals like dogs, cats, birds comes to the shore to feed. This is a very serious issue. Plastics have to be banned in the beach, Hotels, tea shops, other establishments have to stop using plastic cups and carry bags. The problem is
The local people are not aware of these impacts, A mass campaign also need to be organised to make people aware of these serious impacts.

CONCLUSION

This study indicates that waste disposal is the major impact on the environment as a consequence of tourism in the Kovalam beach area. This, in turn, impacts on other factors such as air quality, sea water quality and marine life.

From the perspective of the tourism industry experts, the sewage facilities are poor, there are no effective garbage treatment facilities and rubbish is just dumped on the sea shore creating disturbance to the tourists as well as environment. Road traffic and construction work also impacts negatively on the physical environment, however most respondents support the investments in infrastructure at the shore as this creates revenue. The findings indicate less concern among respondents about air quality and the preservation of site of archaeological and historic value.

From the data gathered, a number of recommendations can be made to tackle the negative impacts of tourism on the physical environment at Kovalam beach:

1. Install and monitor water supply and sewage treatment plants for hotels and other establishments and enforce the use of proper sewage and waste treatment techniques by law to reduce the release of sewage directly into the sea;

2. Develop adequate road and transportation infrastructure to control parking at or near the beach area to minimise congestion and pollution at the beach;

3. Maximise the use of mass transport in fuel-efficient vehicles and ensure proper maintenance of tourist vehicles to minimise air pollution;

4. Create environmental awareness among tourists about the impacts of their activities on the environment, by using notice boards, ply cards or posters in hotels and restaurants, and consider imposing fines for littering;

5. Increase environmental awareness among local residents and businesses, especially young people, to emphasise the importance of conservation in their area;

6. Maintain the beach area by regular waste collections and the introduction of litter bins;

7. Control the use of natural water by hotels, homes and commercial establishments to minimise waste;

8. Ensure appropriate architectural design and standards for new buildings in the beach area.
The findings of this research could be elaborated upon in further research investigating the scientific aspects of the impacts of tourism in Kovalam beach, especially sea water quality and impacts due to waste disposal. An exploration of the social impacts of tourism was outside the scope of this research, but could be carried out to add to the current findings.

While tourism is an essential revenue generator, attention must also be paid to its consequences. Ideally, tourism, economic development and protection of the environment should go hand in hand and develop a symbiotic relationship (Dhulasi, 2003).

REFERENCES


Jacob, TG. (1998), Tales from Kovalam, Bangalore: Odyssey.


Sinha, PC. (2003), (Editor), Tourism Management, New Delhi: Anmol Publications.


WTO, (2005), Minutes of Meeting held in the Centre William Rappard, 8-9 and 31 March 2005, Submission at WTO, Kenya.