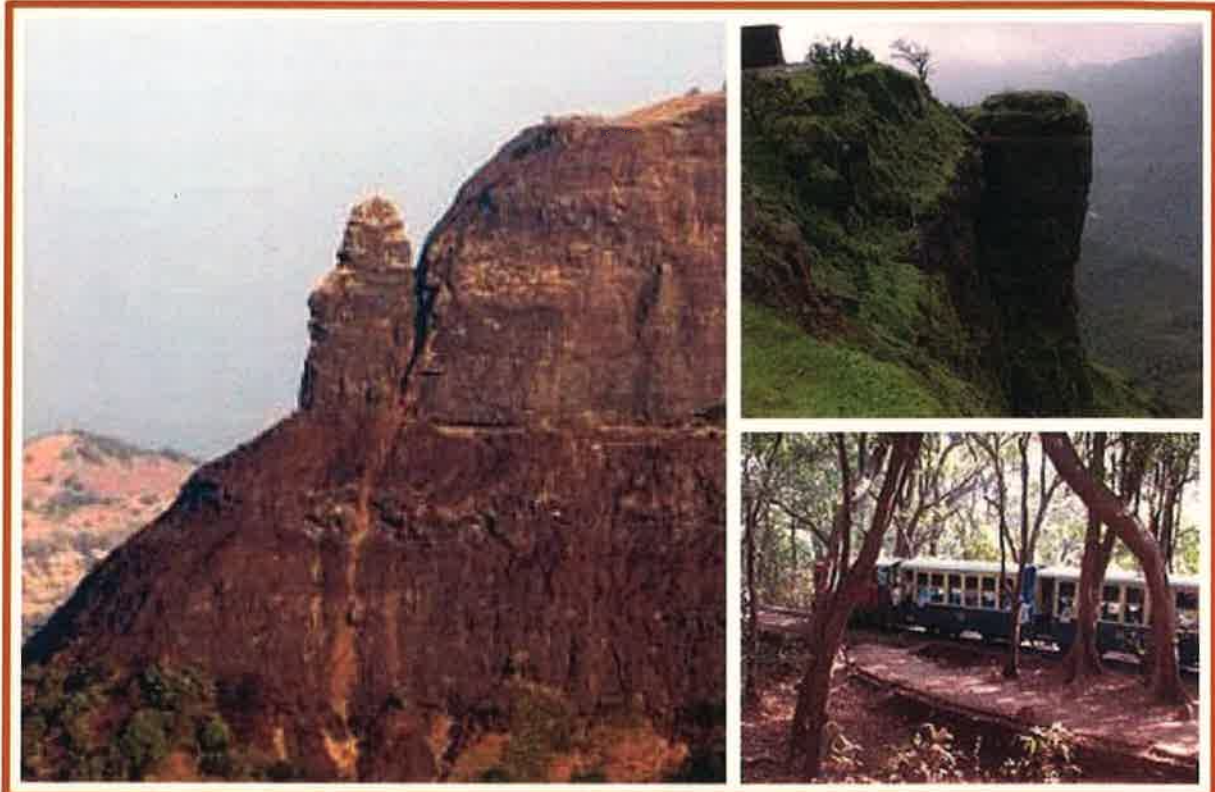




MAHARASHTRA TOURISM DEVELOPMENT CORPORATION



Tourism Master Plan for Matheran Eco-Sensitive Zone (MESZ)
(Part of Zonal Master Plan for MESZ)

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- L Base Map
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LIST OF ABBREVIATION

- Carrying Capacity Assessment (CCA)
- District Planning Development Committee (DPDC)
- District Forest Officer (DFO)
- Ecologically Fragile Areas (EFAs).
- Eco Development Committees (EDCs)
- Environmental Status report (ESR)
- Environmental Impact Assessment (**EIA**)
- Environment (Protection) Act (EPA),
- Environment (Protection) Rules (EPR),
- Ecologically Sensitive Areas (ESAs)



- Forest Conservation Act (FCA)
- Forest Alike Area (FAA)
- Government of Maharashtra (GoM)
- Government of India (GOI)
- Geographical Information System (GIS)
- High level Monitoring committee for MESZ (HLMC)
- Hill Areas Development Programme (HADP)
- Highest Flood Level. (HFL)
- Integrated Coastal Area Management (ICAM)
- Matheran Panchgani Eco Sensitive Zone (MESZ)
- Maharashtra Jeevan Pradhikaran (MJP)
- Major District Road (MDR)
- Maharashtra State Road Transport Corporation (MSRTC)
- Matheran Nagar Parishad (MNP)
- Maharashtra Tourism Development Corporation (MTDC)
- **Maharashtra Pollution Control Board (MPCB)**
- Municipal Solid Waste (MSW)
- Ministry of Environment & Forest (MoEF)
- Maharashtra Regional and Town Planning (MRTP)
- Ministry of Tourism (MOT)
- Model Ecologically Sustainable Community Tourism Project (MESOCOT)
- No Development Zone (NDZ)
- Non-Governmental Organization (NGO)
- Non Timber Forest Products (NTFP)
- National Tourism Policy (NTP)
- Priority Actions Programme Regional Activity Centre (PAP/RAC)
- Panchgani Nagar Parishad (PNP)
- Sewage Treatment Plant (STP)
- Strengths, Weaknesses, Opportunities, Threats (SWOT)
- United Nations Educational, Scientific and Cultural Organization (UNESCO)



- Urban Local Body (ULB)
- United Nations Environment Programme(UNEP)
- UN Conference on Environment and Development (UNCED)
- United Nations World Tourism Organisation (UNWTO)
- Urban Development Plans Formulation & Implementation Guidelines (UDPFI)
- Vatican Information Service (VIC)
- Village Eco-Development (VED)
- Western Ghats Eco Development Sub-plan (WGEDP)
- Western Ghats Ecology Expert Panel (WGEEP)
- Western Ghats Ecology Authority (WGEA)
- Western Ghats Development Programme (WGDP)
- World Tourism Organisation (WTO)
- Water Treatment Plant (WTP)
- Zonal Master Plan (ZMP)



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EXECUTIVE SUMMARY

Matheran is one of the most important Hill Stations of Western Ghats in Maharashtra. Matheran has a special place due to its Proximity to Mumbai. It is a part of the Mumbai Metropolitan Region under Special Planning authority Mumbai Metropolitan Region Development Authority.

Matheran was a very popular summer getaway hill station of the British Presidency after it was discovered and popularized by Mr. Hugh Pointz Malet, Collector of Thane in the year 1850.

Matheran is connected by railway from Neral Railway Station to Matheran by a narrow-gauge train service. This railway journey of 20 kms is unique Experience.

Matheran is a unique hill station being one of the rare examples where there is no vehicular traffic, Noise pollution and No beggars within the main point of interest. The nearest vehicle entry is 2.5 km away from Matheran town. Horse rides, man pulled rickshaw and pedestrian walks are the only mode of travel.

Matheran once had immense forest cover bio-diversity in Flora and Fauna and was a place for a serene atmosphere with peace and tranquility.

However the rapid urbanization of Mumbai, Thane, Navi Mumbai which are almost abutting Matheran has sudden spurt of tourist in flux in Matheran the rise in economic levels due to the I.T. Industry and overall economic upliftment, the tourism increased in leaps and bounds.

The annual tourist flow which was steady up to year 2000 AD to a levels of less than 200,000 , rose to about 6, 00,000 in a span of about 12 years.

The tourist volume indicates a maximum member of tourist to about 8000-10000, on peak festive days like year end, Christmas, Diwali or during peak season week ends.

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Where an average daily tourists flow is in the range of 3000-4000. The population of Matheran was 5139 as per 2001 census and about 4388 in 2011. Growth is negative.

This has stressed the environment greatly affecting the tourism experience. The infrastructure facilities, particularly water supply poses a serious concern.

In 2003 the Ministry of environment and forests (MOEF) declared Matheran and its surrounding region of about 214.73 sqkms and Eco-sensitive zone. This notification has imposed restrictions on new constructions, mining, cutting of trees, forest management and overall rejection on development and any activity in region which would damage the sensitive bio-diversity of the region.

The MOEF notification also imposed on the state Govt. to prepare a Tourism Master Plan for the Eco-sensitive zone of Matheran, which would require approval of MOEF. This plan is to be based on the "Tourism Carrying Capacity of Matheran" (TCC). The plan is expected to be sustainable and Eco-sensitive to the region.

Accordingly Maharashtra Tourism Development Corporation of Maharashtra (MTDC) was given the responsibility of preparation of the "Tourism Master Plan for Matheran Eco-Sensitive zone (MESZ). MTDC appointed **M/s. AAKAR ABHINAV Consultants Pvt. Ltd.** to carry out the assignment.

MOEF has mandated that the MESZ has to be prepared based on the tourism carrying capacity of Matheran. The TOR has specified working out the TCC based on physical parameters like:

- Availability of Water
- Accommodation available for tourists
- Density of developable land

TCC based on above parameter have been worked out considering the capacity of Charlotte lake in Matheran and also Water pumped from River Ulhas with pumping stations and pipe lines.

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For accommodations available for tourists, the TCC has been worked out on the basis of registered un-registered, authorized, or un-authorized rooms available to tourist. The consultants have observed that there have been a large number of rooms available under un-authorized category. These may be illegal renting of rooms buy private bungalows, illegal rooms constructed under the Bread and Breakfast scheme of MTDC or extensions of house boarding purposes. The TCC based on registered units has also been worked out. Following table shows the TCC based on various parameters.

Apart from the above 3 parameters, the consultants have also worked out TCC based on:

- Parking demand and availability.
- Hill station development guidelines.

Maximum permissible number of tourists per day.

Sr. No.	Parameter for TCC	TCC (Maximum Tourist per day)
1	Water availability	7548
2	Population Density	5947
3	Accommodations available	7577
4	Parking Demand and availability	6173
5	Hill station development guidelines of Govt. of Maharashtra.	4070

The TCC ranges between 6000 to 7,500 tourists .As the hill station guidelines study is for proposed new hill station. The TCC can be stated as 6750, although the range of 6000 to 7500 would be safe assumption.

The present tourist flow in peak season and weekends is about the same as the TCC. However, the inflow surpasses on special festive days and peak season weekends (about 8000 – 10,000)



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It can be concluded broadly that the TCC of Matheran has reached its limit and that there is a need to contain and restrict the present inflow of tourists.

The nature of development in the region needs to be strongly based on the sustainability and eco-tourism.

In order to reduce pressure on tourism, Following options are recommended.

- Developing alternate tourist destinations.
- Providing alternate tourism products.
- Equal distribution of tourists throughout the week.

Since the tourism Carrying capacity limits have not crossed limits, the stress can be on the improvement of tourism experience. Following major recommendations have been made in the "Tourism Management Plan"

- Providing a parking base for vehicles at the entry point at Neral.
- Operating Eco-friendly buses for travel from Neral to Dasturi Naka.
- Segregation of Pedestrian and horses from Dasturi to Matheran.
- Gradual reduction in number of horse.
- Effective horse dung collection and disposal.
- Improvements of pathways leading to various points of interests.
- Removing unauthorized structures, food stalls, entertainment stalls from the points and re-locate these at the entry point of various points.

The report has future stressed on the norms, standards and means to promote eco-tourism in the region for all stake holders like the horse riders, tourists, locals, horse owners, taxi owners, etc.

The effective operations and control will need a strong administrative set-up specifically for the eco-sensitive region of Matheran. The existing system has provided in affective as we experience considerable un-authorized constructions, encroachments on forest laws, felling of trees and ill maintenance of the viewpoints.

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A tourism management committee for MESZ has been proposed TMC. This TMC shall be headed by an officer of the rank of not less than "Deputy Collector". He will be advised by a permanent advisory board consisting of MOEF, MMRDA, Forest, MTDC, ZP, MJP, etc.

The technical assistance shall be provided by committees on various aspects like environment, tourism, infrastructure, social welfare etc. consisting of experts from the field and can be for specific program. The execution shall be done through the various department of the Government.

The tourism master plan has been envisaged in three phase. The total period as envisaged is 10 years.





11-11-11

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1. INTRODUCTION

1.1. Background :

The Ministry of Environment and Forest (MoEF) has declared Matheran as an Eco-Sensitive Zone and imposed restriction on Industries, Operations, Process, and other development activities in the notified region. The region includes the entire area with the boundaries of the Matheran council and 89 villages from districts, Thane and Raigad districts. The areas in these districts come under the jurisdiction of various Tehsils, Panvel, Khallapur and Karjat. Vide notification dated 4/02/2003. (Refer annexure A)

This region falls within the jurisdiction of Mumbai Metropolitan Region Development Authority (MMRDA).



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As per provisions of the MOEF notification, it was mandatory that a Tourism master plan for the notified area be prepared and got approved from MoEF. Accordingly MTDC invited bids from reputed, experienced, and competent consultants/ consortium of Consultants for consultancy services for Preparation of Tourism Master Plan for Eco-Sensitive Zone of Matheran.

Aakar Abhinav consultants along with Aditya Environmental Services Pvt. Ltd. were selected as consultants for the assignment.

1.2. Objectives of the Assignment:

As per TOR Provided by MTDC, the objective of assignment have been Specified as below:

- To prepare Tourism Master plan for Eco-Sensitive Zone of Matheran.
- To work out tourist carrying capacity based on physical parameters for the MESZ
- To prepare Awareness and training programs
- To formulate marketing strategies for promotion of Eco-tourism.

1.3. Scope of Work:

The 'Scope of work' in the Terms of Reference (TOR) has clearly been defined. However, these have been categorized below in to following major activities.

1. Data collection and analysis
2. Preparation of base map
3. Working out Tourism carrying capacity of the region
4. Preparation of Tourism master plan based on the tourism carrying capacity
5. Preparation of Tourism Management Plan
6. Preparation of marketing strategies for tourism promotion
7. Development of training programs for eco-tourism, develop written material for awareness impact and good practices
8. Identification of locations for eco-tourism and policy for local participation.

The detailed scope of work is elaborated in Annexure 'M'



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1.4. Methodology of assignment:

The assignment was initiated with intensive data collection from various departments and desk research on the subject. Simultaneously site visits to MESZ region were carried out for further studies, understanding project realities data collection and location surveys for project identification etc. Primary surveys of tourists and local households were conducted with pre-designed questionnaire. The consultants held stake holders meeting at various stages of the project so as to get the involvement of all concerned at various stages of the project.

Analysis of data generated from desk research and field visits was also carried out to determine the impact of the increasing tourism activity within the region.

The analysis lead to arrive at the optimum carrying capacity of Matheran based on physical parameters. The analysis of data also gave an insight into the sustainable tourism development pattern needed for the region and the efforts required for the achieving the same in various sectors as well as from various stake holders.

Having assessed the tourism carrying capacity of the region based on these various factors described earlier, a tourism management strategy was developed for tourism master plan. A tourism Master plan has been prepared that identifies improvements which can be taken up in this hill station, new tourist locations in the nearby area, new tourism products, and proposal for Eco tourism, Tourism management, along with implementation strategy. The tourism master plan also proposes capacity building programs, community awareness programs.

The Chart below depicts the methodology adopted for the assignment in flow chart.



Methodology

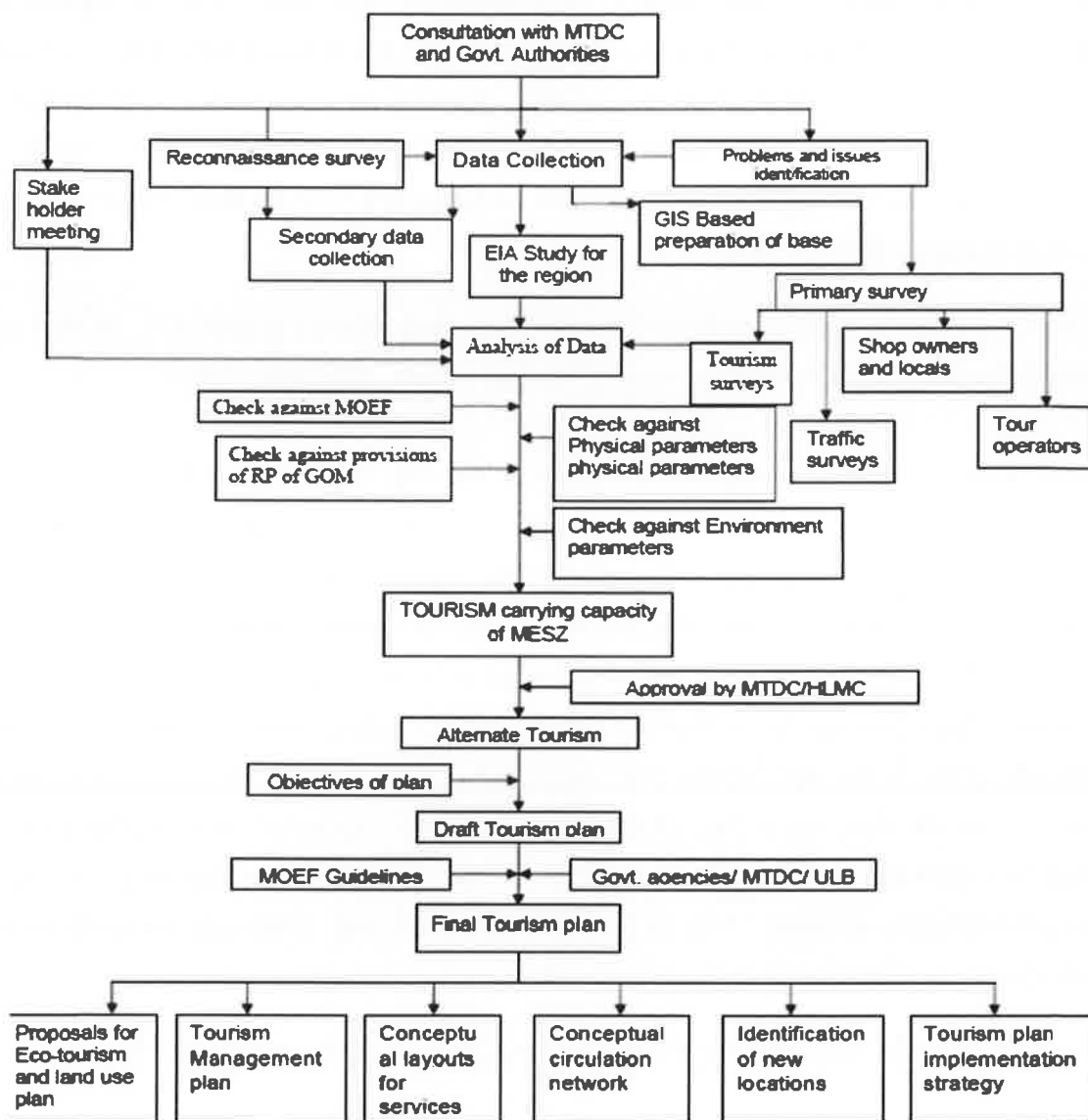


Figure 1.1 Methodology Chart



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1.5. Impact of tourism on MESZ:

Matheran is famous hill station in Raigad District in Maharashtra. It is the nearest hill station to Mumbai. It has an access by local train up to Neral and further connection by a heritage mini train directly to top of the hill station. It is also the part Western Ghats. With one of the few evergreen forests left, it served as the summer escapes for Bombay Province during the British Raj.

The MESZ is extremely eco-sensitive. The excessive stress on the environment is deteriorating the fragile bio-diversity of the region. The tourism experience of Matheran has already lost its charm and is further de-grading day by day. The growth of tourism also meant an enormous increase in head loading of firewood from the jungles, greater pressure of the water supply and sanitation system.

Matheran is unique hill station which does not have Vehicular traffic. The only means of conveyance are on foot, on horse backs and man pulled rickshaws'.

