CHAPTER V

FINDINGS, SUGGESTIONS AND CONCLUSION

This study focused on a holistic view for Sustainable Tourism Development in Mahabalipuram by offering valuable inputs based on the results drawn from the analysis. The summary of the major findings of the primary and secondary data are as follows.

5.1 MAJOR FINDINGS

Mahabalipuram is unique in different aspects. It satisfies the tourist’s passion for art and sculpture through its entire region of sculptural marvel. The total tourist arrivals to Mahabalipuram have shown an upward trend from the year 1993 to the year 2011, except the decline due to the natural disastrous Tsunami in 2005 followed by the global economic recession in 2008. However, the number of total tourist arrivals has almost doubled from 5.94 lakhs in 1993 to 10.94 lakhs in 2011.

Mahabalipuram is one of the centrally protected ticketed monuments in Chennai circle. It contributes more than 90 per cent of the tourist entry ticket revenue from all ticketed monuments and constitutes three per cent of the total revenue of all ticketed monuments in India. Revenues collected through Parking Fees in Seashore Temple and Five Rathas for the three consecutive financial years from 2009-2010 to 2011-2012 are Rs 9.27 lakhs, Rs 8.95 lakhs and Rs 7.94 lakhs respectively.

Mamallapuram Special Grade Town Panchayat received an increase in collection of professional tax from tourism service providers (7.56 lakhs in 2009-2010, 8.11 lakhs, 2010- 2011 and 10.14, 2011-12 lakhs) and tender amount for authorizing locals to collect vehicles entry fee from tourist (Rs. 22 lakhs in 2011-2012, Rs. 28 lakhs in 2012-2013).
Road accidents are increasing within the limits of Mahabalipuram Police station as compared to neighbouring station in the ECR. The total numbers of accidents recorded during 2009-2011 are 112, 125 and 117 respectively. These accident cases are reported mostly because of drunken drive behaviour of tourists or head-on collision.

The incidents of child sexual abuse has also raised a potential threat to the honourable tourism at Mahabalipuram. For example, American tourists Alan J Horowitz and Myles Patrick were arrested for sexual offences in Mahabalipuram.

The cost of energy consumption in lodging industry is increasing drastically to meet the requirements of guests in the resorts and hotels. Most of the hotels are still lacking efficient energy management techniques in Mahabalipuram. For example, Radisson Blu, being one of the best hotels in Mahabalipuram, has recorded the highest consumption of electric energy with 3,29,949 Kwh, whereas Beach Resort Complex operated by TTDC consumed 26,835 Kwh. Budget category hotels such as Mamalla Heritage, Hotel Mahabs and Bay Treasure consumed power of 1,59,258 Kwh, 67,698 Kwh and 7,119 Kwh respectively during April to October 2011. However, tourists consumed less electric energy during the peak season between the November-2011 to March-2012 because of winter season and power supply through generators due to 09 hours power cut in a day.

The Centre of Excellence of the Ministry of Environment and Forests identifies that the level of Solid Particle Material (SPM) in Mamallapuram is as high as 386 mg/m$^3$ of air which is much higher than the permissible limits of SPM in the residential and rural areas (200 mg / m$^3$). The ambient noise level in Mamallapuram is about 67 - 75 dB in various locations whereas the permissible ambient noise level in residential and
commercial areas is 55 dB and 65 dB respectively, as per the Chennai Pollution Control Board standards.

Vasudevan et al. (2009) found that the water body located in Mahabalipuram is ecologically dead owing to the Biochemical Oxygen Demand (BOD). The average ranges from 98 to 235 mg/L. These nutrient levels are exceedingly high due to the excessive human activity and untreated drainage from different sources. It results to the hypereutrophic state in the pond. They also estimated that the inflow of waste water into the pond is to be 1.2 lakh litres/day. It also revealed that the pond water is highly polluted with dissolved oxygen (DO) and high ammonia concentrations.

The production of solid waste in Mahabalipuram shows that more than half of the total waste is generated by tourism firms such as beach resort, hotels, guest houses etc. Hotel Mamalla Bhavan produces a maximum of 9240 kg of solid waste per month as against 3360 kg of food waste per month by the Mamalla Beach Resort. Further, Motel Mamalla generates a maximum of 3060 kg of food waste and 2100 kg of other waste per month. Although food waste is converted into biogas and organic waste into vermicompost etc., around 40 to 50 per cent of non-segregated wastes are dumped into the dump yard. It shows lack of Eco-friendly practices in Mahabalipuram by tourism service providers and the residents in it.

5.2 ESTIMATED ECOLOGICAL FOOTPRINTS OF TOURISM

Based on (Sonak, 2004), Ecological Footprint of Mahabalipuram is computed to assess the environmental impact of tourism activity in it. The calculated Ecosystem Impact Factor of Mahabalipuram is 49.5 ha which is the pressure created by the tourism industry in the local ecology. Ecosystem support areas required per thousand Indian rupees earned from tourism activity is 1.87 ha will help policy makers to initiate decision wisely.
5.3 MAJOR FINDINGS FROM TOURIST SURVEY

About 82 per cent of the tourists were interested to revisit the destination Mahabalipuram during their leisure time. Almost 96 per cent of the tourists were fascinated and wish to recommend Mahabalipuram to their friends, relatives, colleagues etc., to visit.

Around 27 per cent of the tourists visited Mahabalipuram were repeated tourists and the remaining 73 per cent were the first-time tourists to the destination. It infers that Mahabalipuram as a UNESCO heritage site and beach resort is well publicized among the tourists and retain its old tourists too.

The Chi-square test showed that there is a significant association between domestic and foreign tourists with regard to their travel behaviours such as purpose of the visit, length of stay, travel arrangement, type of accommodation, choice of food, travel companion, group size, mode of travel, and tour expenditure.

The Wilcoxon Signed rank test revealed that the expectations and satisfactions of the tourists were met with accommodation facilities, quality of food, timings of tourism sites and restaurants, and importance of local culture and tradition. Attributes such as Aesthetic/Scenic Beauty, Clean Beaches & Sea Water, Boat House & its activities, Temple & Monuments, Beach Resort & Swimming Pool, Parking Facilities & Charges and Friendliness of Residents have satisfied tourists very much. It shows a positive mean difference in their expectations and satisfactions. Attributes such as Climatic and Weather Condition, Health Spa, Availability of Transport Vehicles, Conditions of Road and Traffic, Tourist Information Counters, Tourist Guides, Tourist Safety and Security, Adequate Shopping items and Destination Cleanliness have given dissatisfactions as the mean difference of those attributes is negative.
Factor Analysis revealed following key factors.

- ‘Interest towards STD’ factor indicated that tourists gave much importance to environmental friendly practices by becoming conscious about their usage of resources, extending co-operation in moving onto other nearby sites for maintaining the carrying capacity of the crowded destination, preferring to purchase products produced by local people etc..

- ‘Requisite Facilities’ factor revealed that the NGOs and Local Civic Body should promote safe and honourable tourism in Mahabalipuram with the highest factor loading followed by the statement “Medical and first-aid services”.

- ‘Desirable Features of a Destination’ factor explained that Mahabalipuram has a wide variety of hotels and restaurant as it is considered as the most desirable features of a destination.

- ‘Destination Cleanliness’ factor showed that a maximum mean value of 3.74 to the statement “Neat and clean places give a sense of satisfaction for all” and showed a least mean value of 3.01 to the statement “Dustbins are placed at the right places”. These results clearly explained that the numbers of dustbins at the destination are not adequate.

- ‘Parking and Road Traffic’ factor indicated that lack of control on vehicle entry leads to the road traffic and congestion. However, it seems to become a permanent problem in the destination.

- ‘Perceived Impact of Tourism factor’ explained that the major threat of tourism in Mahabalipuram is untreated drainage water entering into the sea causing water pollution.

The results of Independent Sample t Test and One-Way ANOVA showed that there is a significant difference between the perception of tourist with regard to their
tourist types, age and occupation whereas gender, educational qualification and annual income of tourists do not have significant difference on their perception towards STD.

The results of Pearson Correlation showed the relationships among a group of variables within the factors in relation to the perception of tourists towards the promotion of STD in Mahabalipuram and their overall satisfaction at the destination. The test results showed that there is a small and medium positive correlation between the factors.

5.4 MAJOR FINDINGS FROM RESIDENT SURVEY

The results of resident survey revealed that out of 370 respondents, the gender distribution of the male and female respondents is 67.8 per cent and 32.2 per cent respectively. It also revealed that majority of the residents (54%), who have been living in Mahabalipuram, are not the residents of Mahabalipuram by birth.