The ecological parameters such as the availability of water, effluent drainage and garbage removal and the shortage of space for urban expansion, has reached its limits. The importance and need to conserve Matheran has been emphasized repeatedly.

In the last few years over-crowding and over-exploitation has been seriously damaging the very environment that draws the crowds. Biodiversity in the MESZ is threatened by a variety of human pressures and development "priorities". The incursion of human development into these forests is rapidly and dangerously pushing back its boundaries, fracturing the evergreen stretches into unviable fragments. The MESZ was once covered in dense forests. The growth of populations around forest/ forest alike areas has also led to habitat destruction, increased fragmentation, and human-wildlife conflict. In order to withstand the onslaught of tremendous monsoon rains, the vegetation has to be very thick and strong, to prevent the rain from tearing all the soil away.



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1.6. Need of the Assignment:

The Ministry of Environment and Forest (MoEF) recognized this fact and has declared Matheran and surrounding region as an Eco-Sensitive Zone in view of its Fragile Ecology zone and to arrest the further de-gradation of the environment. Vide notification dated 4/02/2003.

As per the provisions of the MOEF notification, it is mandatory to prepare a Tourism master plan for the notified area.

The tourism master plan shall be based on a detailed carrying Capacity Study of the Eco-Sensitive Zone. All new tourism activities shall be permitted only within the parameters of this tourism plan or carrying capacity study. Till date no such studies have been carried out for the region which is required for planning and implementation of sustainable tourism master plan.

1.7. Structure of Report:

The consultants have already prepared following reports as part of the assignment.

1. Inception Report January 2012
2. Stake holders surveys and analysis report March 2012

This Draft Final Report is being submitted for final comments and approval.

This Report on "Draft Tourism Master Plan for Matheran Eco-Sensitive zone, hence fourth referred to as "Draft Master Plan" in short is divided into twelve chapters as detailed below:

Chapter 1: Introduction

In this chapter, the brief background of assignment has been given along with the objectives of assignment, scope of work etc.

Chapter 2: Data Collection and Analysis

This chapter describes the data collected from various sources and its analysis. The data collection and analysis covers following in detail



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- Data collected from reconnaissance survey
- Data collected from primary and secondary surveys
- Data collected from the stake holders

The consultants have also carried out case studies of similar projects. These are also presented in this chapter.

Chapter 3: Tourism Carrying Capacity (TCC)

Tourism carrying capacity is an important aspect, which decides the maximum number of tourists that can be permitted within the zone without further de-gradation of the bio-diversity of the region. As per TOR, physical parameters for arriving at a range of tourism carrying capacity has been discussed in this chapter and applied in case of MESZ to arrive at the range to Tourism carrying capacity of the region.

Chapter 4: Tourism Development Scenarios

Having arrived the T.C.C. it is imperative that the various development scenarios are examined and the best option is recommended for implementation of tourism Master plan. Following scenarios have been considered and examined –

1. No Intervention scenario
2. Restricted development scenario
3. Sustainable tourism scenario

At the end the consultants, have recommended promotion of Eco-tourism and strong sustainable tourism management plan.

Chapter 5: Tourism Management Plan

In this chapter tourism Master Plan has been discussed with Major emphasis on various improvement plans such as traffic and transportation plan, environmental management plan as well as improvement to the hotel accommodation etc. This chapter has identified the short term, midterm and long term action plan for the overall improvement of the tourism sector in MESZ region.



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Chapter 6: Behavioural guidelines for stake holders in sustainable eco-tourism environment.

In this chapter, set of guidelines have been provided to various stakeholders like, hoteliers, tour operators, tourists, local population etc. in the new sustainable tourism environment.

Chapter 7: Awareness and Training Program

In this chapter, various awareness and training programs have been identified for stake holders.

Chapter 8: Marketing strategies for eco-tourism

In this chapter, various marketing strategies have been discussed so as to promote sustainable tourism concept for this region.

Chapter 9: Strategy for Implementation

In this chapter, the institutional arrangement for managing developing and controlling the Master plan has been discussed. A "Tourism development Committee" has been recommended.

Chapter 10: Phasing and costing

In this chapter broad cost estimates have been prepared for the various proposals and suggested phase wise implementation of the Master plan.

Chapter 11: Conclusions and Recommendations

In this chapter conclusions and recommendations are summarized.

1.8. Limitation of Assignment:

1. The time limit for the completion of the assignment was only 4 months. This has put considerable restrictions on acquiring yearly data, particularly on the tourists' arrivals and tourists' behaviour. A year round set of surveys of tourists was



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required to authenticate the data and get valid output from the surveys. The time limit has, therefore, constrained the yearly data collection. The tourist data collected during the project assignment of 4 months has, therefore, been used as overall guidelines and for broad appreciation of tourist behaviour.

2. The analysis of Tourism carrying capacity and its application in case of hill station has been probably undertaken for the 1st time in India. No serious efforts have been earlier made and hence there are no examples and experiences of Indian origin. This can, therefore, be termed as first such case
3. There is limited published data available on tourism industry. Information regarding tourist trends and profile is based on the limited data available and market enquires.
4. Considering the time duration of the study, the method of sampling was random and limited. All efforts were made to minimize bias.
5. Non-availability of confidential information from some stakeholders.
6. There is a possibility that views of the respondents may depend on the season (peak/ off season) during which the survey was carried out



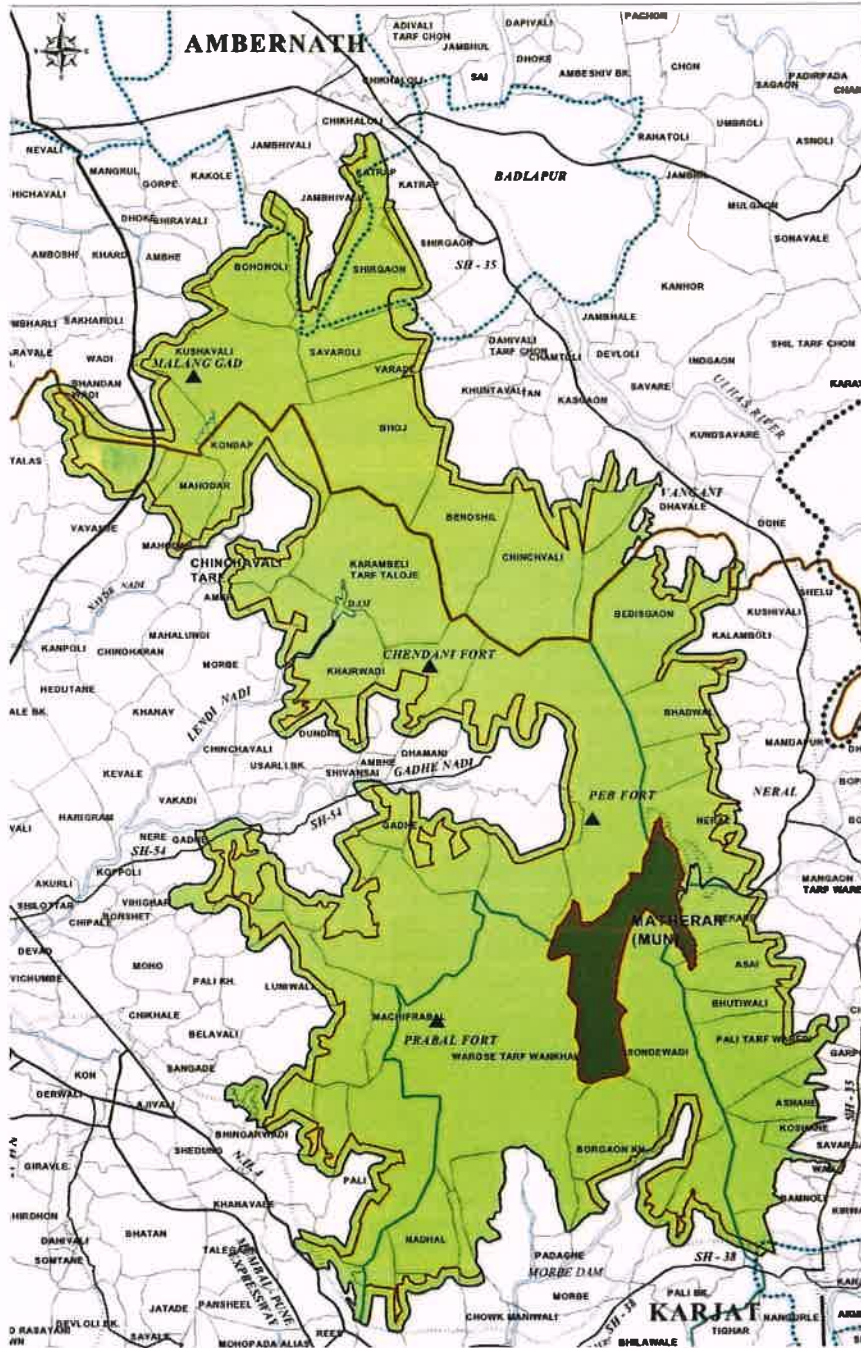


Figure 1.2 Map of MESZ



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1.9. Background:

1.9.1 Matheran eco sensitive zone (MESZ):

The Ministry of Environment and Forest (MoEF) has declared Matheran region as an Eco-Sensitive Zone in view of its Fragile Ecology Vide notification dated 4/02/2003 and have imposed restriction on development activities in the notified region. The region includes the entire area with the boundaries of the Matheran council and 89 villages from districts, Thane and Raigad. The areas in these districts come under the jurisdiction of various Tehsils like Panvel, Khallapur and Karjat. This region falls within the jurisdiction of MMRDA.

The total area of the MESZ is 214.73 Sq.Km. The area of Matheran Municipal council is 7.2 Sq. Km.

1.9.2 Location:

Geographically, the Matheran Eco Sensitive Zone (MESZ) is situated between 18°54'N -19°10'N North Latitude and 73°-08' to 73°-19' East Longitude in Raigad district of Maharashtra state.

1.9.3 Geology:

The entire MESZ Region is the part of Western Ghats and forms part of the Sahyadri Hills, The average elevation of the region is about 759m above mean sea level (MSL) with its highest point 803.45m above mean sea level. The terrain is almost hilly and has valleys on eastern and western part of the region. The soil strata comprises of red laterite with little red soil cover. The laterite cap produces a poorer soil but when completely decomposed and well mixed with vegetable mould, can support large trees, especially at higher elevations like Matheran.

The lateritic soil found in Matheran has a low pH value of 4.5 and high percentage of Silica and Alumina is ideal to support semi evergreen type of forest. The depth of topsoil rich in essential organic matter varies from 15 Cms to 35 Cms on the plateau.

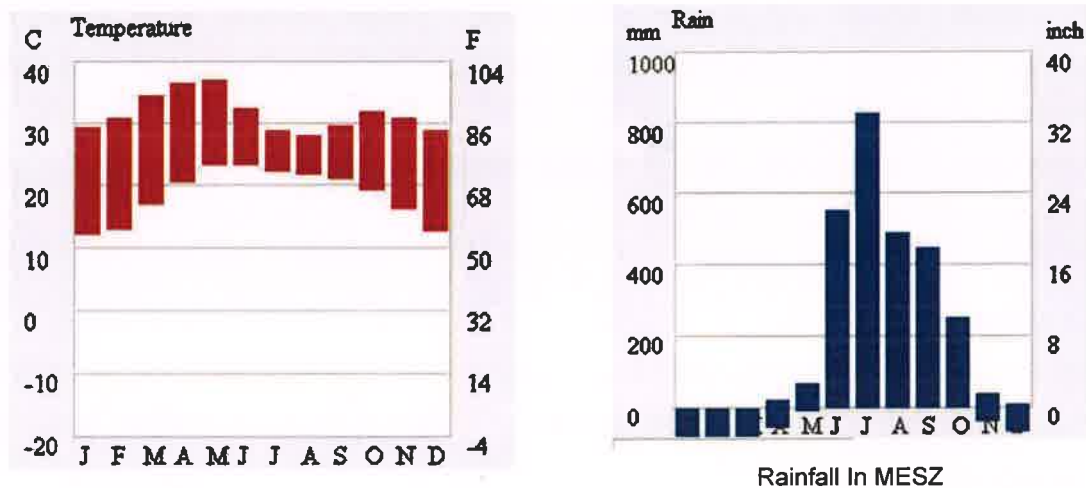


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1.9.4 Climate:

Matheran lying on an elevated region enjoys a cooler and less humid climate which makes it popular during the summer months. Temperatures range from 16 °C (61 °F) to 32 °C (90 ° F). Rainfall in Matheran varies from 0.0 to 828.0 mm/month with the peak being during the months of June

Figure 1.3 Climatic chart



1.9.5 Geographical spread:

The area of MESZ is 214.73 sq. km. The Eco-Sensitive Zone includes a Buffer Zone of a width of 200 m on all sides of the region. The zone comprises of forestlands, agricultural lands and tribal areas.

The land- use breakup of MESZ is given below:

Matheran Municipal Area = 7.2 sq km

Forest zone = 207.51sq km

Green Zone 1 = 11.91 sq km

Green zone 2 = 21.88 sq km

Quarry zone =0.02 sq km



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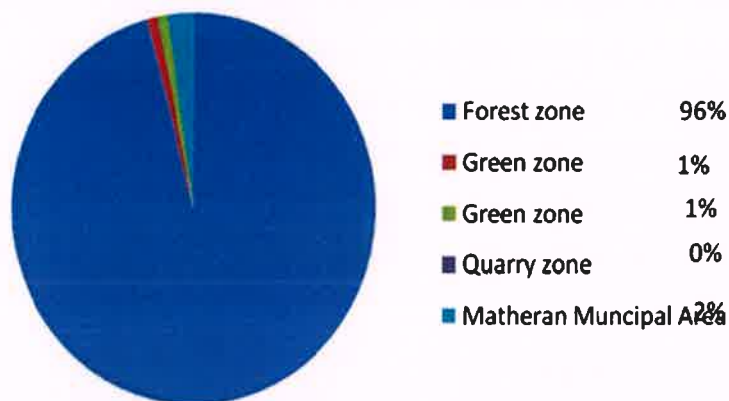


Figure 1.4 Land use of MESZ

The above chart shows the land use distribution in MESZ almost 96% land is Forest and 2% is green zone.

1.9.6 Flora & Fauna:

Matheran is to the west of main range of Western Ghats. Bio-geographically, it is surrounded by hills and valleys. Matheran presents a dynamic landscape. It is very rich on accounts of biodiversity as it supports evergreen forest of Memecylon-Syzigium-Actinodaphne type (Puri et al., 1983). Various tree species commonly seen on the plateau are Oleadioica, Mangifera indica, Eugenia jambolana, Ficus glomerata, Heterophragmaroxburghii, Bridelia retusa and Memecylon umbellatum. Predominant tree species on the slopes are Terminalia tomentosa, Lagerstroemia parviflora, Adina cordifolia, Garuga pinnata, Dillenia pentagyna, Pongamia glabra, Schleicheria trijuga and Bombax malabarica. It is also a home to endangered endemic mammal species such as Ratufa indica elphinstonii (Giant squirrel).

1.9.7 Population:

As per the census of 2001, Matheran has a population of 5139. Males constitute 58% of the population and females 42%. Matheran has an average literacy rate of 71%, higher



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than the national average of 59.5%, where male literacy is 75%, and female literacy is 66%. In Matheran, 11% of the population is under 6 years of age.

The latest Tahsil wise census data for 2011 census is yet to be published, but the data collected from statistical office shows that the present population of Matheran as per 2011 census is 4388 with decadal growth rate of -14% which shows that the population is reducing and migrating to nearby urban areas for employment.

1.9.8 Economy of the region:

In terms of the proportion of the population that is working, the 2001 Census data reveals that close to 46% of the population of the MESZ area formed the workforce in 2001. In comparison to the state of Maharashtra as a whole, the proportion of working population in the MESZ area was more than the state of Maharashtra (46% and 42% respectively). As compared to the national average, however, the proportion of workers in the population of the MESZ area was higher at 46% as compared to 39% for India. The Census classification distinguishes between main workers and marginal workers, based on a defined criterion in terms of the number of days of work in the past. However, the discussion above refers to the total number of workers – both main and marginal.

An interesting insight about the economic activities in the MESZ area can be gained from the distribution of workers across categories in the 2001 Census. The classification used in the Census is very wide with all people engaged in trade, services or manufacturing being clubbed under the category of “Other Workers” with the other categories being “Cultivators” (those farming their own land), “Agricultural Workers” and “Household Industries”. For the purpose of analysis, the “Cultivators” and “Agricultural Workers”, being primarily engaged in agriculture, were clubbed together and “the “Other Workers” and “Household Industries”, being primarily engaged in non-agriculture, were clubbed together. The results clearly bring out the fact that agriculture is relatively more important in the MESZ area compared to the state of Maharashtra as well as India. Of the total workers in the MESZ, 54% are engaged in agriculture (either as farmers working on their own land or workers engaged by land owners), compared to 55% for



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Maharashtra as a whole and 58% for the country. Thus, almost 2 in four workers in the MESZ area are directly dependent on agriculture for income generation.

Matheran's primary economic base is tourism and the residents of this town's employment is based on a number of tourism related activities like hotels, hawking, porters, horse keepers, shop keepers, tourist guides, rickshaw pullers etc.

1.9.9 Tourism Scenario:

Matheran has a large number of floating populations in the form of tourists. Among them are a number of tourists, avid trekkers, and foreign tourists. Most of the tourists are from Mumbai, Suburbs of Mumbai and tours around Mumbai like Thane, Navi Mumbai, Panvel, Karjat, Kalyan, Dombivli etc. This is due to the very fact that Matheran has a very clear air as compared to the rest of the region, and pollution free environment and a very natural ambience makes the town very attractive for city dwellers. At the same time it is at a very short distance from Mumbai, Thane and Navi Mumbai. It is one of the few hill stations in the world where vehicles are not allowed, which makes the place different from others. Because of vehicles being banned in Matheran, the place is quite peaceful despite the thousands of visitors coming to visit throughout the year. Weekends throughout the year and annual school vacations for summer (April, May), Diwali (October, November) and Christmas (December) are the peak seasons in Matheran. Tourists visiting Matheran in monsoons are on increasing scale over past few years. The visitors mainly include couples, families, and groups of children and youngsters. On an average about 4000 tourists visit this place every day during peak season as per tourist data collected from Nagar Parishad. This is about 90% of the population of Matheran. Tourism contributes major share in economy of the region. Tourism is the largest service industry in Matheran council providing employment to 60% of total working population directly or indirectly.

1.9.10 Tourist attraction points:

There are 38 points which command panoramic view of the surrounding landscape and Geology. Every point has its own specialty. Followings are the Key features of some important points.



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1. Panorama point

Panorama point, the north end of the eastern wing or ridge, takes its name from the stretching views to the east and north. Its native name is "GADACHI – SOND" or the Fort Head, The point commands one of the widest views on the hill, both of Matheran itself and of the plain and hills to the east, north and west. In the foreground, north- west from the end of point, stretches the great Baba Malang hill range. To the left, is a fine view of the wooded ravines and bare cliffs of Hart, Monkey and Porcupine points. There is a fountain constructed by Shri Barmukhof Mumbai.



2. Mount Barry

It was named after Captain Barry. It is one of the highest spots on the hill. It reveals the beautiful view of Sahyadri and perfect view of Neral.



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3. Garbut Point:-

Garbut point, the south end of the eastern wing takes its name from the quartz crystals or "GARAS" found on the spur that runs east towards Karjat. A little further the point shrinks into a narrow open neck with clusters of bushes and trees. On the west of Garbut point hill side falls into the Khatyan ravine and again rise in steep slopes and cliffs of Alexander point and little chauk.



4. Alexander point:-

Alexander Point, headland standing out from the eastern face of the Main hill between the top of the Khatvan and little Chauk point takes its name from captain Alexander who married a niece of Mr. Malet, the founder of Matheran as a hill station. From here we can get a good view of Garbut point, Chauk valley, Karjat and river Ulhas.



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5. Little Chauk Point

Little chauk, located at south-east end of the main hill takes its name from the country town of chauk, Near the point the hill top flattens and covered with black rocks. It commands a wide view of rugged south.



6. Great Chauk

Great chauk form the southern face of Matheran, takes its name from overlooking the country town of chauk. The point commands a wide view across the plain.



7. One tree hill

One tree hill takes its name from a large battered Jambul tree that grows on hill top. The upper rock, western portion of Chauk point and the flat massive rock of Louisa point.



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Can be viewed from this point fine view of chaulk village and Mumbai Pune road can also be observed. From this point, a path goes downhill towards a deep ravine where a ladder is positioned named as Shivaji Ladder. Mr. Mallet the first visitor to matheran approached from this side to reach the top.



8. LouisaPoint

Louisa Point, the southern end of the smaller western wing, takes its name from the wife of Mr. Fawcett, who was Revenue commissioner between 1855 & 1859. Its local name is "Taurichi Sond" or the pillar head from the short isolated buttress like crag at its point.



This is a flat and wide point. The Prabal and Vishalgad are seen to the south-west. To the left is seen beautiful view of the western side. One of the hillocks on this point is called lions head.



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9. Porcupine Point

Porcupine point, the north end of the western wing, probably takes its name because it was formely a resort of Porcupines, though according to one's account, its long thick snout and ragged bushes like the quills of the Porcupine, suggested the name. This spot commands an excellent view of the cathedral hills. It is famous for the beautiful sunset scene.



10. Hart Point

Hart point, at the north end of the central block of the hill, takes its name from Mr. W. Hart of the Bombay Civil service, who was secretary to Govt. in 1858. Its native name is Kaleraika Pada or the black forest plateau. It is located on low level. The tiny train hugging the hill on the curve can be seen. A good view is seen from this point in September and October of the waterfall of the Simpsons tank.



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1.10 Tourist Flow:

The Matheran Nagar Parishad officials informed that about 5 lakhs tourist visit Matheran each year with an average of 3000-4000 tourist per day .In peak season the number of tourist per day is about 7000 to 8000. The yearly tourist data in the form of entry fee collected by MNP was made available to consultants the same is presented in table 1.1.

Table 1.1
Yearly Tourist in flow for 2001- 2011 Year

Year	Total Tourist
2000 - 01	235,152
2001 - 02	259,400
2002 - 03	283,386
2003 - 04	308,000
2004 - 05	376,000
2005 – 06	216,900
2006 – 07	NA
2007 – 08	442,644
2008 – 09	NA
2009 – 10	NA
2010 – 11	579104
2011 – 12	582131

Source: Matheran CDP and MNP

April to March

From above table it can be seen that the tourist inflow is continuously increasing year wise. From above table it can be observed that the average annual growth rate of tourists is about 7%.

1.11 Tourist Infrastructure:

1.11.1 Traffic & Transportation:

Matheran is the only hill station in India where motorized vehicles are completely banned. Matheran has a single entry point i.e. 'Dasturi Naka'. The vehicles are allowed up to Dasturi Naka. Dasturi Naka is about 2.5 Kms away from Matheran town. Inside the



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city, as one starts from Dasturi, the tourist can either have to walk for 2.5 kilometers, take a hand pulled rickshaw or ride a horse. Horses and rickshaws form the traditional way of transportation of getting around within Matheran. There are a number of horse owners dependent on this form of tourist activity. There are about 460 horses in Matheran and 94 hand-pulled rickshaws making the horse owners and rickshaw pullers very strong stake holders in the development of Matheran. The numbers of horses and rickshaws are on the rise.



Horses and rickshaws form the traditional way of transportation

Railway:

Matheran is connected by narrow gauge railway to central railway through Neral station. There is a 2 ft narrow gauge railway that connects Neral to Matheran built in 1907 by Sir Adamjee Pheerbhoy covering a distance of 20 kms. The Neral-Matheran train service that offers a ride of a mini-train is under the jurisdiction of the Central Railway (CR) and is christened as Matheran Light Railway (MLR) and operates on this route carrying a capacity with a range of about 100 to 150 passengers on a trip. In the last hundred years this toy train has remained operational in all the years except in 2005 when landslides due to floods cut off Matheran city for some period. To commemorate the hundred years of MLR service, the Heritage Directorate of Ministry of Railways, has already applied to UNESCO for inclusion of MLR as a World Heritage Site (WHS) under the cultural category of application and as an extension to the existing recognition of the



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Mountain Railways of India. This application made on 25th November 2005 and currently assigned under "Tentative Lists" can be referred on the UNESCO's World Heritage website.

A shuttle service is being operated on experimental basis from Aman lodge to Matheran station (about 3km distance) by railways for tourist reaching Matheran by road and on foot or in rickshaw or horse ride.



Airstrip:

The nearest airport is at Mumbai about 90 km from Matheran.

1.11.2 Accommodations:

Private lodges, motels, hotels, Government rest houses, and private bungalows are available for stay of the tourists. As per the official records with revenue department there are 39 hotels in Matheran with 1036 Rooms. Total available accommodation at present is to the tune of 2608 beds. Refer annexure D for the list of hotels along with number of rooms in MESZ region.

Table 1.2 Accommodations available in MESZ

Total Accommodations available In MESZ (Registered)		
Location	Rooms	Beds
Hotels in Matheran	985	2463
MTDC Resort	41	120
MTDC Bed & Breakfast scheme	10	25
Total	1036	2608

Source: Consultants data collection & data from MNP & Superintendent Matheran.



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1.11.3 Solid Waste Management System:

At present total daily solid waste generation in the city is 5.00 MT (approx.). This comes to around 0.5 kg per capita per day. The higher figure is probably due to the higher percentage of floating population and very high commercial activities. The collection and transportation of the Solid waste is carried out by hand-carts (GHANTA GADI-Hand cart with bell). The management for the collection and transportation of the solid waste is operated by a Self Help Local Women Group (Social Development Organization) on an annual contract basis. Out of the total solid waste (5.00 MT) generated, part is processed in biogas plant and part in composting and the balance to dumping site located on plot no 114 .The Biogas plant with the help of BARC process is recently installed by MGP.All kitchen waste and biodegradable waste is used in biogas plant. The gas generated is distributed to hotels and residential bungalows through pipe. Earlier, the Horse dung was also used in biogas plant.However, since it creates more heat the use of horse dung has been stopped.Hours dung pallets are made. The biodegradable waste is separated and used for composting. Other plastic waste is sent for processing to Karjat or Mumbai.



Collection & Transportation of Waste using Hand-cart



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1.11.4 Water Supply:

Water is currently pumped from Ulhas River and the system is maintained and managed by the Maharashtra Jeevan Pradhikaran (MJP). CharlotteLake, a local lake is also used as a source of water supply for the city. The lake has a storage capacity of 127.2 M.L. and can be augmented up to 148.5 M.L. by pumping water in it. The water is filtered and then supplied in Matheran. The capacity of the filtration plant is 1.37 MLD. Matheran has 3 Nos. reservoirs with a total capacity of 16 lakhs Litres. The water is distributed by pipes. The average supply is 100 Litres per head per day. There is water supply shortage in many areas of the town as the water is supplied on alternate days.

The existing water supply system has been developed in various periods starting from as early as in year 1925 till the last works added during year 1996. The original scheme of 1925 was based on CharlotteLake, located within MMC limits, as source of supply. Works like Head Works, Water Treatment Plant (Rapid Sand Gravity Filter and Coagulation Tanks) are part of this system.

Subsequently with the development of the town and growing water demand, the system was expanded in the year 1984, with Ulhas River as source. The fact that the river is in the plains and the town is a hill station, extensive pumping is involved in transmitting the water from river to the town. A total pumping head of the order of 819 meters is involved in this scheme. The pumping involves a rate of 72000 litres/hour and is in 3 states with a total length of rising main of 10.2 km. Further in year 1996 the rising main (about 1.2 km) of the Charlotte system was replaced with new pipeline.

The existing system, apart from above works, consists of 36.2 km of distribution network, 1.25 ml total capacity of service reservoirs, and 927 number of water connections.



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The water availability at the sources is 1.60 MLD (Ulhas 1.29 MLD and Charlotte 0.31 MLD) is falling short to cater to even the present demand of the town which is 1.76 MLD.

1.11.5 Sewerage System:

Presently there is no existing sewerage system in Matheran. The latrines are connected to septic tanks with soak pits. Some of the hotels have their own sewage treatment plants or septic tanks for the sewerage generated. There are some properties which do not have any sewage treatment facilities and are directly draining the sewage to surface area drainage.

1.11.6 Health Facilities: -

There is one Municipal Hospital known as "B.J. Medical Hospital" managed by Municipal Council, where there is provision of 12 beds. The hospital also provides for the facility of Maternity ward, minor operation and basic health treatment.

There are two private dispensaries in the main Bazaar area in rented premises. There is one veterinary dispensary of Zilla Parishad.

Table No. 1.3 Medical Facilities

Health Centre	Medical Facilities
1. Mun. council's Byramjee Hospital	Minor operation maternity home, Basic health service
2. Zilla Parishad Veterinary Clinic	Medical Facilities for Animals.
3. Dr. Bhosale Clinic	General practice
4. Dr. Varman's Clinic	General practice



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2. DATA COLLECTION AND ANALYSIS

2.1 Surveys and Data Collection:

Collection of relevant information and data is a very important step in the process of planning. The collected data would greatly facilitate formulating the future plans and policies for sustainable tourism development in the Matheran eco sensitive zone.

2.2 Approaches for Data Collection & Primary Surveys:

Collection of data for a large region like MESZ was an enormous task itself and had to be collected from various sources. Initially consultants identified data requirement for the overall assignment for which a comprehensive information/data checklist was prepared to guide the data collection process.

As per the checklist requirement, relevant information and data in the form of Tables, maps, reports, Photographs, Satellite images, Plans, Topo sheets, published & unpublished material etc. was collected through various sources and agencies like District collector, District census office, MTDC, Dy. Conservator of Forest, Raigad, Matheran Municipal Council, Maharashtra Jal Pradhikaran, District Planning Office, Dy. Director of town planning and Valuation, Kokan Bhavan and Assistant Director of town planning and valuation and Ex-Members of HLMC and Heritage committee etc.

Consultants also conducted desktop search for secondary data available on internet. Relevant policies, acts guidelines, government resolutions etc. were also collected through desktop search.

Apart from above the consultants also conducted site visits and primary surveys in month of January. In order to get the collective response, the primary surveys were carried during weekends of public holidays (25th January to 26th February 2012).



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Following Primary surveys were undertaken by consultants.

- i) Tourist survey.
- ii) House hold and shop owners survey
- iii) Stake holders survey
- iv) Environmental Surveys for the air, water and noise quality
- v) Topographic Surveys for the parking at Dasturi Naka.
- vi) Parking demand surveys at Dasturi & Neral Railway Station

The surveys were conducted through pre designed Questioners comprising of close ended (dichotomous, Multi choice & Liker scale) & open ended questions. The formats of the questioners are kept at annexure F.

2.3 Literature Review:

As part of secondary data collection, consultants collected relevant available literature in the form of reports, studies, acts and case studies etc. A literature review was made so as to appreciate the earlier efforts in this area as well as to develop overall understanding of the region and issues there in. Following literature was reviewed.

1. MOEF Notification for Eco-sensitive zone, Matheran
2. Minutes of Meetings of HLMC
3. Draft Development Plan - Matheran
4. Tourism Policy of Ministry of Tourism India
5. Ecotourism in India – Policy and Guidelines, Ministry of Tourism – Government of India, 1998
6. The National Environment Policy, 2006
7. The 11th Five year Plan of Government of India
8. Tourism Policy of Maharashtra
9. Environment (Protection) Act, 2011
10. Madhav Gadgil committee Report (Western Ghat ecology expert committee)
11. Planning commission guidelines for Hilly areas / Western Ghats
12. River Regulation zone - Ministry of Environment Guidelines
13. The Forest (Conservation) Act, 1980



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2.4 Inferences:

The details of literature reviews undertaken were submitted by the consultants as part of the Stake holder's surveys and report. The inferences from literature review are presented below.

2.4.1 MOEF Notification for Eco-sensitive zone Matheran:

Salient Features of the Notification:

The Notification envisages following activities to be carried out.

- Preparation of the Zonal Master plan of eco sensitive zone. Which includes the Tourism Master Plan of the region.
- Demarcation of all the existing gaothans, gaothan expansion areas, forests, green areas, horticultural areas, agricultural areas, orchards, tribal areas including tribal hamlets, natural springs, natural heritage sites, and other environmentally and ecologically sensitive areas.
- No change of land use from green uses to non green uses
- Stipulations for regulating traffic, especially through traffic in the Eco-sensitive Zone.
- No new constructions shall be allowed but repairs and restoration may be permitted provided that it does not involve structural changes and are on the existing authorized plinth area.
- No reduction in Tribal Area, Forest Zone, Green Zones and Agricultural Area.
- Absolute height of buildings shall not exceed 9 meters and the number of storeys shall not exceed ground plus one upper storey.
- Only non-polluting, non-hazardous, small-scale and service industries, agriculture, floriculture, horticulture or agro-based industries producing products from indigenous goods from the Eco-sensitive Zone and which do not cause any adverse environmental impact shall be permitted.
- Quarrying and Mining activities shall be banned in the Eco-sensitive Zone and no fresh mining lease shall be granted. No quarrying shall be permitted on steep hill slopes or areas with a high degree of erosion or on forestlands.



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- There shall be no felling of trees whether on Forest, Government, Revenue or private lands, without prior permission.
- **Tourism:-** Tourism activities shall be as per a Tourism Master Plan, with emphasis on eco-tourism, eco-education and eco-development
- **Natural Heritage:-** The sites of valuable natural heritage in the Eco-sensitive Zone shall be identified, particularly rock formations, waterfalls, pools, springs, gorges, groves, caves, points, walks, rides and the like and plans for their conservation in their natural setting shall be incorporated in the Zonal Master Plan
- **Man-made heritage:-** Buildings, structures, arte facts, areas and precincts of historical, architectural, aesthetical, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation, particularly their exteriors shall be prepared and incorporated in the Zonal and Sub-zonal Master Plans
- **Ground Water:-** Extraction of ground water for the bona-fide agricultural and domestic consumption of the occupier of the plot is allowed. Extraction of ground water for industrial, commercial or residential complexes shall require prior written permission, including the amount that can be extracted, from the State Ground Water Board. No sale of ground water shall be permitted except with the prior approval.
- **Use of plastics:** - No person shall use plastic bags within MESZ region. The use of plastics laminates and tetra-packs within the Eco-sensitive Zone shall be regulated by the Monitoring Committee.
- **Protection of Hill Slopes:** - The Zonal Master Plan shall indicate areas on hill slopes where construction shall not be permitted. No construction on existing steep hill slopes or slopes with a high degree of erosion shall be permitted.
- **Discharge of effluents:** - The discharge of any untreated effluent is prohibited within the Eco-Sensitive Zone.
- No effluent, either treated or untreated, shall be permitted to be discharged into any water body or water source within the Eco-sensitive Zone.
- **Solid Wastes:-**The local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components.



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- The bio-degradable material may be recycled preferably through composting or vermi-culture and the inorganic material may be disposed of at environmentally acceptable locations.
- No burning or incineration of solid wastes shall be permitted.

Natural Springs:-The catchment area of all natural springs shall be identified and plans for their conservation and rejuvenation of those that have run dry in their natural setting shall be incorporated in the Zonal Master Plan. Strict guidelines shall be drawn up by the State Government to ban development activities at or near these areas.

2.4.2 Tourism Policy of Ministry of Tourism India:

The national tourism policy of India was reviewed in ecological context. The silent features are presented below:

- The policy aims on sustainability and developing management strategies such that making tourism as smokeless industry with soft ecological foot prints. It is also cautions about the impact of tourism on environment and aims to restrict such activities which over exploits the natural resources'. It also highlights that the carrying capacity of a tourist site shall not be ignored.
- Greater emphasis has been given to promote eco tourism whose emphasis is more on the nature tourism which will help in eliminating poverty, un-employment and creating new skills, preserving cultural heritage, encouraging tribal and local crafts. Special thrust should be imparted to rural tourism and tourism in small settlements, where sizable assets of our culture and natural wealth exist.
- As part of sustainable development, the policy insists on Assessment of carrying capacity and Environment Impact Assessment studies while developing tourism in ecologically fragile areas and all developmental activities will be guided by such studies.
- Providing a legal frame work through appropriate legislation for ensuring social, cultural and environmental sustainability of tourism development and protecting the tourists.



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- Evolving specific policies and guidelines for the development of specific forms of tourism like ecotourism, adventure tourism, etc. are the other important points of policy.

2.4.3 Eco-tourism in India – Policy and Guidelines, Ministry of Tourism – Government of India, 1998:

The ecotourism guidelines of MoT were reviewed and the silent features are presented below:

- The guidelines were formulated to ensure regulated growth of ecotourism with its positive impacts of environmental protection and community development. The policy and guidelines are addressed to all state governments, industry associations and those involved in tourism development and preservation of environment and natural resources.
- The policy draws heavily on the definition provided by the United Nations World Tourism Organization (UNWTO) and enlists the key elements of ecotourism as being: **natural environment as prime attraction, environment friendly visitors; activities that do not have a serious impact on the ecosystem and positive involvement of local community in maintaining ecological balance.** The policy states that a selective approach, scientific planning, effective control, and continuous monitoring are required for ecotourism development.
- The policy pans all ecosystems of India and considers these as major ecotourism resources, with the assumption that the natural resources have been well protected and preserved. It indicates that all of these ecosystems are potential ecotourism destinations.

2.4.4 The 11th Five year Plan:

The report acknowledges the potential for nature and adventure tourism in India, and recommends promoting it vigorously during the 11th five year plan. The planning commission recommends following strategies:



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- 1) Strategy for Eco-Tourism
 - a. Creating awareness globally about the eco-tourism/adventure tourism potential in our country. Promotional films and advertising through electronic media. Detailed brochures / maps to be placed at the disposal of our overseas tourist offices

- 2) Strategy Sustainable Tourism:
 - a. It is suggested that carrying capacity studies be undertaken for popular trekking trails, national parks, rivers, etc so that a low environmental impact is maintained and sustainable practices are in place. 'Honey pot areas' need to have pressure relieved by opening closed areas and by publicizing lesser-known regions so that traffic is dissipated from popular zones.
 - b. There is a requirement to have trained nature guides, naturalists, mountain trek leaders, etc who have safety and environmental knowledge. Such courses could be initiated at tourism institutes, vocational study institutes, as well as at outdoor training institutes.
 - c. Effective steps at the State level are carried out for garbage disposal through Municipal bodies, and use of incinerators to be re-looked at. Industry to partner State Governments and NGOs to keep cities and towns clean in conjunction with local authorities.
 - d. Environment education should be included in the curriculum of schools and colleges with a special component of Eco tourism to make an eco sensitive population.

2.4.5 Tourism Policy of Maharashtra:

The policy acknowledges the potential of domestic tourism in Maharashtra and gave 23 point action plan for next five years (2006-2011). The important points in the action plan have been presented as below:



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The important highlights of the action plan as presented below.