The results of cross tabulation showed that majority 162 of 251(64.5%) males are doing tourism-based jobs, whereas in females 63 of 119 (52.9%) are involved in non-tourism jobs. This result inferred that more males are engaged in tourism based jobs, whereas more females are engaged in non-tourism jobs.

Majority of residents living in Mahabalipuram are involved in tourism-based jobs, around 22 per cent of the residents having sculpture, art and craft as their primary occupation and about 10 per cent are engaged in fishing activities.

The living standards of residents of Mahabalipuram are improved and majority of residents can improve their basic amenities. However, this study revealed that water table level and its quality has got reduced drastically leading to the maximum dependency on Panchayat water for drinking purposes and making use of bore well water for other purposes by the residents. Indeed, the consumption of water in the Indian cities are lower
than the amount prescribed by the Bureau of Indian Standard (BIS), mainly because of the inadequate supply of water for increasing population and growing needs of people (Abdulshaban & Sharma, 2007). This study also observed that the majority of households in Mahabalipuram showed satisfaction with the supply of water from Panchayat, even though its supply is 2 hrs per day.

One-Way ANOVA results proved that there is a significant difference (0.012<0.05) between the different types of drinking water users and their perception about negative environmental impact of tourism in Mahabalipuram. Post-hoc comparisons using Duncan test specified that there exists two homogeneous sub groups among four categories of water users.

The residents’ perception statements with a set of 50 variables with respect to the tourism impacts, policies and planning, their satisfaction and interest towards STD in Mahabalipuram were condensed into ten factors. The factors are ‘Resident Satisfaction and Interest towards STD’, ‘Negative Socio-Cultural impact’, ‘Positive Economic Impact’, ‘Tourism Policy Plan’, ‘Positive Socio-Cultural Impacts’, ‘Negative Economic Impact’, ‘Negative environmental impacts’, ‘Tourism Plans for Residents’, ‘Tourism plans for tourists’ and ‘Positive Environmental Impact’ as per the sequence of factor loadings.

5.4.1 Percentage Analysis of Residents Perception about Tourism Impacts

The perception of residents with respect to the economic benefits of tourism industry from ‘positive economic impact’ factor showed that more than 40 per cent of the respondents agreed that tourism industry has attracted more investments to Mahabalipuram and provided opportunities for job creation leading to increase in income levels and their expenditure.
Almost all of the respondents have agreed with the economic cost by tourism industry. About 82 per cent of the residents agreed that their cost of living is increased with the increase in the demand of the products and services.

While about 82 per cent of the residents perceived that the tourism development nurtures traditional art and culture, and concurrently raising the number of modern buildings within it. About 72 per cent of the respondents are ascertained that the historical buildings are restored from the allocated funds for its maintenance.

The residents of Mahabalipuram showed a strong agreement that tourism has increased the consumption of alcohol and drug abuse. Further, the respondents agreed that the tourism development has created a great change in their traditional culture (83%), loss of harmony and brotherhood (75%), increased prostitution (75%) and increased number of traffic accidents (71%). About 64 per cent of the residents confirmed that tourism leads to illegal land grabbing and encroachment.

About 71 per cent of the residents agreed that the tourism development has enhanced the physical appearance of the destination. More than half of the surveyed residents recognized that the establishment of leisure places for the local people and improvement in the public services.

About 86 per cent of the residents agreed that the development of tourism has caused crowding of beaches, parks etc. About three-fourth of the residents agreed that the construction of hotels and further extension of tourism facilities have degraded the natural environment and local ecosystem with increasing environmental pollutions.

The results of independent sample T test proved that there is no significant difference in opinion between the residents working in the tourism and its allied sectors,
and working in non-tourism jobs in the following factors such as perceived socio-cultural impacts (both positively and negatively) and positive environmental impact. And there is significant difference between the perceptions of residents working in the tourism-based jobs and non- tourism based jobs with regard to the economic impacts and negative environmental impact. Hence, the null hypothesis can be partially rejected. Since most of the residents are directly or indirectly engaged in the tourism and its allied sector, their perceptions are not much varied.