- 1) **Development Control Regulation at destinations:** 'Development Control Regulations' would be prepared to work as guidelines for development at and around important tourism destinations/ areas.
- 2) **Strengthening of Bed and Breakfast scheme:** The Bed and Breakfast scheme creates facilities for travellers at remote destinations (where hotel accommodation is not available) and provides to the income of local people. With the increasing interest in the rural way of life and the advent of rural tourism, the "Bed and Breakfast Scheme" offers excellent potential for the mutual benefit of tourists and the local population. This Scheme will be strengthened to form a part of rural micro-financing projects.
- 3) **Rural Tourism:** Rural Tourism, Agricultural Tourism & Wine Tourism will be promoted considering state potential & varieties existing in our state.
- 4) **Fort /Fort Circuits:** Maharashtra has a large number of forts which are valued not only for their historical significance but also for their architectural excellence. The Government of Maharashtra in coordination with ASI and State Archaeology department, develop and conserve these forts for realizing their tourism potential.
- 5) **Creating Awareness:** Create awareness among people about the importance of tourism, and how to identify and plan tour options and on how to be an enlightened tourist. This would also include creating awareness about safety and environmental awareness.
- 6) **Safety & Security:** The Tourism Department will formulate the guidelines for the safety of tourists on the beaches of State as well as those tourists venturing into water sports activities.
- 7) **Training and Capacity Building:** Carry out training needs assessment for tourism staff and plan for training programmes, with a view to capacity building of all partners and stake holders in the tourism sector. This will be in co-ordination with the "Atithi Devo Bhava" programme of the Central Government.



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- 8) The policy also proposes to form a Tourism Promotion Council under the chairmanship of chief minister; apex bodies to guide supervise and monitor the development of tourism and various tourism related issues.

2.4.6 Matheran Eco-Sensitive zone- Draft Zonal master plan by MMRDA:

As part of the study the Draft Zonal Master plan as prepared by MMRDA was studied.

The Plan has identified various issues and constraints. These are:

1. Illegal Cutting of trees.
2. Forest Fires
3. Soil erosion
4. Privileges granted to the villages for tree cutting.

In order to address these issues Forest Department has already identified a working plan. The methods identified by the forest department such as Afforestation works, Soil moisture Conservation measures and Fuel Wood depot has been discussed in the Draft Zonal Master Plan.

The plan has also suggested the regulatory frame work for handling these issues. As the detailed development control regulations for the Matheran Municipal Council areas have already been formulated, The Zonal plan has not suggested any changes in the same.

Zonal plan has suggested the merging of two Green zones G1 and G2 into single zone called Buffer Zone. At the same time Zonal plan has suggested a major change such as all private lands within the Eco-sensitive zone as forest. All the Government regulations that allow higher FSI shall not be applicable to the Buffer zone.

The zonal plan also identifies the land uses under various categories such as :

1. Forest Zone
2. Buffer Zone and
3. Gaothan and Gaothan Expansion, areas.



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The minimum area of plot in case of Forest Zone as well as Buffer Zone has been suggested at 0.4 Ha.

2.4.7 Madhav Gadgil committee Report (Western Ghat):

The Matheran eco-sensitive zone is part of Western Ghats. In view of the environmental sensitivity and ecological significance of the Western Ghats region and the complex interstate nature of its geography, as well as possible impacts of climate change on this region, the Ministry of Environment & Forests Government of India has constituted, a Western Ghats Ecology Expert Panel (WGEEP) in March 2010. The panel is headed by eminent ecologist Prof. Madhav Gadgil. The panel has prepared report that assesses the current status of ecology, formulate a methodology to demarcate the WG region and recommend measures, methodology to conserve the WG region along with the models for people's participation. Following paragraphs cover the important suggestion and recommendations made by the WGEEP.

- The Western Ghats regions of each state shall be treated separately.
- Existing Protected Areas will be treated as a fourth separate category.
- Assigning ESZ1, ESZ2 and ESZ3 status only to grids outside existing Protected Areas
- ESZ1 status will be assigned only to such grids as have a score at least equalling or higher than the lowest scoring grids falling within existing Protected Areas
- In addition, other detailed information such as localities of origin of rivers, laterite plateaus, localities critical for maintenance of habitat continuity, and localities where local communities have expressed a strong interest in conservation will be used to decide on demarcation of ESZ1 and ESZ2.
- The extent of existing Protected Areas plus ESZ1 will not normally exceed 60% of the total area
- Extent of area covered by existing Protected Areas plus ESZ1 and ESZ2 together will be around 75%.
- The extent of ESZ3 will normally be around 25% of the total area.



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- WGEEP suggest that the Ministry of Environment and Forests provisionally notify the initial limits of ESZ1, ESZ2 and ESZ3 based on WGEEP analysis. This may be most appropriately done at Taluka/ Block level. With this in view, WGEEP have gone ahead and assigned ESZ1, ESZ2 and ESZ3 levels to all the 142 talukas of Western Ghats.

2.4.8 Planning commission guidelines for Hilly areas / Western Ghats:

The report of the "Task Group" on problems of hilly habitations in areas covered by the Hill Areas Development Programme (HADP)/ Western Ghats Development Programme (WGDP) was reviewed.

The Planning commission has been giving special central assistance for Hill area Development (HADP) programmes and western Ghat Development areas (WGDP) since the 5th five year plan.

Maharashtra has 63 talukas which are covered under the WGDP. The other states covered under WGDP are, Karnataka, Goa and Kerala.

The funding is available in proportion of 90% grant and 10% loan. The WGDP gets 60% of the total fund allocation.

The distribution of this fund for the states covered under WGDP is in proportion of the area and population. 75% funding is based on area whereas 25% funding is based on the population basis for WGDP.

The eligible schemes under this include;

- Watershed based development for sustainable economic activities for locals.
- Innovative schemes for technologies suited for hill areas.
- Schemes for bio-diversity conservation.
- Schemes for income generation.
- Gap filling infrastructure.
- Maintenance.
- Establishment costs.
- Benchmark surveys, Maintenance of data base, Monitoring and evaluations.



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- Activities such as research studies.

The funds are monitored for each program and the state government has to submit schemes and also progress reports periodically.

The planning commission also organizes annual training programs free of cost for

- Senior officers
- Junior level officers

There is a standing committee which is represented by all concerned state governments and the member of the planning commission.

2.4.9 River Regulation zone - Ministry of Environment Guidelines:

The Matheran is origin of 2 rivers namely Ulhas and Gadhi A review has been taken of the River regulation Zone policy formulated by the state government of Maharashtra vide GR No. MMV/2000/326/22/TB-3 dated 15th July 2000 along with some additions in year 2009. Both government resolutions were studied and important inferences from the policies related to the tourism development are presented below.

- 1) The policy classified 20 major rivers of state into A-1, A-2, A-3 and A-4 category and restrict the use in each category the uses are mentioned in GR that is kept at Annexure-G.
- 2) The policy also gives guideline for setting up new industries along the river or water bodies.
- 3) For Rivers under A-2 Category there will be No Development Zone in belt of 500m from river banks, only Green industries will be allowed in 500-1000m belt and only green and orange industries will be permitted in 1000-2000m belt from river bank.
- 4) Hotels and resorts and other tourism activities can be permitted in NDZ by prior permission from MPCB. Those permitted hotels and resorts shall have to dispose off their waste water 100m away from HFL.
- 5) The policy also gives guidelines to improve the quality of water in urban areas.



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- a. The ULB to have their own STP.
- b. The location of STP shall be on natural slope and shall be 100m away from HFL of river.
- c. Land fill or solid waste site shall be located 500m away from HFL of river. The land fill shall be done as per MSW2000 norms.
- d. Precautions shall be taken while selecting the landfill or STP sites so that it shall not fall in flood zones of river.
- e. The ULB shall implement quality improvement programs for river water or lake water those are within their limits.

2.4.10 "Eco tourism" paper written by Devrath Mehta (Chairman HLMC MESZ).

MESZ region is part of Western Ghats and are designated as ESZ1 category. The paper on Tourism Development Strategy in Western Ghats by Devrath Mehta was reviewed.

The paper presents tourism development strategy for tourist locations in Western Ghats (WG).

The tourism development strategy is outlined for WG by providing answers to following concerns:

1. What kind of tourism development activity should be encouraged?
2. What regulations should be prescribed?
3. What will be the control mechanism?
4. What will be the role of state, local community and entrepreneurs?
5. How to provide skills to manage the activity and the intrusion of tourists, and
6. How to create awareness for responsible tourism.
 1. The paper elaborates the meaning of eco tourism with following points :
 - o Eco tourism involves travel to natural areas with minimum impact on environment.



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- Ideally no footprints of the visitor should be left after his departure.
 - It should provide direct financial benefits for conservation and for the local community.
 - It should educate and create awareness regarding the environment and local culture, not only to the resident community but also to the visitor who must respect local culture, environment as also political and social climate and should not impose his values or lifestyle.
2. The paper provides examples of eco tourism activities carried out in bio diversity hot spots with joint initiative taken by tourist authorities, Forest and local communities at international and national location like Bhutan, Madadi reserve in Bolivia, Thekaddy in Kerala.
3. The paper highlights the short falls of the policy frame work to control the development in ecologically rich and bio diversity hot spots of Western Ghats. The paper further insists to have single comprehensive policy to be made for the entire WG which would cover categories with following issues:
- For concerning lakes, rivers, waterfalls and other water bodies not covered under Coastal Zone Regulation (CRZ).
 - Set of regulations would be for hilly areas.
 - Archaeological and heritage sites falling within WG which needs special protection.
 - Creeks and beaches [where CRZ regulations are applicable] are almost at a hill slope.
 - Rules for tourism activities to be carried out in wild life reserves, protected forests and some buffer zones.
 - Provisions for cess on developers' income to pay for protection and community participation and training.
 - A regulatory board for certification, periodic review and regular reviews of ecotourism and other projects permitted in sensitive areas.
 - Provide for monitoring at various stages of development and certifying whether the final development is as per permissions.



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4. The Ministry of Tourism should be persuaded to set up an independent Board for certification, EIA of implemented projects, imposing penalties etc., for ecotourism and other tourist facilities be set up in sensitive areas.
5. The MoEF, wherever it has appointed monitoring bodies like HLMCs, should continue to ask them to sanction and monitor projects, but with some additional powers and funds to engage independent consultants.
6. In areas selected for permissible development, Tourism Master Plans should be commissioned by MoEF or WG Authority, jointly with the state government and the Ministry of Tourism for micro level planning. The emphasis should be on small-scale facilities and home stays to ensure local involvement and monitoring through them.
7. Educating government employees should be a priority as their insensitivity can negate all other efforts. Consumer/visitor can be a reliable watchdog and should be encouraged to report transgressions to the supervising authority.
8. The paper finally addresses the present major concern of responsible tourist behaviour of tourist at any tourist location. It emphasizes to create awareness among the tourist through films, internet, brochures etc.
9. The paper concludes with following points.
 - Tourism development is inevitable in WG, considering the world trend and growing numbers of Indian tourists.
 - MoEF should consider on priority, the framing of hill area policy and regulations for water bodies in the WG.
 - Tourism Master Plans for selected pockets need to be prepared. Such plans should be initiated by the MoEF in collaboration with the Ministry of Tourism and State Governments.
 - WG Authority, in addition to scientists, should include some tourism experts to participate in framing of development policies.
 - To oversee that appropriate developments are taking place and for seeking advice, it should associate with the proposed regulatory board and NGOs with expertise.



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2.4.11 Case Studies:

i. Waynad wild life sanctuary in Kerala: Poor coordination effects:

- The study Presents the negative impacts due to lack of coordination between different stakeholders and suggests following action plan
- Need for working out Tourism carrying capacity.
- Controlled entry /exits for the park.
- Local participation in development and maintenance of parks.
- Control on sound pollution and waste disposal by tourist.
- Check on Tourist behavior in forest area.

ii. Thekkady: local community intervention:

- Thekkady Wildlife Sanctuary (also called Periyar Tiger Reserve) is a fine example of good management of forests.
- People oriented and park cantered community based ecotourism.
- Programmes are conducted by local people responsible for the surveillance of the vulnerable parts of the reserve.
- Tribal's are also involved in eco tourism activity

iii. Controlled tourism of Bhutan:

- Based on Gross national happiness philosophy, the high value, low-volume strategy adopted by Bhutan.
- Bhutan's **controlled tourism policy** has been a successful story in increasing the economic development while preventing the negative impacts on the country's cultural and natural resources.
- The entrance fees earned from tourists provides additional income.
- Created self-employment and provided additional income for rural communities through selling of local produces and handicrafts to tourists

iv Guidelines for Carrying Capacity Assessment for Tourism in Mediterranean Coastal Areas

This study outlines all aspects of working out TCC

Following parameters are suggested for working out tourism carrying Capacity.



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- a) Physical – ecological parameters
- b) Socio- demographic parameters
- c) Political – economic parameters

Tourism carrying is not a definite number and may require correction factor.

Practically tourism carrying capacity can be figured out through Physical parameters only in Indian contexts where the specific data is very scarce and unreliable.

2.5 Tourist Survey:

The basic purpose of the primary survey was to obtain a preliminary assessment of the tourist influx, tourist's characteristics behavior, opinion of tourists regarding the existing tourist facilities, awareness about Eco Sensitive zone among tourists, Opinion about the new locations and environment of the destination.

2.5.1 Approach & Methodology Adopted for Tourist Surveys:

Surveys were carried out at locations within Matheran. The surveys were conducted through pre-designed Questioners comprising of close ended (dichotomous, Multi choice & Liker scale) & open ended questions were the formats of the questioners are kept at annexure F. The questioner was designed to ask questions related to tourism, accommodation, questions related to opinion of tourists and willingness of tourist on behaviour pattern and willingness to pay additional charges for facilities for facilities.

It was understood in carrying out the survey that these surveys will not have major impact on the preparation of the tourism master plan for the MESZ and were considered efforts to get pulse of the present tourist behaviour. These surveys were also strengthened with the additional primary and secondary data collection

2.5.2 Sample Size:

The annual tourist data was collected from Matheran Nagar Parishad, on basis of which a number of tourists visiting per day were arrived. As per the general practice a sample



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size 4% of daily tourist has been considered which works out to 152 tourists. The Sample size was calculated as per following:

No of tourist data collected by Matheran Giristan Parishad per Year	570000
No. of tourist per day tourist (Assuming 150 operating days)	3800
Sample size @ 4% of the tourist per day	152
Responses of survey	150
% of the tourist per day for given sample	3.99%

2.5.3 Inferences:

The detailed discussion on the tourist surveys has been presented in annexure H and only the inferences have been presented here.

1. 66% tourists visiting Matheran are from Mumbai & Navi Mumbai area.
2. 42% of the tourists visiting Matheran are in the age group of 25 to 34 years.
3. 52% of the tourists are degree holders.
4. Majority of tourists visit Matheran for Site seeing & Leisure.
5. 57% tourists visiting Matheran are first time visitors.
6. 40% tourists arrive at Matheran by own vehicles.
7. Average duration of stay of tourists in Matheran is 1 to 2 days.
8. Majority of tourists prefer to stay in Budget hotels.
9. Majority of tourists are from income group of Rs. 10,000 to Rs. 25,000 per month.
10. Most preferred activities by the tourists are Site seeing followed by Horse Riding & peacefully enjoying the nature.
11. 54% tourists are aware of Matheran being an Eco-Sensitive Zone.
12. Most of tourist feels that the services and facilities in region are average, solid waste needs to be given more attention. Most of the tourists are of the opinion that the air quality is less adverse while the noise pollution, traffic congestion at Dasturi naka and overcrowding is a matter of concern.



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13. The most visited spots are Echo Point, Charlotte Lake, Lords Point, and Garden where tourists prefer to spend about ½ hrs to 1 hr.
14. 57% of tourists showed their willingness to visit Matheran again.
15. 39% of day tourists feel that the place is overcrowded while 72% of the Overnight Stay tourists think vice versa.
16. 61% of tourists showed their willingness to pay 10 to 20 % extra over their current spending for the improved quality of environment.
17. 96% tourist feel that the Matheran region has to be made plastic free and 42% are of the opinion that entry of vehicles should be restricted; however, about 65% feel that there should be no restriction on number of tourists in the area as well as various points of interest. Whereas 41% feel that there should be restriction on the horses on the tourist point.
18. Majority of the tourists are aware of Malangad and Prabalgad, but not the tourist spots like, Morbe Dam, Ambernath Shiv Mandir, Peb Fort, Chandi Fort and such similar points of interest within and surround the MES zone.
19. 77% of the tourists are aware of the natural trails (Horse riding & Walking Trails). Their experience with respect of natural trails is good. They feel trails need to be maintained more properly. There needs to be proper signage system on the trails. Out of 23% tourists who are unaware of the natural trails, 79% are interested to experience them.
20. Majority of tourists showed interest in Adventure tourism, Agro tourism & Heritage tourism.
21. According to Taxi Owners and Hotel Owners, the traffic congestion at Dasturi Naka and scarcity of parking areas need immediate attention.
22. Hotel Owners and NGO's feel immediate actions need to be taken with regards to Solid waste management and roads must be made dust free.
23. Hotel Owners feel that there is scarcity of water and have no alternate means of water supply.



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Many tourists expressed the opinion that they like to visit Matheran because it is totally pedestrians, without vehicles and beggars.

2.5.4 Stake Holders Meeting:

As part of Tourism Master Plan assignment and to know the views and appreciate the present situation of physical infrastructure and other aspects, Stakeholder consultation was undertaken by consultants in February 2012.

Consultations and discussions were carried out with following stake holders:

- a) Matheran Giristan Parishad.
- b) Malang Gad Sameeti.
- c) MJP (Maharashtra Jeevan Pradhikaran)
- d) Horse owners Association
- e) Hotel owners Association
- f) Taxi owners Association
- g) Corporators and President of Nagar Parishad.
- h) NGO's
- i) Adventure Sports activists & trekkers.
- j) MSRTC
- k) MTDC

Consultants conducted group meetings in Matheran and Karjat, Panvel, Neral and interviewed individuals with pre defined set of questions.

The concerns and recommendations from the stakeholders meetings are presented in table 2.1 below.



Table 2.1 Stakeholders concerns and suggestions

Sr. no.	Stake holder	Identification/concerns	Suggestion/Opinions
1	Police department (Police inspector)	<ul style="list-style-type: none"> Traffic congestion at dasturi naka and in neral. 	<ul style="list-style-type: none"> Parking arrangement on Neral -Kanjat road shall be made by identifying government land or private land. Private car parks shall be made at Junima patil/ water pipe station.
2	Hotel owner association	<ul style="list-style-type: none"> Concern regarding parking at dasturi naka. Maintenances of all tourist point & trail. Water supply during peak season is a major problem. unregistered mules 	<ul style="list-style-type: none"> The Olympia race course shall be revived and at least one Durby race shall be conducted every month. Positive approach towards the concept of eco rating to hotels & use eco vehicles All gardens can be developed for tourist activity spot on PPP basis. Separate paths for horses and for pedestrians
3	Taxi Owner Association	<ul style="list-style-type: none"> Congestion of Parking. No facilities at taxi stand for tourist or drivers. 	<ul style="list-style-type: none"> Facilities like Public Toilets & Dust bins are required at tourist spots as well as parking areas.
4	Horse owner	<ul style="list-style-type: none"> No common stable facility for horses No system adapted for cleaning the horse dung 	<ul style="list-style-type: none"> Provision of horse stable facility & Horse dung should be collected regularly. Promotion of less popular view points.
5	Rickshaw owner	<ul style="list-style-type: none"> No fixed rates No fixed rickshaw stand 	<ul style="list-style-type: none"> Separate space for Rickshaw parking Help centre for Rickshaw employee
6	Malangad trust	<ul style="list-style-type: none"> Shortage of water supply no adequate facilities for tourist . 	<ul style="list-style-type: none"> Drinking water, Toilet facilities should be developed at various spots in the 5 km stretch along with toilets. Awareness program for keeping the environment clean etc. Home stay facility to be developed at foot hill in Heji Malang Wadi.
7	Matheran bachoa samitee (ex member of HLMC)	<ul style="list-style-type: none"> Illegal constructions Lack of proper infrastructure (Roads, tourist facilities etc) Lack of watersupply. 	<ul style="list-style-type: none"> Good tourist facilities like information centre, toilet blocks etc shall be developed at entry point. Handicraft and local craft market shall be developed where the locals can sell and market their products. The local guides shall be trained and 'Go back to nature 'type rides shall be organised. Literature about Matheran shall be made available to tourists in the form of pamphlets, maps , brochures etc.
8	President & Corporators Matheran Nagar Parishad	<ul style="list-style-type: none"> Lack of tourist accommodations. No maintenance of view points by forest department. No training for local guides etc. lack of employment opportunities. Roads improvement. 	<ul style="list-style-type: none"> Information center at Neral railway station Bed and breakfast schemes shall be implemented All the viewpoints should be developed properly with railings, dustbins etc. The local Horsemen, Taxi drivers, Rickshaw pullers, etc shall be trained under behavioural development program. There about eight walking trails like Danger path Prince Road, Rambug shidi etc needs to be revived.



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2.6 House Hold & Shop owners Survey:

Matheran town is the main and only tourist attraction where the tourist's inflow is more. To understand the local concerns Consultants carried out interview of few residents and establishment owners in Matheran nagar Parishad area. Data on following aspects was collected, tabulated and analyzed

- Nature of employment
- Tourism industry employment dependence (category wise)
- Possibility of alternate employment during non-peak season.
- Economic status of family
- House ownership
- Their Opinion on improvements/ suggestions for better tourism facilities.
 - Problems faced by the residents/ establishments during the peak/ Lean seasons?
 - Issues related to the eco-sensitive zone.

2.6.1 Methodology of survey:

The survey was conducted through pre designed questionnaire (Ref Annexure I for complete report). Semi-structured interviews were conducted with a 4 % sample size. Stakeholder surveys were carried out with specific concern of taking into consideration its unique biophysical, social and administrative/ management factors and different types of population strata.

A survey carried out from 2nd to 4th January, 2012 in Matheran. Interviewing local residents and shop owners across economic strata such as those involved in tourism activities and other population giving services to tourism industry were interviewed.

2.6.2 Inference from Household survey in Matheran nagar Parishad area:

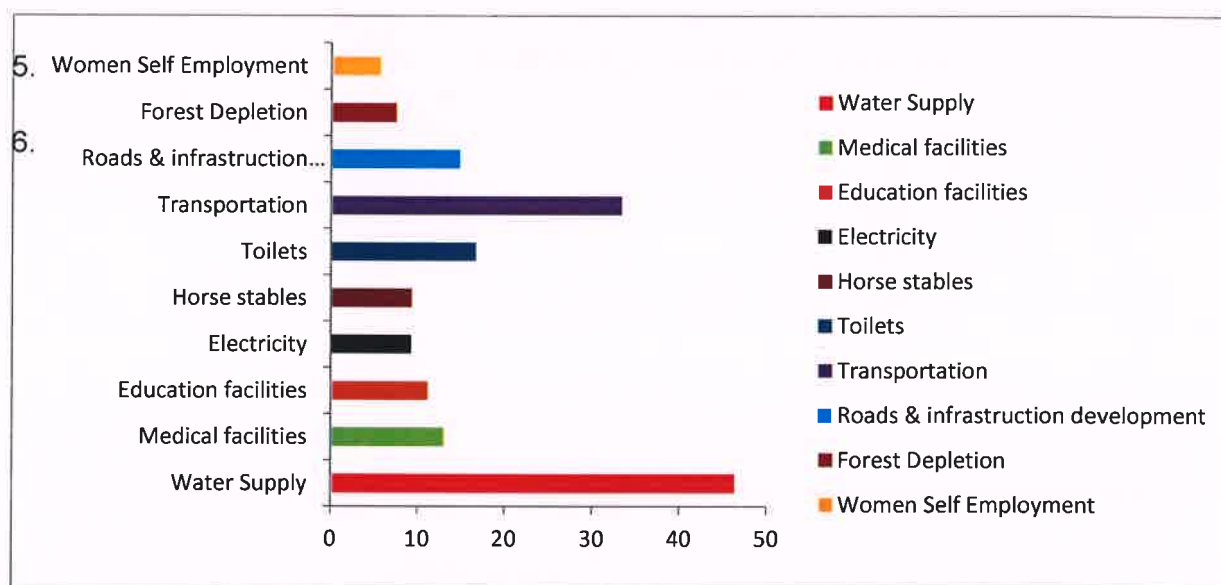
1. 1% population of Matheran is engaged in Primary Sector (Livestock & Forestry) while 9.71% population is engaged in secondary sector (Construction & Industry). 89.67 % population is engaged in Tertiary Sector (Trade & Commerce).



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2. About 49% local population is involved in majority tourist related and about 30% indirectly related to tourism. The other occupations comprise administration or Government employees and domestic logistics which are a very minor group.
3. Majority of locals (46 %) complained about water scarcity in the region.
4. From the economic survey it has been observed that there are specific problems that have arisen mainly from tourism .The primary concerns for these basic amenities are clearly indicated by the respondents in Figure no 2.1.

Figure 2.1



5. Amongst the major concerns, the water supply is a serious concern amidst the locals followed by the difficulties in transportation. Water intensive projects by illegal constructions were a concern expressed by considerable number of respondents.

They voice their opinion with statements pleading the difficulties of small children commuting to schools far off the hill station.

Certain statements brought to notice that paralysis is also one of the major health problems people faces due to the undulating topography and walking being the main mode of commutation for ages.



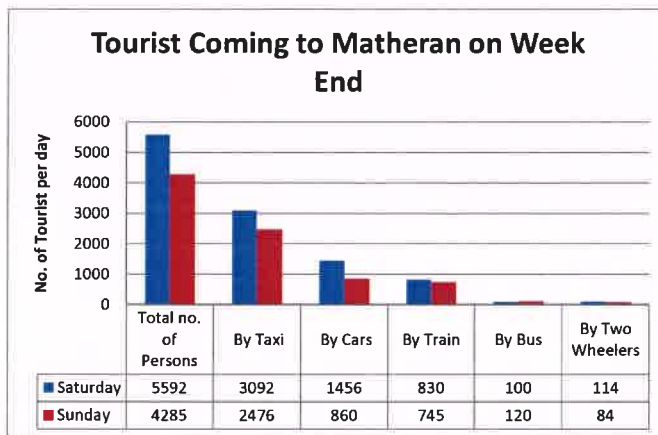
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2.7 Parking Survey:

To assess the present situation in respect of tourist flow and parking requirement, the traffic study was conducted on 14th and 15th April 2012 (Saturday and Sunday) The data collected was analyzed and daily tourist flow and parking characteristic were found out.

The tourists come to Matheran from Neral by car, Mini train, Taxi, Bus or two wheelers. The numbers of tourist coming on Saturday and Sunday by different modes are as follows:

Figure-2.2



The modal split observed on both days is as follows:

Mode of Travel	Modal Split on	
	Saturday	Sunday
By Taxi	55%	58%
By Cars	26%	20%
By Train	15%	17%
By Bus	2%	3%
By Two Wheelers	2%	2%
Total	100%	100%



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The hourly distribution of arrival of tourist at Matheran is presented in Figure 2.3 and 2.4

Figure-2.3

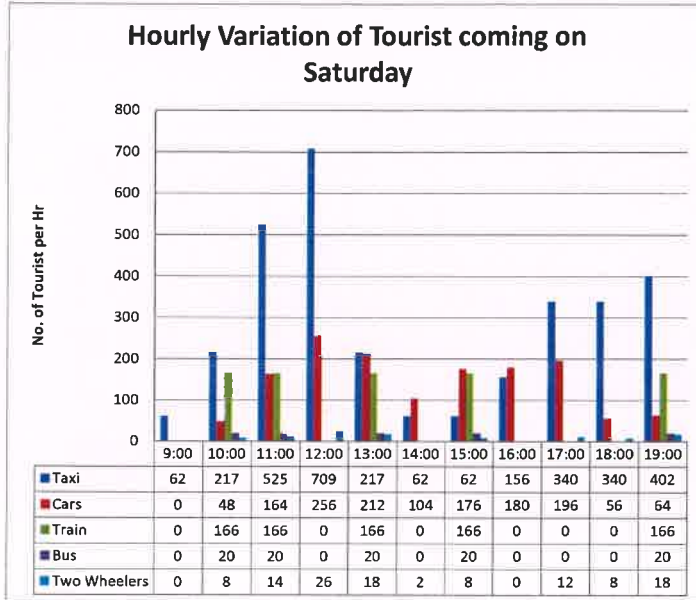
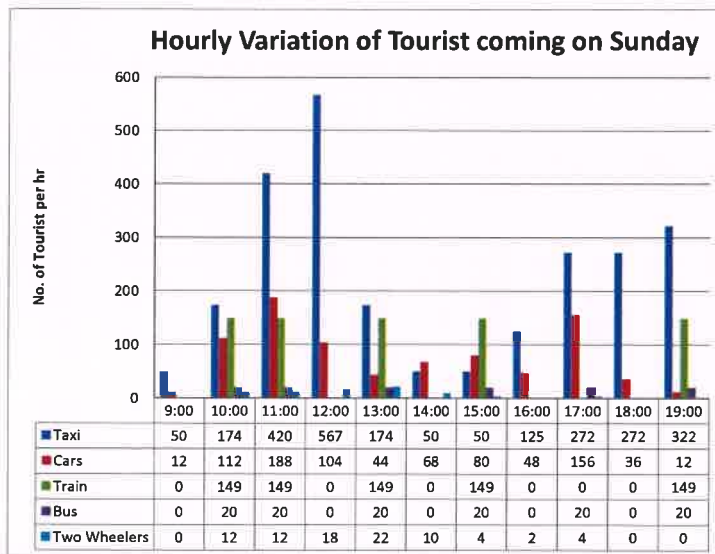


Figure-2.4



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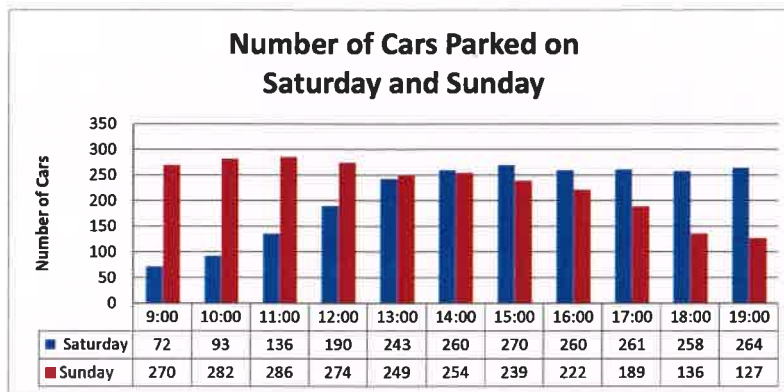
At present the private cars are parked on a forest plot near the entry point of Matheran (Dasturi). The cars are parked in the forest as per availability of space and without any order. If this area becomes full then road side parking is done. It was observed that maximum 270 cars on Saturday and 286 cars on Sunday were parked at Matheran.

Car Parking at Dasturi Naka



The hourly variation of parking was as follows:

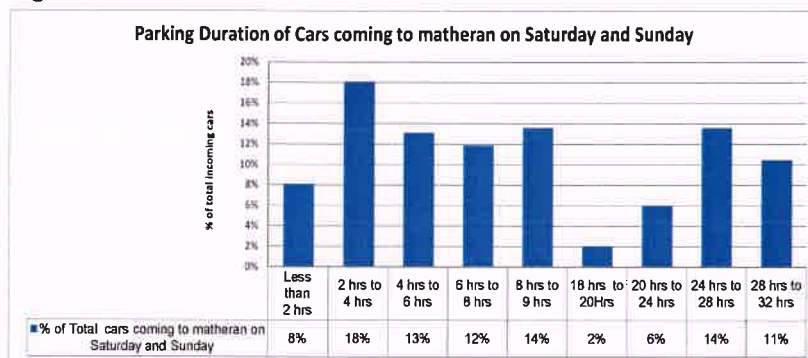
Figure-2.5



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Figure-2.6 presents the observed Parking Duration of cars coming to Matheran on Saturday and Sunday.

Figure-2.6



Conclusions from Parking Surveys

1. It is observed that there is more inflow of tourists on weekends especially on Saturday.
2. The modal split of the tourist is as follows: about 55% tourist comes by taxi, 25% by their own vehicle, 15% by train, 2% by MSRTC bus and 2% by two wheelers.
3. About 300 cars are parked at Dasturi naka.
4. About 47% of tourists coming by their own vehicle spend more than 8 hours, i.e., these percentages of tourists are over-night tourists.
5. Parking surveys were also carried out at Neral taxi stand and near Rahi hotel parking lot; about 120 taxis are parked along the Neral Mahmadpur road. The vehicles parked at Rahi hotel parking lots are mostly the travellers to Karjat or Khopoli tourists visiting Matheran; they hardly park their vehicles at these locations.

2.7.1 Impact of shuttle service from Aman lodge to Matheran station:

The central railway has started shuttle service for the 3km stretch from Aman lodge to Matheran station with effect from November 2012. Ten (10) narrow gauge shuttle train services (5 Up & 5 Down) are operated daily between Aman lodge and Matheran station. (2) Extra services are operated on Saturdays, Sundays and during peak season



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(summer and Diwali season). The train has capacity of carrying about 150 passengers each trip along with 2 tons of goods.

Consultants have studied the impact of this train service on tourists/ Locals, porters, the horse service and on rickshaw pullers by conducting survey. The survey was conducted on 25th December on holiday and a peak day.

The impact on each section is presented below.

Impact on passenger (Tourist): The shuttle service is only used by the tourists who come by their own vehicle or by taxies up to Dasturi naka from neral. The service is widely used by elderly tourist, ladies and children's and tourist with more baggage. Passengers are finding it more convenient to travel by the shuttle as it is cheaper than the horse ride or by rickshaw fare and save the efforts of walking 3km. The fare chart for the same is presented below in table.

Fare chart for different mode between Aman lodge and Matheran railway station.

Mode	Single Fare (in Rs.)
Shuttle	Rs.35/- for Second class Rs.225/- for First class
Horse	300 per person
Rickshaw	450 per two person
Porter(luggage)	250 per porter

Another advantage of the shuttle service to tourist is that they can visit the points beyond the Aman lodge like panorama point etc. by using the train service while they stay in Matheran.

Though not all tourist use this service because of time frequency of the train is about 1 hour or more, and due to the capacity (the train has 4 second class bogies with total capacity of 120 seats and one first class bogie with 24 seat capacity) so non availability of seat is another reason. The travel time by the shuttle for this 3 km stretch is about 15 minutes where as one can takes about 35- 45 minutes to travel the same distance by



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walking. With increased leisure time available tourist will be able to enjoy the points which are also far away from the starting point of Matheran.

A maximum of $(144 \times 5) = 720$ tourists can get benefit of this service per day.

The service is more beneficial for the elder, ladies, and children and for the baggage.

Horse owners: There are about 450 licensed horses in Matheran and there no decreases in their nos. after the start of shuttle service (the illegal non licensed horses are not accounted). The no of trips of horses from Matheran station to Dasturi naka has decreased by 25% i.e. a single horse use to make about 4 trips in peak season before start of shuttle service and now it has been reduced about 3 trips average in peak season. In off season the horse trips are reduced to 1 or none a day.

The existence of excessive horses in Matheran is viewed by most people as a menace, as it creates obstacles for tourist's movement. The most cognisable offence is the dust and dung created by horses. The number of horses has to be restricted if tourism experience of Matheran is to be enhanced and more enjoyable.

Impact on Rickshaw pullers: It is observed during the survey and during consultation with the rickshaw pullers that the shuttle service has largely impacted the rickshaw service in Matheran. There are about 94 licensed rickshaws in Matheran. The number of rickshaws in service has drastically reduced to 45 which is about 50% reduction after the commencement of shuttle train service. All the rickshaws are owned by locals and are given on lease to labours (mostly from Yawatmal). Each rickshaw has three labours and the income is divided in four parts (1 for owner + 3 for labour). Earlier before the start of shuttle service the rickshaws used to make 3 to 4 trips during peak season whereas after the start of shuttle service the trips have been reduced to 1 to 2 trips in peak season or none in off season.

This implies that about (45×3) 135 persons have become jobless. Although survey shows that most of the labour is from outside the region, the rickshaw owners are locals adding to the woes of the locals. There is need to identify alternate employment for



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them. It was not known whether the labour, most of which is from outside has gone back OR are looking for alternate jobs.

Impact on porter service: There are about 20 to 25 porters in Matheran who have their own union. Surprisingly the shuttle service has little impact on the income of the porters as reported by the union. Some tourists use the shuttle service to carry the luggage. On an average each porter makes 3 to 4 trips from Dasturi to Matheran station or beyond that with luggage of tourists. Average Rs.250 is charged for a trip in peak season or Rs. 150 in off season. The impact is not much as the frequency and capacity of the shuttle service is low than the demand and hence there is not much impact on porter services.

Considering the above impact it can be observed that starting of shuttle service has affected the number of horse trips and rickshaw trips presently. Increase in the frequency of shuttle service may impact in reducing & controlling the no's of illegal horses and rickshaws in Matheran as they will not have much scope for business. This will help in decongestion of walkways of Matheran.

It may be necessary to conduct further studies in the exact unemployment that is likely to be affected due the commencement of the shuttle train service. The full impact is still not fully accounted as this is just the beginning period after commencement of shuttle service.

As observed there are large numbers of illegal horses playing in Matheran. It should, therefore be ensured that the legal horses should be protected and stringent action taken against illegal horses.

Consultants suggest that a more detailed study be undertaken on rehabilitation of affected locals who have been deprived of their jobs due to commencement of shuttle service, particularly the alternate employment for affected locals.



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2.8 Inferences from stakeholder meetings and consultations:

Following are the major issues and concerns based on the surveys and the stakeholder meetings and consultations.

- a) Paucity of water supply and distribution.
- b) Inadequate public toilets and sewage disposal system.
- c) Concerns over infiltration of sewage / septic tank overflow in natural streams.
- d) Solid waste collection and disposal particularly plastic bags and water bottles.
- e) Bad condition of pedestrian paths, horse tracks and hand pulled carts.
- f) Parking shortage and encroached parking area at Dasturi Naka.
- g) Vehicle and tourists Chaos at entry point at Dasturi Naka and Railway Station at Neral.
- h) Inadequacy of public transport to reach Matheran.
- i) Pedestrian, Horses and rickshaw travel conflict on pathways in Matheran.
- j) Dust and noise pollution pathways.
- k) Illegal constructions in the area.
- l) Increasing noise pollution particularly on weekends, festive seasons and year end celebrations.
- m) Lack of facilities for horse's stables and facilities.
- n) Lack of alternate employment during lean season.
- o) Health problems arising out of consistent and long walking for daily needs. Haulage of goods from Dasturi Naka to Matheran.
- p) Once a year traffic and pilgrimage problems at Malang-Gad in the region.





MTDC

3. TOURISM CARRYING CAPACITY

3.1 Definition of Tourism Carrying Capacity (TCC):

1. Tourism carrying capacity is a tool to work out the tourists that can be sustained by the tourist spot at a given point of time without further de-gradation of the environment of the spot. It decides the optimum level of tourist intervention on nature.

Although the concept of T.C.C. is widely followed in other countries, this concept has been very little practiced in India. It has been used, mainly in the wild life sanctuaries, National parks, sites of very high ecological sensibility like, valley of flowers etc. This concept has not so far been applied to hill stations in India.