The results of Pearson Correlation showed that there exists a small and medium positive correlation between the factors. And proved all those factors are dependent to each other. Hence, it is concluded that there is a significant relationship between the tourism impacts perceived by the residents, and their perception towards tourism planning and STD in Mahabalipuram.
Prospects and Challenges for STD in Mahabalipuram with Aspects of Sustainability

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<th>Sustainability Aspects</th>
<th>Prospects</th>
<th>Challenges</th>
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| **Environment**        | - Investment in green energy and recycling techniques  
                        - Recycling of Solid and liquid waste  
                        - Reducing its negative impacts on energy consumption, waste management, pollution, ecological footprints etc., through more research on tourism projects | - Luxury/Highly affordable tourist for pleasure creates more demands on resources such as fresh water and electric energy. They also generate more waste than budget tourists.  
                        - Visual Pollution  
                        - Restoration of water bodies and improving the levels of groundwater and its quality.  
                        - Promoting reduce, reuse, recycling techniques for reducing more waste on water, food, non-biodegradable products etc.,  
                        - Applying eco-friendly practices in resorts, hotels etc. for laundering, cleaning utensils, swimming pool etc., | |
| **Economic**           | - Increasing revenue for the local Panchayat, State and Central Government through tourist entry fee, parking charges, professional taxes etc.,  
                        - Business opportunity in services sector  
                        - Investments in public sector like educational institutes and offers tourism courses to enhance the skills of local people  
                        - Establish adequate Medical facilities such as specialized ambulance services | - Outsiders/Builders dominates ownership of star hotels, resorts etc.  
                        - Increase in economic leakage as the furniture/products in resorts etc., making use of imported items to target their customer’s attention  
                        - High priority towards tourism industry leads to economic vulnerability  
                        - Reduction of agricultural activities in neighbouring villages will inflate the cost of food products | |
| **Socio-Cultural**     | - Renovation of heritage attractions  
                        - Enhance traditional art and architecture with innovative sculptures based on contemporary styles and technological resources.  
                        - Boost Community Participation in tourism activities | - Cultural Change/diffusion  
                        - Diminishing violations in building construction and illegal practices like prostitution & child abuse, child labour in hotels, restaurants and petty shops  
                        - Meeting the demands of electricity  
                        - Road Traffic and Congestion  
                        - Reducing additional pressure on resources from migrated workers  
                        - Curtailing job opportunities to migrant workers by offering formalized education and skills related to travel and tourism industry to the local people. | |
| **Political**          | - Decentralization of power  
                        - Implementing regular monitoring of pollution levels will educate stakeholders to curtail their footprints  
                        - Both Central and State Government allocate fund for further tourism development in Mahabalipuram like Light house tourism, world-class Oceanarium, Maritime Heritage Museum, etc | - Tackling the conspiracy between political personalities and resort/hotel owners  
                        - Dealing with allegation of encroachment  
                        - Implementing eco-friendly practices for reducing marine pollution and environmental degradation |
5.6 SUGGESTIONS & CONCLUSION

Mahabalipuram, being selected as UNESCO’s World Heritage Site, its potential was well exposed to the world with several promotional campaigns. The presence of large categories of accommodation sectors such as star category hotels, economy hotels, budget hotels and guest houses in and around Mahabalipuram satisfies the requirement of various kinds of tourists based on their affordability. Moreover, various kinds of cuisine in the restaurants, hotels, resorts etc., also fulfill the choice and interest of tourists for different types of food. The great support from the residents of Mahabalipuram to the tourism industry makes the visits of tourists memorable and enjoyable at the destination. The tourists’ survey conducted in this study well proved that the tourists are satisfied and the greater part of the tourists visiting Mahabalipuram wish to contribute towards STD. This may be adjudged by their preferences to switch over to nearby alternative tourism spots in order to maintain the carrying capacity of the existing jam-packed tourist destinations. In addition to that their desire to purchase locally produced goods to ensure the benefits of tourism to be enjoyed by a local people will enhance inclusive growth in and around Mahabalipuram.

Residents are well aware of both positive and negative impacts of tourism in Mahabalipuram. They support tourism development with some reasonable attitudes and wish to sustain the tourism destination forever. Hence, this study suggests that not only positive benefits derived from tourism, oblige residents towards tourism plans and conservation practices but also a collective action and co-management of resources between residents, government agencies are essential for sustainable tourism development in Mahabalipuram. Nevertheless, tourism service providers from foreign and domestic companies with profits only as their motto have more power of decision-making process than local people. It has made difficult for tourism industry to achieve its sustainability.
They pay less attention to the environmental protection of the destination and the local people bear the cost of restoring the degraded environment for their livelihood. This should be changed to attain sustainable tourism in a destination by providing equal rights to the local people for making use of the benefits by actively participating in decision-making process of tourism plans.

Tourism, being a labour intensive sector, requires professionalism, human touch and creativity. Therefore, a cultural tourism destination Mahabalipuram should not ignore the performance of human capital. Capacity building should be incorporated in the local educational institutions for continuing education in tourism management, which is not available at present. Moreover, small scale tourism projects by residents of Mahabalipuram should be designed to train themselves for running large scale projects by themselves rather than foreign companies or non-local services providers.

In addition to the tourism business, Mahabalipuram is a renowned destination for sculpture outlets. Hundreds of artisans today carve out images of gods and make decorative artifacts from the local granite. They are upholding the art by making temples and delivering statues for temples within the country and abroad. A considerable amount of foreign tourists’ used to buy sculptures during their visits and it provides good business for the sculptors and architects for last several years. Therefore, a contemporary monuments complex can be created to uphold the traditional art and architecture of our past with innovative sculptures using modern art and technology.

Museum provides an opportunity for social interaction (Schouten, 1995). Tourists visiting the museums, heritage sites and visitor centres, mostly come in small groups with friends, family etc., Silberberg (1995) mentioned that cultural tourism is a vehicle for generating income from museums and heritage sites. However, the Sculpture Museum
located in East Raja Street, well accessible by all modes of transport is left unnoticed. It has an elaborate collection and depiction of Hindu Gods and Goddesses. It also contains about 3000 art sculptures which are historically significant. It obtains very few visitors due to the poor services, insufficient information and lack of basic amenities. Consequently, it requires renovation with careful operation for marketing the heritage significant attractions in museum. However, it may be debated that people, who travel for some other purposes, may not be interested in the museum but would visit if they are aware of the site and if it is comfortable and worthy. This can be achieved through joint marketing and packaging of cultural products along with different types of promotional measures taken by tourism providers.

Due to globalisation and minimization of language barriers in new millennium with expansion of infrastructures, tourism industry has to integrate different types of accommodation providers to develop a tourism management strategy (Warnken et al., 2003). Many beach resorts and star category hotels are coming up in the entire stretch of East Coast Road, including the villages under Mahabalipuram. Consequently, several builders got environmental clearance for the establishment of beach resort and hotels in Mahabalipuram. However, the absence of proper environmental management systems and lack of monitoring assessment by government officials has lead to environmental degradation. Therefore, steps have to be taken for implementing proper monitoring and regulatory practices to conserve natural resources like water, air, soil and marine species from pollution.

In addition to that, records should be maintained regularly with the periodic measurements of pollution levels in and around Mahabalipuram. These statistics can be used to educate people and other stakeholders to act responsibly for curtailing their footprints in the tourism destination for sustaining its resources. As resorts are prone to
coastal erosion, Jennings (2004) argued that resorts at the earlier phase of development can have more sustainable strategies than the resorts at rejuvenation stage of life cycle. So it is also essential to retain their zeal forever by rejuvenating their spirit with the help of subsidized schemes.

The unplanned resort development with insufficient knowledge on coastal environment offered valuable lessons for coastal zone management (Wong, 1998). Therefore, it is the duty of the government and tourism officials to consider high-tide and low-tide line in the entire stretch of the coast before planning for coastal area development projects. Moreover, the land use planning plays the vital role for sustainable development in the destination.

Figure 5.1 illustrate the major zones of concentration in Mahabalipuram. Agricultural lands and water bodies occupy the major portion of undeveloped lands under villages of Mahabalipuram Panchayat. However, Mahabalipuam town is well developed and contains major portions of land for commercial purposes followed by residential areas. Figure 5.1 also illustrates the high tide and low tide line of the Mahabalipuram coast and its proximity to shore temple and other developed areas under the threats of coastal inundation. This shows lack of planning with respect to long-term perspectives in the process of residential construction in the fishermen areas and commercial establishments adjacent to the coast without following the rules of Coastal Regulation Zone (CRZ). Various existing regulatory bodies like Mamallapuram Special Grade Town Panchayat, Mamallapuram New Town Development Authority and Dept. of Archaeology in Mahabalipuram have streamlined the tourism activities for promoting sustainable tourism in Mahabalipuram.
Figure 5.1: Land Use Map of Mahabalipuram