2. The most accepted definition of Tourism carrying capacity is by World Tourist Organization. (WTO)

“The maximum number of people that may visit a tourist destination at the same time without causing destruction of the physical, Economic - socio - cultural environment and an un-acceptable decrease in the quality of visitor satisfaction”.

3. The two most important objectives of TCC are

i) Limiting the number of tourists:

This is important so that further degradation of the environment is arrested. This basically emphasizes no additional developments and allowing only those developments or actions which enhance the sustainability, quality of environment and quality of tourism experience in the region.



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ii) Benefits to the local population:

The TCC also addresses the economic, social, and cultural aspects apart from the physical environment. This implies that the local community is benefited the most in the process, which is the most important aspect in the present context of Tourism.

4. The scope of work includes working out of T.C.C. for MESZ based on following issues as per TOR.
 - Maximum and minimum quantity of water available, in different seasons depending on the natural and artificial storages, public wells and in existence today but excluding water from outside the MESZ area.
 - The number of rooms/beds available in registered hotels (legally permissible) and the number of rooms available with the MTDC permits given for 'bed and breakfast facilities to household inside the urban areas / rural areas villages etc. within the MESZ area.
 - The carrying capacity must keep in mind the F.S.I. norms and the D.C. rules in existence and other legal and institutional constrains for MESZ area.
 - During further process of preparation of Tourism Management plan, the TCC has to be the basis of further plans and programs.

5. MESZ have very few tourist locations like Matheran plateau, Malangad ,Prabal gad Chenderi ,Peb out of these location Prabal gad ,Chenderi ,Peb are trekking points and are only visited by trekkers.

Malangad is one of the popular pilgrim spot in Matheran eco sensitive zone near Kalyan. The locations is mainly visited by pilgrims and trekers from Raigad and Thane district but mostly from Kalyan, Panvel, Bhiwandi ,Mumbra .About 300-500 pilgrims visit the "Durgha" every day which increase on Friday, Saturday and Sunday up to 1000. During Urus (festival in February) about 2lakh people visit in ten days' time i.e. about 10000 pilgrims a day. Presently there is no lodging facility as such but the local Flower merchants lend their house as lodges where about



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700 peoples can be accommodated. During the Urus pilgrims stay in open ground namely lambi Bhawdi ka maidan”.

Malangad is purely pilgrim spot where visitors come as pilgrims rather than as tourist and carrying capacity of this locations cannot be worked out. Especially during the festival season the pilgrims cannot be stopped while going to the Dargha.



Haji Malang Dargha



Malang Gad



Development along the Pathway to Malangad



Development around Dargah

The most visited location is Matheran plateau which is established as Hill station and were almost 5 lakh tourist visit each year. Hence TCC of Matheran plateau is been worked out and presented below



MTDC

3.2 Parameters for Tourism Carrying Capacity:

Various physical / social / economical parameters or infrastructure components are responsible in making various degrees of impact. It is, therefore, necessary that **the most adverse impact determines the carrying capacity.**

Following parameters are normally used in determining the T.C.C.

- Physical-environmental parameters.
- Socio-demographic parameters.
- Political-economic parameters.

The TOR specifies working out TCC on physical parameters. TCC based on the most accepted and commonly used parameter are the physical / ecological parameters. On the other hand the other two other parameters are difficult to quantify and evaluate the impact.

Physical and environmental parameters include:

- A. TCC based on Water availability.
- B. TCC based on tourist accommodation available.
- C. TCC based on the Density pattern.
- D. The Government of Maharashtra has specified norms for hill stations. This would provide guideline for tourists envisaged in a hill station. Hence TCC was also worked out on this basis. Matheran
- E. Maximum tourist arrive by vehicles to Matheran, there is a limited Space for parking at Matheran. The TCC based on this parameter was also worked out.

3.3 Analysis Based on Various Parameters:

3.3.1 TCC Based on Water Supply:

At present Charlotte lake and Ulhas River are the only sources of water for Matheran town. The present augmented holding capacity of Charlotte Lake is 148.5 MLD. Water availability at Charlotte Lake is about 0.80 MLD and about 0.60 MLD water is pumped from Ulhas River which totals up to 1.40 MLD.

The present urban population of Matheran Nagar Parishad areas is about 4388 persons based on the 2011 census (provisional Figures).



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The daily water supply to local resident population can be considered at the rate of 135 lpcd as per UDPFI guidelines. This works out to (4388 x135) 0.59 MLD. The balance water to the tune of 0.81 MLD (1.40-0.59) is available for consumption of tourists after deducting the daily local needs.

As per the UDPFI guidelines for water supply, the per day water consumption for resident tourist (with overnight stay) is around 200 lpcd and 45 lpcd for day tourist.

The tourist data collected by MTDC for all tourist destinations in the state indicates that ratio of the percentage of overnight tourist to the day tourists is about 55% to 45%.

The surveys carried out by consultants for the tourists during January 2012 and the discussions with the hotel owners and other state holders indicate that the percentage of day tourists is much higher in Matheran.

Following reasons are attributed to this assumption:

1. Matheran is the nearest hill station to Mumbai, Navi Mumbai and Thane hence is a popular destination for day picnic. Surveys indicate that most of the tourists arrive from this area.
2. The distance between various points is not much longer.
3. There are number of points of tourist interest.
4. The tourists mostly visit this place for leisure activities and appreciation of nature.

Considering the above points, it can be safely assumed that the ratio of percentage of overnight tourists and day tourists is 40% to 60%.

Considering the above facts and assumptions the total number of tourist is worked out and is presented in table 3.1 below:

Table 3.1

Tourism carrying capacity based on availability of water

1.	Total water available for use of tourists	1.40 MLD
2.	Assuming the tourists that can be supported based on water availability (1 above)	SAY 'A' Nos. of Tourists
3.	Percentage of overnight tourist for Matheran	40% of A = $40A / 100$
4.	Percentage of Day tourists for Matheran	60% of A = $60 A / 100$



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5.	Water consumption per tourist per day for overnight tourists.	200 Lit. per day
6.	Water consumption per tourist per day for day	45 Lit. per day
7.	Water consumption per day per tourist.	$(0.40 A \times 200) + (0.60 A \times 45)$ = 80A + 27 A =107A
8.	Total water available for tourist is 0.81MLD	=810000 l Lit.
9.	No of tourist supported –‘A’	=810000/ 107 =7570 Nos. of Tourists / day

* Source MJP. **Source UDPMI guidelines.

The present day Tourist Carrying Capacity based on total water available for tourists works out to **7570 Maximum peak season Tourist / Day**.

This TCC will decrease with natural increase in urban population i.e. Population of Matheran town.

- This may also vary with change in percentage of day and overnight tourists.
- This will also increase with introduction of water re-use, Rain water harvesting and increased use of bottled mineral water for drinking purpose, and vice versa.

3.3.2 TCC based on Accommodation:

In this method the total number of beds available in hotels, lodges, guest houses along with the bed & breakfast scheme is worked out to arrive at maximum number of boarding tourists that can be accommodated in MESZ region.

Matheran is the most popular destination within the MESZ due to its unique climate, forest cover, mountain ranges, valley and a series of excellent view points. It has, therefore become main hub in the past. Naturally the maximum accommodation facilities were developed at Matheran. However, these are limited to Matheran plateau. Very few accommodation facilities grew in the rural area, or interiors due to difficult terrain and lack of accessibility.



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As the pressures grew, the bungalows, built for leisure and personal use, were also converted into the high end or private guest houses.

The 'Bed and Breakfast' scheme floated by MTDC has apparently been exploited and misused in most cases in MESZ.

Apart from this, a long list of un-authorized hotels and guest houses has sprung- up with amazing speed in last few years.

Information on hotels and accommodations was collected through the hotel owners association and through primary data collection. For the purpose of working out number of beds available, MTDC Bed and breakfast scheme have also been considered.

Working out TCC based on this parameter consists of calculating the total number of beds available for staying. This decides the maximum number of overnight tourist. The ratio of overnight to Day tourists gives total number of tourists based on this parameter.

The present number of beds available in region for stay is presented in table 3.2. It is based on lists of registered & non registered hotels, resorts, rooms and MTDC approved bed & breakfast units as obtained from MTDC. While arriving at the number of beds it has been assumed that each room has 2.5 beds. This assumption has been derived from the information as received from members of hotel owners association in Matheran.

Table 3.2 Nos. of Tourist Accommodation

Total Accomodations available In MESZ(Registered + Non Registered)		
Location	Rooms	Beds @ 2.5 per room
Matheran Hotels (35 Nos.)	985	2463
Private Rooms	214	423
MTDC resort rooms	41	120
Bed & Breakfast Scheme	10	25
Total	1250	3031

Source: Data from MTDC, Matheran Nagar Parishad, & Superintendent Office.



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Thus total existing residential accommodation for tourists works out to 3031 beds.

The total tourists consist of the overnight tourists as well as "Day tourists" Based on the tourist statistical data available, the percentage of "overnight tourists" and "Day tourists" is 40% & 60% respectively.

The total number of tourist based on above percentage works out as below:

Number of resident tourists = 3031 =40% of total tourists *

Number of day tourists = 60% of total tourists *

Total Number of day tourists = $3031 \times 0.60/0.40 = 4546$

Total Tourists = (Number of overnight tourists + Number of day tourists) = 3031 + 4546
= 7577 Tourists / Day.

Maximum Tourist Carrying Capacity based on Tourist Accommodation available in peak season is 7577 Tourist/Day.

Assumptions:

It is assumed that one room will have 2.5 Nos. of beds. **

Ratio of overnight today tourists is 40% and 60"%

*Source Tourism Survey of Maharashtra Report & Consultants Survey.

** Local consultation with hotel owners association.

Working out the unauthorized hotels/ Guest houses/ private bungalows and rural houses on temporary accommodation is difficult to count as these are not registered anywhere.

The T.C.C. based on registered units only will be less, but it will not be realistic. However, this has been worked out and is presented in table 3.3.



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Table 3.3 TCC based on Nos. Registered Tourist Accommodation in MESZ

Total Accomodations available In MESZ (Registered)		
Location	Rooms	Beds
Hotels in Matheran	985	2463
MTDC Resort	41	120
MTDC Bed & Breakfast scheme	10	25
Total	1036	2608
Tourist Carrying Capacity		
% of Day Tourist	60%	
% of Overnight Tourist	40%	
Nos. of Overnight tourist	2608	
Nos. of day tourist	3912	
Total Carrying Capacity (Maximum tourist/ day in peak season)	6520	

Source: Data from MTDC, Matheran Nagar Parishad, & Superintendent Office

Tourist Carrying Capacity based on registered Tourist Accommodation available is 6520 Tourist/Day.

3.3.3 TCC based on Density pattern:

In this method the total developable land is considered and maximum numbers of persons that can be accommodated on this land are worked out based on the acceptable density norms.

The existing land use analysis of the region shows that developed area at Matheran admeasures 271.92 ha .Thus total developed area is 271.92 ha. (Source Draft Development Plan for Matheran) Existing total urban population (i.e. Matheran Nagar Parishad area) of MESZ based on provisional 2011 census is 4388*considering this as local population, the existing Population Density, of developed area works out to 16 Persons/ha.



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The density will have to be discounted for the fact that this being a hill station and an eco-sensitive zone, the density standard will have to be adequately discounted, while working out carrying capacity.

The UDPFI Guidelines prescribes the density limits for hill stations as 45 -75 persons per ha including floating population i.e. Tourists.

Considering the present density of Matheran which is about 16 persons/ ha the least limit is adapted while calculating the Carrying capacity i.e. 45 persons /ha.

Accordingly total maximum desirable population of Matheran Nagar Parishad areas as per UDPFI standard works out to $229.67 \times 45 = 10335$ persons. Excluding local population of 4388, permissible maximum Ha. Floating population i.e. number of tourist is **5947**.

Present Residential Population(2011)*	4388 Persons
Total Population Inclusive of Tourist	Developable area x Density assumed= $229.67 \times 45=10335$ Persons
Tourist Carrying Capacity of urban Area	(Total Population Inclusive of Tourist)- (Resident Population) ($10335 -4388$)= 5947 Tourist/day

*Source Matheran nagar Parishad.

**Source Development plan reports of Matheran,

*** Source UDFI Guidelines.

Tourist Carrying Capacity based on Density pattern =5947 Maximum Tourist/Day during peak season.

In the MESZ region Matheran attract most tourists. Other Gaothans are not considered for working out TCC based on density pattern.



MTDC

3.3.4 TCC based on Traffic and Parking survey:

The Tourist carrying capacity based on the nos of trips by different modes and total demand & supply of parking space at entry point (Dasturi Naka) is worked out.

This exercise is based on the data of Traffic volume, Total nos. of trips derived from the Origin Destination surveys carried out by consultants in April 2012. the traffic surveys were undertaken in the peak season.

The TCC is based on the acceptable standard norms for the occupancy of vehicles. The relevant data and its analysis are presented below:

Table 3.4 Total Number of tourists

Sr. No.	Vehicle type	Traffic Volume (Nos of vehicles)	Total No of trips /day	Occupancy (Number of Persons/ vehicle)	Total number of Persons
	a	b	c	d	e = b x c x d
1	2 wheelers	57	1	2	114
2	Taxi	250	3	5	3750
3	Car/ Jeep	292	1	5	1460
4	S.T Bus	1	3	33	99
5	Train	1	5	150	750
	Total	601			6173

Source consultant's traffic survey

TCC based on number of trips by different modes and total demand & supply of parking space out to be **6173 Tourist/day**.

3.3.5 TCC based on Govt of Maharashtra's Hill Station Development Policy:

The government of Maharashtra has formulated policy for developments of hill stations vide Government Resolution (GR) Dated 26TH November 1996. (Refer annexure K) The GOM has set out rules and regulations for development of hill stations. These norms are on various physical level policies like, land reservations for hotels and resorts, FSI, built spaces etc. Although these norms refer to the development of new hill stations, these are definitive guidelines, which outline Government's intentions. Hence, these are



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followed to assess the TCC. Based on the norms prescribed under this policy, efforts have been made to work out TCC for the MESZ area.

As per policy 5% of developable land is permissible for hotel & resort land use.

As per Development plan for Matheran, 723.67 ha of land is available. Applying the Hill station development norm, area available for hotel land use is 36.18 ha. (723.67×0.05).

As per the UDPFI guidelines desired population density limit for hill station is 45- 75 persons /ha. Considering the eco sensitive zone status it is desired to keep the density at lower limits hence 45persons/ha limit is adapted while calculating carrying capacity.

Based on above norms the TCC is worked out and is presented below.

- Total area permissible for hotels as per hill station norms in Matheran. = 36.18 Ha.
- Permissible density as per UDPFI guidelines for hill stations = 45 persons/ Ha.
- Nos. of overnight persons (Tourists) that are permissible $36.18 \times 45 = 1628$ tourists
- Percentage of overnight tourist = 40%
- Percentage of Day tourists = 60%
- Nos. of Day tourists $(60\% \times 1628)/40\% = (.60 \times 1628/.40) = 2442$ nos.

Total Nos. of Tourist per day = $1628+2442 = 4070$ maximum tourist/day during peak season.

3.4 Conclusions and Recommendations:

The TCC has been worked out on various parameters as described above. Each of the parameter limits the TCC to number of tourists that can be sustained as per evaluated parameter. However, the least of the above parameters shall be the guiding TCC limit, since, exceeding that limits will stress the comfort levels of the tourists and will also lay stress on the environment.



MTDC

However, considering the limitations on availability of data, limitation on span of time available for the study, limitations on surveys due to time factor and various other factors that may not have been considered during calculations of TCC, consultants would like to provide a range instead of a specific single number as TCC. The range in which the TCC of MESZ lies is between 6000 to 7500 tourists per day. (Averaging out to 6750 tourists).

The permissible number of tourist per day during peak season based on various parameters is summarized below in table 3.5.

Table 3.5 Permissible Number of Tourist per Day

Sr. No.	Parameter for TCC	T.C.C. (Maximum Tourists per day)
1	Water Availability	7548
2	Population Density	5947
3	Accommodations	7577
4	Parking demand /supply	6173
5	Hill Station Guidelines	4070





MTDC

4. TOURISM DEVELOPMENT SCENARIOS & ALTERNATIVE TOURISM DEVELOPMENT

4.1 Strategy for Development:

The tourism carrying capacity for the region has been worked out in the range of 6000 to 7500 tourists per day. An important issue arises out of the number of tourists permissible, based on the TCC and present day volume of tourists in peak season which is about 6750 tourists/ per day.

The Capacities of all physical infrastructures have reached to at its peak and most of major viewpoints are overstressed. Traffic and parking problems in peak season and on weekends at Dasturi Naka and Neral are extreme. Tourism experience is deteriorating. **The fragile biodiversity of the region is at stake.** Providing additional facilities for the tourist will imply a spurt in the number of tourists which will further deteriorate the environment and tourism experience further. This will also lead to further degradation of bio diversity of this area and nothing will be left for future generations.

The nearby hill stations at Khandala and Lonavala are the classic example of this. Few decades back these hill stations commanded similar or more importance as Matheran and Mahabaleshwar, However, developments of resorts, private bungalows, hotels etc. have totally devastating effects on tourism, as these hill stations have lost their charms as hill station.

The aspect of further development is dependent on the T.C.C. The T.C.C. of MESZ has already reached its permissible limit of 6000 to 7500 tourists per day.

The MoEF insists that all development should be in the range and within the context of TCC.



MTDC

It is, therefore, imperative that the Tourism master plan will have to be planned to cater to about 6000-7500 tourist as the main objective and disperse /divert the additional tourist visiting the area.

A sustainable tourism development option emerges as the workable alternative. The efforts will require stringent implementation of law, restrictions on tourist numbers to limit of T.C.C. and overall change in behavioral pattern of all stake holders.

Approach and methodology for achieving the TCC:

The main objective is therefore, to achieve the reduction in number of tourists during extreme peak hours over a period of time with manageable number of visitors.

This will have to be achieved through a definite approach which will aim at following:-

- A. Dispersal of tourist by developing new tourist destinations around MESZ.
- B. Promoting new tourist products which are eco-sensitive and sustainable.
- C. Promoting new developments in the fringe areas of MESZ. (The Buffer zone around MESZ proposed by MOEF).
- D. Dispersal of tourists within the week and throughout the year.

The reduction in number of tourists or the dispersal of tourists cannot happen overnight. The entire process will call for a strong management plan for various aspects of tourism. These will include.

- a) Program for traffic and transportation
- b) Programs for improvement of points of scenic beauty.
- c) Programs on tourist accommodation
- d) Programs for environment management
- e) Programs for training and awareness

These are later dealt in the report, in tourism Management Plan



MTDC

A ten year phase wise tourism management plan is envisaged to achieve the objectives.

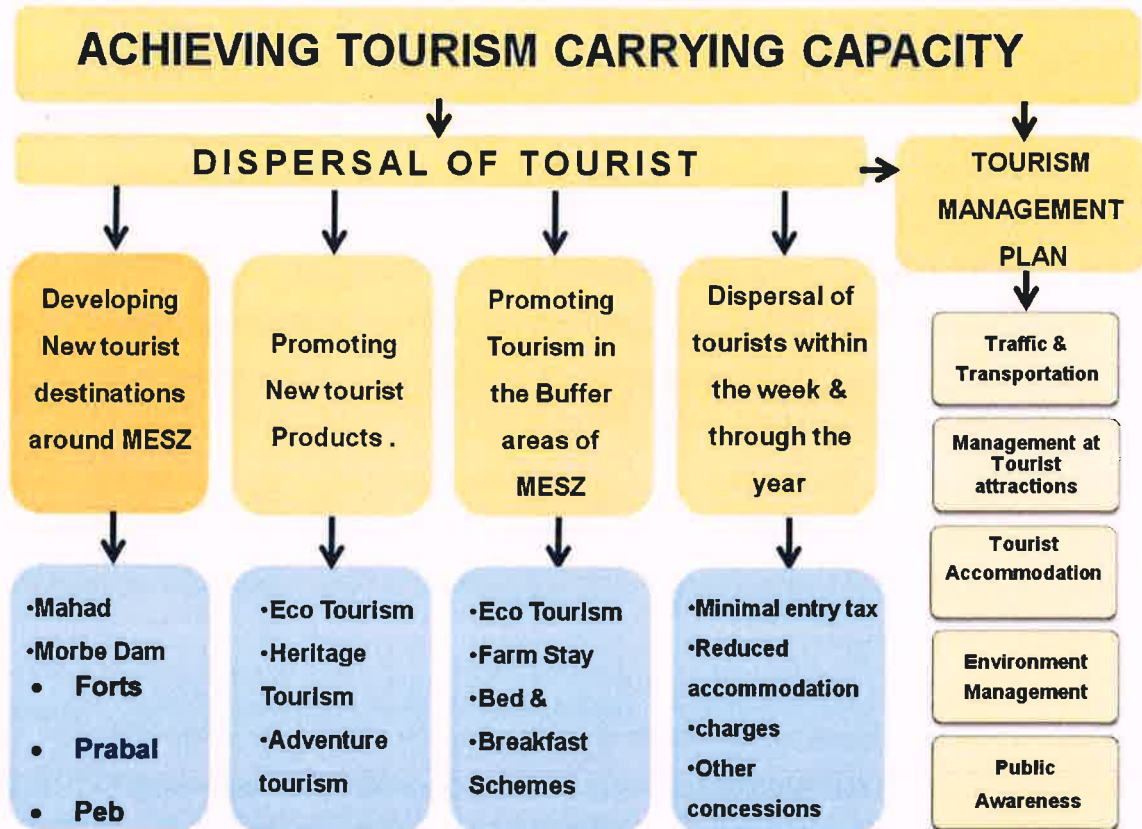


Figure 4.1 Strategies for Achieving Tourism Carrying Capacity

4.2 'A' Dispersal of Tourists:

4.2.1 Dispersal of Tourists within MESZ:

In order to decongest the existing viewpoints, other uncommon points which are not largely frequented can be made attractive for tourists to 'discover' the beauties of the plateau. Following recommendations are made.



MTDC

The Olympia race course should be preserved as open space. No construction of any type or kind is to be allowed in open public spaces.

The Olympia race course should be revived and made a heritage race course to attract national & international tourists. Where at least a yearly race can be conducted.

It has also been observed during the primary surveys that many jungle trails like Danger path, Prince Road, Rambaug Shidi, horse trails are unknown to tourists and same needs to be promoted where large number of tourist may be interested.

4.3 'B' Promoting and Adopting New Tourism Products:

The tourists in MESZ are mostly confined to activities in Matheran, Prabalgad and Malangad. In the past Matheran was known for long stays during summer. Many spent their time for writing, painting or simply leisure.

However, the present day life style of urban population, (Mumbai and Thane, the main origin tourist to MESZ) has changed the set pattern of long stays and has adapted to mostly 2-3 days vacation.

Group picnics, loud music, dancing, drinking has become most liked activities. The concept of modern tourism has seen a great rift in the pattern. It has been observed that a very small percentage of tourists are seen enjoying the serene atmosphere and natural beauty that the Matheran hills and valleys offer. Most of the tourists do not seem to even acknowledge, let alone, enjoy the green forests, and the breath taking views of Matheran. People are looking for diverse options for enjoyment.

Taking the concept of dispersal of tourists further, it is necessary that the concentration of tourists only in Matheran has to be dispersed and the tourist be taken to various other routes and programs, so that the congestion is eased out. This concept will further be augmented by proper routing of the tourist circuits and also through 'Tourism Management Plan'.



MTDC

The various new tourism products are given below:

4.3.1 Eco Tourism:

The main objective of this scheme is to provide additional economic activity for upliftment of locals as well as bringing them in the mainstream of tourism economy. This will have to be promoted through modified scheme of 'Bed and breakfast', home stays, farm stays etc. Detailed guidelines have been formulated for the eco tourism later in of the report. Many tribal villages which have scenic beauty can be identified prim facia for the eco/ rural tourism locations. Few of these are Hassyachipatti, Vetal Wadi Burjachiwadi etc.

Farming may be a way of life in the rural areas on out skirts of Navi Mumbai / Mumbai area but for many people who live in core urban areas at Mumbai, Navi Mumbai and Thanea visit to a farm can be novel experience particularly children. Farms can be developed that specialize in activities for children and families. It is billed as both an educational and fun experience that allows visitors to interact with a variety of farm animals and participate in activities such as milking cows, riding ponies and taking tractor-drawn hayrides etc. These types of unique farms will be recommended by the Grampanchayat/ Group grampanchayat with all the relevant information to the Tourism development committee. Based on the qualification criteria the status at ecotourism destination can be allotted to the individual farmers. Already such type at eco tourism activity is carried out near Matheran in Malegoan village at Sagunabaug. This can be a role model for others to follow.

Other aspects of eco-tourism that are increasing in popularity are farm visits and farm stays at operating farms. As mentioned earlier these types of farms where the farm stays can be organized will be identified at the village Gram Panchayat level and forwarded to the TDC for the scrutiny. People might visit for a day or stay overnight. Special events such as milking contests quilt festivals, fairs, and local fruit festivals are organized by individual farms and marketed by the village association through MTDC or tourism development committee.



MTDC

The association can have its website to promote the many activities offered by its members. The tourism development committee can help in promotion, marketing and branding of these facility.

4.3.2 Art & Cultural Festivals:

Such festivals are used to showcase local artists and culture and provide a means of supporting local talent and preserving local culture by involving younger generations. These festivals can involve music and dance performances, displays of art, jewellery and photography, as well as culinary booths. Each village can bring out what is unique in their village and the same can be displayed in these festivals.

Displays of local art of special significance along the roadside and the street show is yet another means of involving the community in tourism and exposing the talents of residents. This may also provide another means of inter-agency collaboration. However looking at the present socio-economic background of the surrounding villages there is very little scope for these kinds of activities.

4.3.3 Heritage Tourism:

Matheran has 295 structures as heritage properties, out of which about 200 nos are bungalows. These bungalows can be restored and maintained and rented out to tourists.

Similarly MESZ has several areas in which there are opportunities for heritage tourism to be developed. Like ECO-tourism, community members may feel overwhelmed by the idea of getting involved in heritage tourism projects. To help a community determine whether or not heritage tourism is a viable alternative for them, the Heritage Committee along with MTDC can organise workshops called 'Share Your Heritage Workshops'. These workshops can be aimed at bringing community stakeholders together to look at any issues they may be facing in trying to develop heritage tourism. Experts from the Heritage/ Archeology can make presentations to the workshop participants and share



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success stories with them. Villages can identify the Heritage locations and submit the applications in the prescribed forms to the TDC. The TDC will then scrutinise these forms and then allot the Heritage locations for the tourism promotion. Although there are already heritage guidelines for Matheran, consultants have made an attempt to formulate the guidelines for the same and are presented in chapter 6 of this report.

4.3.4 Adventure Tourism:

The topography and geography of MESZ region makes it a perfect location for adventure sports destination. At present adventure tourism has been actively perused in the region at locations like, Prabalgad, Peb, chendani etc. This shall be promoted.

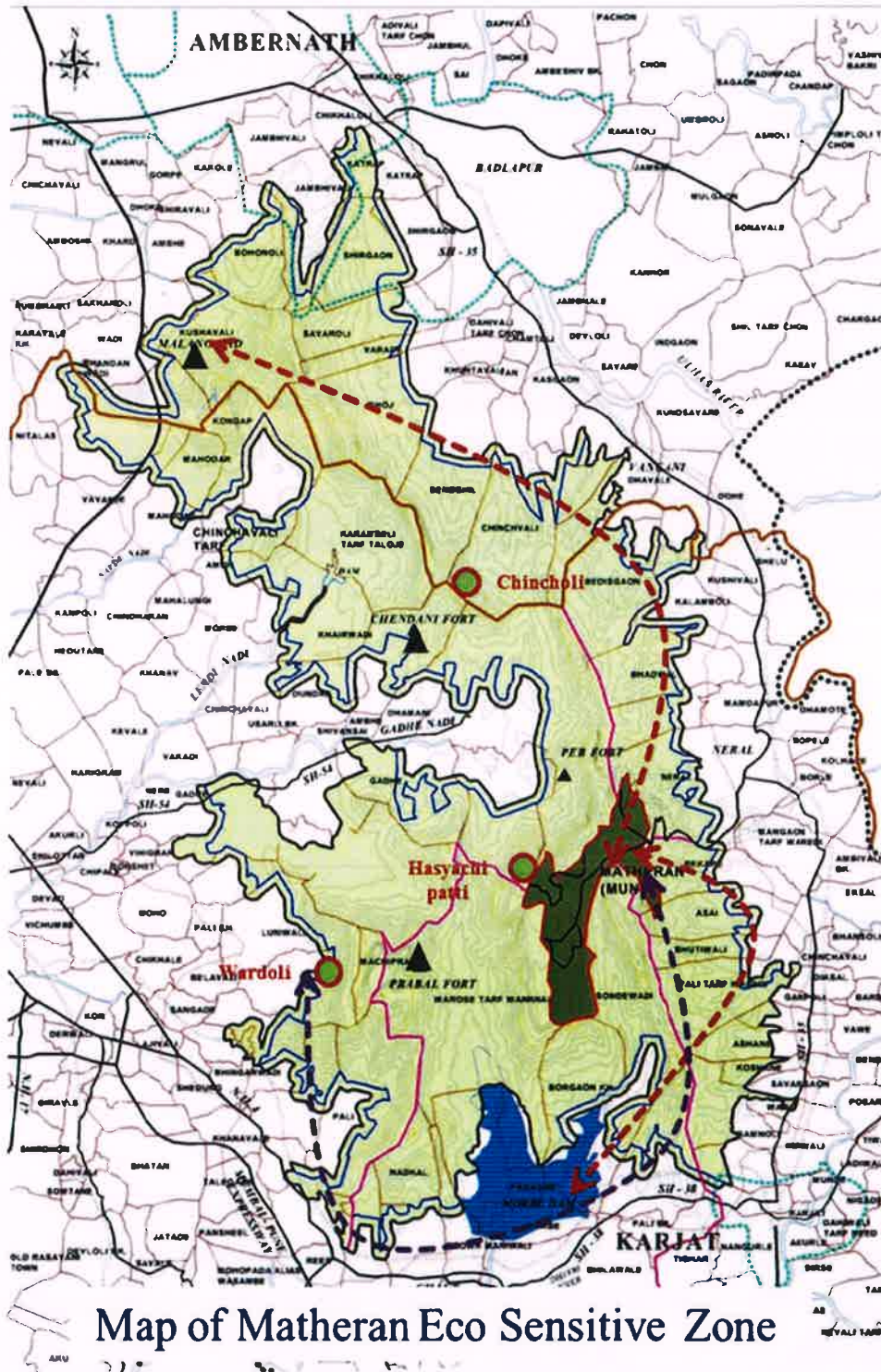
Adventure Tours including rappelling, river crossing, trekking, etc. shall be conducted under guidance of trained personnel. Camp sites shall be identified and designated in villages near to adventure site locations. Following treks should be promoted

1. Prabalgad
2. PebKilla
3. Haji Malang
4. Chandani fort
5. Asasne – Waterfall
6. Gadeshwar

4.4 'C' promoting new developments in the fringe areas of MESZ:

Taking the concept of dispersal of tourists further, it is proposed to disperse the tourist in the fringe areas of MESZ (Buffer Zone). Tourist activities like eco tourism, Farm stay, nature trails etc can be promoted in buffer zone. MTDC bed & breakfast schemes can be implemented in these villages. Fortunately there are large numbers of farm houses at the foot hills of Matheran. These farm houses can be promoted for farm stays etc. At the same time, N. D. Studio, Morbe Dam, etc. Which are on the fringe areas also can be promoted. The Sky watching activity at "Wagani" also can be part of tourism experience in fringe areas.





Map of Matheran Eco Sensitive Zone

Proposed Tourist circuits in MESZ



MTDC

Following Tourist circuits are proposed to promote Eco tourism, Adventure tourism and rural tourism

1. Matheran –Malangad- Morbe Dam,
2. Matheran-Prabalgad
3. Matheran –Peb- Hassyachi Patti.

Package tours for 2 to 3 days of these circuits can be offered to the tourist in which they can have experience of Nature tourism at Matheran, Adventure at Peb ,Prabal gad and tribal culture at Hassyachi patti or other tribal villages. Tented accommodation sites can be developed at these locations with help of MTDC and can be given to local community for Management and operation. The locals can be trained as guides, Hospitability etc. under the Ministry of tourisms Hunar Se Rozgar Tak program.

4.5 'D' Dispersal of Tourists within the week and through the year.

As is observed from the present scenario, there is a tremendous variation in number of tourists ranging from almost negligible during the rainy seasons of June, July and August to about 7000 to 8000 during peak season weekends and exceeding 10,000 on special days like Year End and Diwali

The trend of highest peak season clubbed with festive season or holiday weekends experience maximum tourists of about 7000 to 8000. However, such occasions may be limited to following.

1.	October November	Diwali vacations
2.	December	Christmas vacations and year end
3.	January	Good season for vacations
4.	April to May end	School/ college vacations and bad climate in Mumbai, thane and generally summer all over in India.



MTDC

November, December, and January are the months when the school children have their educational, 1 to 2 days excursions. Matheran has been observed to be over crowded with such school trips from nearby areas, Mumbai, Thane, Dombivali region.

Such trips have their own characteristics and pose different issues than visit of normal tourists.

This category of "tourists" needs to be treated separately.

Apart from the monthly, seasonal, and annual variation, there is a fairly large variation in the weekly inflow of tourist viz-a-viz effects on economic activities.

This has been experienced over decades and is not a new phenomenon. However, in the recent past the sudden spurt in increase of number of tourists, has been responsible for a matching development in hotels, restaurants, shops, recreation activities, conversion of private bungalows in to guest houses/ hotels etc. Most of the constructions and additions appear to be un-authorized since the construction activities have been banned in the region since 2003 i.e. enforcement of MOEF notification.

However, this reduction in tourists which is the number reduction only during peak season and weekends will only hamper the extra income that may be earned during these peak periods.

Variation in seasonal as well as weekly employment in Matheran is a phenomenon attached to it right from the beginning.

It is, therefore important that the tourists are encouraged to utilize week days to enjoy the tourism experience of Matheran. This will not only ensure equal and proper utilisation of resources but will also ensure serving more number of tourists.

If we consider the tourists to Matheran at 6 lakhs per annum (as the highest figure suggested) and equally distribute it over 150 days in the year (excluding monsoon). The average tourist per day is about 4000.



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This may be difficult to achieve because more people will travel on weekends and holidays. However, all efforts will have to be made to change the pattern by way of giving various incentives to encourage travel during the week days. The incentives may include almost zero entry tax.

- Minimal entry tax
- Reduced accommodation charges
- Other concessions

This also has to be implemented with the contrasting increased tax structures, increased accommodation charges, and imposition of heavy taxes during the peak seasons. A composite scheme in co-ordination with hotel owners, Nagar Parishad and other stakeholders will have to be worked out, strictly as a business promotion policy.

Following tourist groups can be targeted.

1. Family
2. School children
3. Senior citizen groups
4. Company excursions
5. Foreign tourists
6. Outside state tourists

This dispersal of tourists over the week and through the year will ensure employment throughout the week and possibly throughout the year. This will reduce excessive stress over the services, shops, hotels etc. during weekends/ peak seasons.





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5. TOURISM MANAGEMENT PLAN

5.1 Improvement in Existing Tourist Facilities:

Under tourism management plan, Consultants have formulated specific programs for following sectors. These will not only improve the tourist facilities but also improve overall tourist management and in turn, the tourist satisfaction.

- a) Traffic & transportation.
- b) Improvements to existing tourist locations like viewpoints etc.
- c) Tourist accommodation.
- d) Environment management
- e) Public awareness and participation.

These programs will be implemented in three phases namely, short term, midterm and long term within ten years time frame. Each program is discussed broadly in paragraphs below along with the phasing.

5.2. Traffic & Transportation system:

Traffic and transportation is one of the key aspects of physical infrastructure of tourist management. Though there are no vehicles allowed in Matheran but as per the traffic study undertaken by consultants for the Matheran, the parking situation at the entry point during peak season is worst in Matheran. The present approach road is narrow and cannot be widened further as they may encroach up on the forest land. The vehicles are parked in forest land or all along the road.

Hence Consultants are suggesting phase wise improvements programs in traffic & transport system. Figure 5.1 presents the phasing chart.



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Figure 5.1 Phasing Program for Traffic & Transportation System

Traffic & Transportation												
Sr. No.	Description	Short Term					Long Term					
		0	1	2	3	4	5	6	7	8	9	10
A	Improve to existing parking at Dasturi naka											
B	Laying heavy Parking Charges during peak season											
C	Planning for traffic dispersal program and land procurement											
D	Promoting Horse riding and walking circuits											
E	Development of Parking lots at Neral.											
F	Eco Friendly buses from Neral Parking lots. Improvement in frequency of rail Shuttle service from Neral- Matheran											
G	Designating Separate paths for Horses & Pedestrians. Improvement of internal roads (Paver Block roads etc)											
H	Restriction on Horse Keeping Licences.											
I	Alternative For Hand pulled Rikshaws											

5.2.1 Short term programs:

The short term programs are based on restrictive measures and encouraging the alternate mode of transports.

- Those visitors who have reservations with hotels will be permitted to take their vehicle up to Dasturi Naka. Others intending to take the vehicle without hotel reservations will be charged heavily in peak season. The charges for the same can be decided by the Tourism development committee. This will also imply that the entry of the vehicles needs to be strictly regulated which is not the case today.
- The promotion of the existing jungle trails should be undertaken by all means. The existing jungle trails shall be maintained and shall be made operational for horse riding and walking along with proper information signage, dustbins, and other informative material along the trails. The guides can also be encouraged to take the tourist along the trails
- Emphasis should be given to promote and operate public transport like eco buses shuttle service from Neral to Dasturi.
- Improvement of existing parking lot near Dasturi should be taken up with installation of signage, dust bins etc.



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5.2.1.1 Parking at Foothill of Matheran:

Procuring land for parking lots near foot hills of Matheran at Neral should also commence immediately. Consultants have identified land pockets near the foot hills in Neral village along Neral –Karjat road and a conceptual parking scheme has been worked and is presented in Figure 5.2.1. The land identified for parking lot is private land and will need to be acquired. Based on the parking survey the parking demand for cars was worked out .The parking lot is proposed for about 300 cars and 100 two wheelers. Along with car parking ECO bus pickup point and interchange facility (cars to eco taxies)is also proposed wherein the people can park their vehicles and take the ECO bus to Matheran. Facilities like Toilet block, Food Courts, Information center where tourist can get information regarding the availability of accommodations, Eco Bus service, Tourist circuits at Matheran and around Matheran. A CNG /LPG pump is also proposed near Parking which will not only serve to eco buses but also to other eco vehicles visiting the area. The existing taxis shall be allowed to be converted into eco taxis (CNG/LPG) in due course of period. This will not only decongest the Dasturi naka but also stop the encroachment of parking in forest area.

5.2.1.2 Parking for Eco Taxis at Neral:

About 55% tourist visiting Matheran travel by Taxis. These taxis are haphazardly parked at taxi stand near Neral railway station which causes congestion. A proposal is worked out for taxi parking near railway station. It is proposed to cover the existing 15m wide nalla with RCC slab so that the waterway remains undisturbed and the above surface can be used for parking. About 50nos taxi is proposed.