Source: Ravi Shankar (2005)
Due to the highly varying shoreline changes, the coastal region of Mahabalipuram is more prone to coastal hazards and coastal flooding. Saxena et al (2010) found that the inundation line varied from a minimum of 177 m to a maximum of 817 m and the maximum inundation line for the coastline of Mahabalipuram falls within the bounds of the existing Shore Temple (Figure 5.2). Moreover, it identified that the region north of Shore Temple is more vulnerable than the south due to the variation in the topographic contours (Saxena et al., 2010).

Based on these results, it is important to correlate physical vulnerabilities to social vulnerabilities in these areas, because of the increased potential for coastal erosion and its tremendous livelihood challenges on the other. Therefore, more research works have to be conducted to identify measures for tackling coastal inundation and to sustain the heritage monuments from natural hazard.

This study also identified that most of the hotels, resorts, guesthouses; lodges, restaurant etc, don't have proper energy efficient technologies and environmental management system in it. Consequently they are overexploiting the resources like water, power etc, and producing more waste per day. Though, Mahabalipuram Panchayat is recycling their solid waste into biogas, vermi composting etc, nearly half of the non-segregated waste are being dumped into the dumping yard. Therefore, all stakeholders should be educated to follow the core principles such as reduce, reuse and recycle methods to curtail their production of solid and liquid waste. Moreover, conservation tax can be levied from tourism service providers like owners of resort, hotels, guest houses etc based on their levels of pollution caused by lack of environmental management practices including damages to marine species.
Figure 5.2: Composite Hazard Line for next 100 years return interval

Source: Saxena et al. (2010)
The tourism destination can be sustainable only if it receives tourists uninterrupted. It requires good and amicable environment to ensure the steady inflow of tourist arrivals. In addition, tourists should feel safe, secure and comfortable in the destination. Consequently, the image of the destination can be upheld by renovating the existing Sculpture Museum and facilitating tourism projects to get implemented. Mahabalipuram can be promoted as a destination for the entertainment of whole family by changing the disgraceful image of Mahabalipuram as a weekend destination for couples and youngsters to enjoy with liquor.

Further, steps can be taken by local institutions and residents of Mahabalipuram for mandating regulatory actions to curtail illegal practices like prostitution in resort, lodges, guesthouses etc., in order to promote safe and honourable tourism in Mahabalipuram. It has been noticed that many accidental deaths occurs in Mahabalipuram beach besides the Warning Notice for swimming and surfing. Unorganised boating in sea with fishermen without life jackets needs to be regulated with the instructions and punishments. Therefore, action has to be taken for regulating these activities for eliminating the number of deaths in sea.

Due to the lack of manpower, the monumental areas other than Five Rathas and Seashore Temple are not cleanly maintained as some tourists are not putting their wastes in dustbins and make the destination untidy for other tourists visiting the monuments on the same day. This may create a bad image among tourists with regard to cleanliness of destination. Thus, the destination requires more number of catchy “Use Me Dustbins” at the vantage points to make the destination clean without dropping waster papers, ice cream cups etc., by the tourists. Beggars, unorganized sellers like petty shop owner, key chain sellers etc., pester the tourists particularly foreign tourists for getting money and selling their products forcefully. This creates inconvenience for the tourists. Mitigating
these activities in tourism spot will enhance the satisfaction of the tourists in the destination.

Moreover, for visiting some of the monuments in Mahishamardhini cave, Old Light House or Olakkanatha Temple etc., the pathways leading to it are more difficult for the old and physically challenged people. So building ramps in these areas will provide easy accessible to move around the monuments easily. These are the issues to be addressed for providing safe and comfortable visits for the tourists in Mahabalipuram.

The destination Mahabalipuram receives the maximum number of tourists during the months of December and January. Indian Dance Festival at Mahabalipuram attracts large number of tourists into the destination during the same period. Additional number of tourist buses needs to be operated during peak seasons to facilitate the tourists to make use of public transport rather than personal car for curtailing their travel footprints. In addition to that, adequate quantity of battery operated vehicles or eco-friendly vehicles need to be operated in from the entrance of Mahabalipuram to Monument Zone. This is one of the main reasons for the tourist preferences to make use of their personal car or bike rather than public mode of transport. Increase in number of tourist vehicles might enhance the entry fee and parking charges, but it will induce more carbon emissions and increase road traffic and number of accidents.

Warnken et al (2003) stated that tourism management strategy includes marketing, services, efficient management practices and most importantly renovation. These practices cannot be achieved without the intervention of government through legislative Acts and its effective implementation process for maintaining its sustainability with the active participation of local people. However, the interest of former tourists’ may not be the same to the present and future tourists’. The enhancement of more categories of
accommodation in and around Mahabalipuram substantiates the changing behaviour of the tourists’ at the tourism destination. Therefore the existing monuments should be well preserved to portray the significant heritage architecture of our past and at the same time modern sculptures should be fostered by the side of our contribution to create historical destination for the generations ahead. This may provide a chance for sustaining the heritage significant sites with contemporary sculptures depicting the glory of our ancient art.
Figure 5.3: Sustainable Tourism Development Model for Mahabalipuram

Tourism Businesses should go hand in hand with primary or traditional occupations
Ensure tourists satisfaction
Make use of local resources and products developed in local areas rather than imported items
Provide more tourist buses to facilitate tourist to transform themselves from public mode of transport rather than personal car or two wheelers

Decentralize power; implement strict rules and regulations to curtail illegal practices
Implement conservation tax based on the pollution levels of tourism service providers
Encourage more research to identify optimal benefits for long term with periodic assessment of tourism impacts including coastal areas

Maintain carrying capacity by transferring the tourist in a particular spot to other destination during peak season
Promote environmental education campaigns among all stakeholders of tourism industry for eco-friendly practices
Tourism providers as corporate social responsibility can make use of recycling and energy efficient technology
Mandate environmental auditing

Ensure equal benefits to local people by increasing the levels of local ownership and control
Conduct Capacity building programme to enhance local people knowledge and skills in tourism
Conserve heritage sites in line with the introduction of new monuments zone with modern art to satisfy interest of future tourists

Sustainable Tourism Development in Mahabalipuram
5.7 SCOPE FOR FURTHER RESEARCH

This research attempts to provide an integrated approach for sustainable tourism in Mahabalipuram. Though it is considered as a cultural heritage attraction, it has several interlinking behaviours with special reference to beach and resort tourism. This research will definitely provide a foundation for new dimensions of further research by giving an exposure to continue in environmental management system of tourism industry with respect to coastal areas for sustainable development. This research also attempts to study the perceptions of major stakeholders such as tourists and residents for sustainable tourism development in the destination by analyzing their perceptions about tourism in Mahabalipuram. However, the future research requires an in-depth study on the Eco-labels Standards for the tourism service providers like hotels, resorts, lodges etc., to evaluate their eco-friendly practices followed by ranking their responsible practices towards ecology and environment. Consequently, these rankings will help tourists choose eco-friendly accommodation to reduce their ecological footprints at the tourism destination. With the aid of these practices, the mission for sustainable tourism with the actions and approaches of destination managers for facilitating STD in Mahabalipuram will be realised in the larger interests of tourists and local residents.

5.8 OBJECTIVES REVISITED

Objective 1: To study the trend of tourist arrivals and travel behaviour in Mahabalipuram. It has been dealt in section 3.16 of Chapter III, section 4.1.2 in Part I of Chapter IV and 4.2.4 in Part II of Chapter IV.

Objective 2: To measure the gap between the tourist expectations and satisfactions in Mahabalipuram. It has been dealt in Part II of chapter IV under sections 4.2.5 and 4.2.6 from page 142 to 157.
Objective 3: To examine the perceptions of tourists toward STD in the destination. It has been dealt in sections 4.2.7 to 4.2.9 from page 158 to 171.

Objective 4: To assess the residents’ perception of tourism impacts, and their relationship towards tourism planning and for the promotion of STD in the destination. It has been dealt in Part III of the chapter IV from page 174 to 215.

Objective 5: To identify the prospects and Challenges for STD in Mahabalipuram. It has been dealt in sections 4.4.2 to 4.4.3 form page 217 to 227. Based on the above results, a conceptual model has been designed and presented.