However the detailed study for the development of these parking lots. Shall be taken up. There is no other space for taxi parking near Neral station



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5.2.2 Long term Programs: The long-term programs are based on developing and implementing the traffic dispersal strategy.

- Presently there are no separate paths for horses and pedestrians which create congestion on already narrow roads. The paved pathways are damaged due to horse rides. Consultants propose that pathways shall be designated as separate paths for pedestrian and for horses. A details engineering study shall be taken up for above proposal.
- Cycle Rickshaw pulled by humans is also one of the modes of transport within Matheran. This shall be banned in Matheran as it is an inhuman activity prompted by the British rulers and shall be replaced by battery operated cycle rickshaws. Separate designated rickshaws stands shall be developed near Dasturi, Bazaar and at railway station.
- Restriction on number of horses shall be implemented in due course of time and the present number of shall be restricted up to 250 nos. This will reduce the problem of horse dung which is a major problem. The local governing bodies should monitor the number of licenses.

5.3 Improvements to Existing Tourist Locations Like Viewpoints etc.:

The greatest attraction of the region is its natural beauty. All efforts should be made to preserve and qualitatively improve it.

Consultants are also suggesting phase wise programs for improvements at existing tourist locations. Figure 5.2 present the phasing chart.



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Figure 5.2 Phasing chart for Improvement at tourist locations

Tourist Attractions													
Sr. No.	Description	Short Term				Mid Term				Long Term			
		0	1	2	3	4	5	6	7	8	9	10	
A	Provision of proper Signage ,Dustbins , railings Steps ,ATM Near Dasuri etc												
B	Proposing Eco Toilets, Stalls etc near view point												
C	Restricting any type of structure a round view point area.												
D	Revival of existing Garden , Olmlyza race ground on PPP basis.												
E	Formulation & implementation of Eco/ Forest tourism schemes in MESZ.												
F	Restriction on Number of visitors												
G	Strict maintenance of natural ambience												
H	Ban on use of Plastic in Matheran & Implementing zero garbage system												

5.3.1 Short term Improvement Programs:

The objective of the short term programs is improvising the existing conditions of the tourist attractions.

- Due emphasis should be given to proper maintenance of the points of tourist attraction which are the natural heritage of these hill stations. Adequate Government grants shall be made available for maintenances.
- All the food stalls near the viewpoints shall be relocated in designated area at viewpoint. No permanent or temporary structure will be allowed. Use of non motorised mobile carts will be allowed for food stalls which can be moved when not required.
- Improving the view point with tourist facilities like water dispensers, Eco toilets, and mobile food carts.
- Information, regulatory and cautionary signs of uniform Sizes, colours designs and fabricated with special material to withstand heavy rainfall will be provided.
- Orientation & information signage giving general information like altitude of the point, names of the different forts/places those could be seen from the point, map of the area showing jungle trails and lesser known points and information about them leading to the next point and information about flora, fauna and avifauna and history if any will be displayed at each view points. The concept is to use this



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place to educate the visitors/groups by guides/nature interpreters on the efforts of the local management (Department of Forests) to keep the area clean and conservation issues, and the responsibilities/contribution of visitors towards the same.

- Arrangement of telescopes can be made at each view point.
- Proper steps of natural and locally available material like laterite etc will be provided at the required locations along with earthen ramps.
- Parapet walls / safety railings needs to be provided for the safety and protection of tourists at the points with steep falls.
- Sit outs around trees to be provided at suitable intervals at the points involving long walk of steep descend/ascends to facilitate children, ladies, and elderly persons to take rest.
- Use of plastic below 20 micron is already banned in MESZ region but it needs to strictly enforce for all non-bio degradable items also.
- Improving the physical infrastructure and providing basic tourist facilities at all points including those which are less visited today will help in dispersing tourist's traffic.
- Adequate litter bins specially designed so that the monkeys cannot open it needs to be installed at 100 m interval at all view points and on routes to view points.
- Development of existing gardens in Matheran on PPP basis.
- ATM is proposed at MTDC rest house in Matheran for facility of tourists.
- An information kiosk is proposed at neral station where information regarding Matheran and surrounding areas shall be made available long with information regarding taxis, Hotels, and train booking.

The objective of mid - term programs is to implement tourist management plan for all tourist locations through some restrictive measures.

- All non bio degradable items like plastic bottles, packs, cups, spoons etc shall be totally banned on view points. Checking for all these items will be done at security post at entry of view point and all non degradable items will be taken off



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or an eco-deposit shall be collected for carrying these items from tourist to ensure they return of the plastic items carried along with them.

- No permanent or temporary structure shall be allowed in and around view point area. All the food stalls near the viewpoints shall be relocated in designated area at viewpoint lots away from the core view point.

5.3.3 Long Term Programme:

The ultimate objective of programme is to put restriction on number of tourists at a time along with strict maintenance of natural ambiance and zero garbage generation. The above can be achieved by following:

- The restrictive measures like Ban and check on non bio degradable items like plastic bottles, polythen bags etc. to the viewpoints and ultimately to MESZ, shifting the food stalls in designated locations etc will reduce the generation of non degradable garbage at the tourist locations.

5.4 Matheran as Heritage Town:

Matheran's unique cultural heritage lies in its environment and settlement forming a complex and highly developed fabric of human habitation and nature.

The uniqueness of Matheran cultural heritage can be seen reflected in the morphology, building typologies, activity patterns, social structure, and traditions that exist in Matheran town. Matheran has good number of heritage structures with the turn of the century rapid urbanization the town is exposed to strong extraneous, fast growing agents disturbing the delicate balance of the physical, social, cultural, and ecological environment. The conservation of these structures will not only preserve the heritage but will also act as resource of employment and income generation to the locals.

It is proposed that Matheran can be declared as Heritage town under the UNESCO, INDIAN HERITAGE CITIES NETWORK (IHCN) program initiative for Indian cities and towns. Through which program for capacity building, good practice exchange, awareness raising, technical assistance, and the facilitation of partnerships between Indian and International Cities and Regions can be undertaken. Special efforts shall be



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taken to list the Matheran heritage railway on UNESCO world heritage list. MTDC shall take initiative along with Matheran Nagar parishad for declaring Matheran as Heritage Town.

This will need setting up of a small working group to prepare and follow up the proposal for making Matheran a "Heritage town".

5.4.1 Consultants propose following improvement at Malangad:

1. A parking lot for about 100 cars shall be developed along with toilet and drinking water facility at foot hill of Malangad near Haji malangwadi grampanchayat office**.
2. The steps should be repaired and developed properly so that people will not have problem in climbing.
3. Drinking water facilities should be developed at various spots in the 5 km stretch from foot hill up to the top. Along with eco-toilets.
4. Some work on solid waste system like provision of dustbins at various locations.
5. Awareness sign boards about keeping the environment clean shall be installed along the route.

(** presently a private parking is being operated by the land owners near the entry point @ Rs 150 /Car for 12 hrs)

5.5 Special Infrastructure Provisions:

Consultants would like to make a special mention about the provision of eco toilets, signanges etc. near the view points.

5.5.1 Eco Toilets:

- Only one toilet (unisex) for urinal/WC use may be built near the entry to the point. The location of this toilet will be away from sensitive flora and also will not obstruct view of the Valley.



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- This structure would not be permanent (except its plinth base), would be painted dark green (to blend with the environment)
- It will be the responsibility of Forest department to maintain the cleanliness of this toilet. The toilets can be on the Pay and use basis and can be given to private operator for the maintenance.
- The toilet will have water saver cistern. Chemical/bio sanitizer toilets/Dry toilets are available and have been developed by DRDO. The same can be used for this purpose.
- The effluent will be filtered through pits containing sand, soil and gravel mixed proportionately before it is drained out.
- Effluents will not be allowed to drain into rivers or natural ecosystem of the protected area but a system of its purification should be an in-built option (bio digester will be provided).

5.5.2 Signage's:

Signage's will form an important part of the visitor experience enhancement and education. At the same time these signs should help identify the MESZ as a brand for the eco-tourism. The following signages are proposed:

- There should be clear sign boards at each junction indicating the points/ Natural trails/ Adventure tourist spots, Heritage structures etc.
- For eco- tourism facility there should be directional signs all along the route so that the tourists are guided to the proper location.
- Nature Interpretation/Information Board at Points with small pictures & supporting text (1.5 m x 2 m size) and should be installed with the FRP material and with the GI pipe structures should be installed.
- Small nature interpretation signages (of legible size) that merge with nature along with rare trees and flora on the way are also proposed.
- Standard Warning/Information Signage Board for Landslide prone areas along trek path shall be installed.



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- Standard eco-message signs can be installed at strategic locations imparting the awareness/ education about the place.
- Directional/Location & Informational signages are proposed with dark green background & white text, while Nature Interpretation signages would be as per the current pattern followed by Department of Forest.
- Graphic design for all the signs can be taken up as a special task so that these are unique to the region.
- The policy for the hoardings as well as signs on the lamp post can also be formulated so that they merge with the ambience.
- Signage / advertisements on rocks and trees shall be prohibited
- Signage, hoardings, advertisements and street furniture shall be permitted only at approved places excluding valley sides of the roads and shall not be more than 3ft x 6ft in size and as per the design and locations approved by the Heritage Conservation Committee.
- The entire MESZ should have an advertisement policy in place and the locations of the advertisements as well as hoardings should be pre-determined by the council and these boards/ hoardings should be installed only at the designated places.
- It is also learnt that the Heritage committee for Matheran have assigned task of preparation of manual for street furniture which can be also incorporated while actual execution of the project.

5.5.3 Other Infrastructure:

Special guards preferably Forest staff at the tourist spot can be provided with the dedicated wireless system so that they can co-ordinate the tourist flow as well as arrange the help in the emergency situation. The forest department may train the local youth of the region and appoint them as guardians.

5.6 **Tourist accommodation:**

Considering present inflow of tourist and the TCC worked out by consultants, the consultants are of opinion that the present tourist accommodation facilities are adequate



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and should not be allowed to be increased further. Consultants are also suggesting phase wise programs for improvement of existing tourist accommodations on the basis of its compatibility to the eco-friendliness Figure 5.3 presents the phasing chart.

Figure 5.3 Phasing chart for tourist accommodation facility

Tourist Accommodation

Sr. No.	Description	Short Term				Mid Term				Long Term			
		0	1	2	3	4	5	6	7	8	9	10	
A	Reorientation of bed & breakfast schemes	■	■	■	■					■	■	■	
B	Promoting Farm Stay etc.	■	■	■	■					■	■	■	
C	Formulation of Green guidelines for Hotels	■	■	■	■					■	■	■	
D	Conversion of heritage bungalows in heritage hotels	■	■	■	■					■	■	■	
E	Revival of all Existing Govt. & Semi Govt owned Guest houses through MTDC.	■	■	■	■					■	■	■	
F	Implementation of green building Norms for Hotels	■	■	■	■					■	■	■	
G	Implementation of ECO Star Rating for Hotels with Incentives in taxes	■	■	■	■					■	■	■	
H	Conversion of all existing hotels in ECO hotels /Resort/Lodges as per Green building norms	■	■	■	■					■	■	■	

5.6.1 Short Term Program:

The objective of the short term program is to promote eco tourism.

- No new resorts, motels, lodging, involving accommodation shall be permitted in Matheran nagar parishad area, except the bed and breakfast scheme of M.T.D.C and conversion of heritage bungalows in heritage resorts.
- It is proposed that in the short term all the licenses issued by MTDC should be reviewed at and terminate license for breach of conditions. Such licenses should not be extended.
- Bed and Breakfast type of tourist accommodation may be permitted in the Buffer, with the exception of the Nagar Parishad area of Matheran town with prior approval and sanction by and of the Maharashtra Tourism development corporation subject to a limit of 2 such rooms, each room not exceeding 15 sq.m.



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Per plot. This shall be permitted only in sanctioned authentic structures belonging to local citizens.

- The Bed and Breakfast scheme shall be operated in the existing residential homes of local citizens. M.T.D.C. shall ascertain legality for building before grant of permission for bed and breakfast scheme. The NOC from Collector should be mandatory.
- Tented accommodation facility can be promoted by identifying camping sites in Matheran & MESZ area.
- In the initial years it is felt that rigorous efforts are needed for the promotion and marketing of the Agro-tourism.
- The formulation of green guidelines also needs to be formed which can be applied to the existing hotels. These guidelines can then be related to the incentive scheme for hoteliers in terms of concessions in the local and state government taxes.
- At the same time strict enforcement will be needed for closing down the unauthorized hotels as well as bed and breakfast schemes.

5.6.2 Midterm Program:

The objective of midterm program is to re orient the existing tourist accommodation facilities to sustainable tourism by adapting green norms.

- Implementation of green building Norms for Hotels/resorts/ lodges shall be made compulsory. Consultants have also formulated broad Green guidelines for existing Hotels/resorts/ lodges etc that are presented in chapter 6. The existing hotel owners can convert their hotels in ecotel by following these green norms.
- Those hotels practicing/have adapted the green norms shall be given ECO Star Rating with Incentives in taxes. Some of the indicators for eco star rating are given in chapter 6 of this report.

5.6.3 Long Term Program:

- The ultimate goal of all existing hotels in MESZ region shall be to get converted in to ECO hotels /Resort/Lodges as per Green building norms.



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5.7 Environment Management:

Consultants are also suggesting phase wise programs for environment management. Figure 5.4 presents the phasing chart.

Figure 5.4 Phasing chart for Environment Management

Sr. No.	Description	Environment Management										
		Short Term				Mid Term				Long Term		
		0	1	2	3	4	5	6	7	8	9	10
A	Strict enforcement for implementation of environment management practises											
B	Provision of specially designed Dustbins											
C	Promoting reuse of water bottles											
D	Provision of water dispenser at various locations											
E	Zero Garbage Eco sensitive zone											
F	Achieving acceptable environmental norms											
H	Conservation of existing Streams ,Simpson Lake and Charlotte lake.											

5.7.1 Short Term Program:

- There shall be strict enforcement for implementation of environment management.
- Reuse of water bottles shall be promoted by initially providing water dispensers at hotels, at viewpoint and other locations.

5.7.2 Midterm Program:

Solid waste management at the tourist spot will be a major aspect. Following steps recommended:

- Strategy shall be formulated aiming zero garbage release and zero garbage generation as ultimate aim.
- As discussed earlier no tourist will be allowed to enter the forest area/ tourist spot with the non biodegradable materials like polythene, bags, beverage bottles, etc.



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- Litter Bins are proposed near the entry point of the tourist spot. Further area in the forest will function on “Visitor carries Waste” principle as adopted in many international/ National Parks. An Eco-Deposit (minimum of Rs. 100/- or as decided by the Department of Forests) may be collected from the visitors who have to declare the plastic items – polythene, bags, beverage bottles, etc. carried by them, at the entrance gate. This deposit will be given back to them once they return back and show that they are carrying back the waste.
- TDC/ Forest can also appoint the locals (Eco-guards) for cleaning of the solid waste from the points and the area nearby. The solid waste collection points can be identified, where at the end of the day these eco- guards will be depositing the solid waste (Plastic Bottles/ polythene bags etc). The collection can then be deposited for the recycling plant. Private sector participation can be brought for the recycling plant and incentives like reduced electricity rates, low rate for leasing of government land for the installation of plant can be offered. Over a period of time with successful implementation of the scheme there shall be a provision for these eco-guards and recycling operators to be suitably rewarded.
- The horse dung also poses a challenge to the local authorizes as it is an unbearable nuisance. Appropriate dung collection and disposal should be carried out. The horse owners should also be involved in the process and forced to use horse dung bags and empty them at pre designated locations. Local body may use appropriate method of disposal including use in manure.

5.7.3 Long Term Program:

The ultimate aim is to achieve acceptable norms in terms of water, air and disposal of solid waste.

The above can be achieved by following

- Restricting vehicles at entry point and compulsory use of eco public transport will reduce the air pollution and will ultimately improve the air quality.



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- Compulsory adoption of green norms by hotel owners like installing STP and re use of treated water for flushing and gardening will stop water consumption as well as pollution and will ultimately improve the quality of water.
- Ban on use of non bio degradable items in MESZ region, adapting the zero garbage release strategy and implementing strict measures for disposing the solid waste will ultimately improve the ambiance.

5.8 Public Awareness Programs:

Consultants are of the opinion that ultimate aim of the public awareness program shall be to create responsible tourists and stakeholders. Public awareness is a continuous process hence can be implemented from the day one.

To achieve this following recommendations are made by consultants.

- MTDC should start a tourist information booth at Neral station where the tourist will get proper information about the Matheran, its viewpoints other locations around etc in the form of maps brochures etc along with information regarding eco buses, guides, accommodations etc.
- Interpretation Centre should be set up with well trained personnel to implement a comprehensive guidance for tourists designed for a variety of target groups.



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Figure 5.5 Continual processes of public awareness

Public Awareness													
Sr. No.	Description	Short Term				Mid Term				Long Term			
		0	1	2	3	4	5	6	7	8	9	10	
A	Creating awareness about Eco sensitive Zone through Brochures, Informative signs, Film in Hotel & Interpretation center, Alert SMS services												
B	Awareness Programs for local shopkeepers, hotel owners, taxi men's, horsemen's etc												
C	Formulation of Do's & Don'ts Guidelines for Tourists												
D	Development of Information Kiosk at Neral Station, Nature Interpretation Center												
E	Educative Nature Trails through Nature clubs												
F	Environmental education through nature guides												
G	Implementation of Do's & Don'ts Guidelines for Tourists												
H	Creating responsible tourist and stakeholders												

- Various programs providing information on Forests and Ecology, History and heritage, Geological importance of the plateau and other morphological features of MESZ region shall be organized.
- Other means of creating awareness about Eco sensitive Zone can be through Brochures, Informative signs, Film in Hotels and buses.
- It is also proposed by consultants to use alert SMS service for awareness programs. Once the tourist or locals enters the MESZ he will receive alert SMS regarding Do & Don'ts in ESZ area. This message service can be implemented immediately with sponsorships from local hoteliers or ECO industries where they may use this to advertise their hotels product etc.
- Awareness Programs for local shopkeepers, hotel owners, taxi men's, horsemen's etc should be carried out through workshops and training programs.
- MTDC shall train the local youths as guides along with the local Horsemen, Taxi drivers, Rickshaw pullers, etc under behavioural development program.
- Environmental awareness programs for local school children's should also be worked out.



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- Do's & Don'ts/ Guidelines for Tourists should be formulated for MESZ region and can be circulated through SMS, back of entry tickets, brochures and signs at specific locations.
- It is also suggested to start nature clubs where the members can be trained. Nature guides who can educate the tourists through educative Nature Trails about environment can also be trained in these clubs.
- Tour operators can also have dedicated Eco- tourism tours for those interested in such type of Tourism. Each program can be designed to fulfil a number of strategic objectives, including:
 - Promoting sustainable tourism;
 - Supporting conservation efforts;
 - Making financial contributions to wildlife and development agencies and conservation initiatives;
 - Raising awareness about conservation issues; and
 - Ensuring that the benefits of the tour programs stay in the host communities/ region.

5.9 Minimizing the Negative Impacts of Tourism:

Authorities responsible for maintaining natural and/or cultural resources as tourist attractions are faced with a perpetual conflicting challenge:

“Maintaining the integrity of the resource while providing a pleasurable visitor experience”.

Changes to the natural environment are inevitable, with the predominant change being an acceleration of ecological process such as erosion. As a result, the main objective of all land use managers (Nagar Parishad/ Gram Panchayat / Forest) should be to develop management objectives and guidelines that will reverse undesirable change, not to stop change completely. In deciding what changes are undesirable, a manager must not only



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consider what he or she personally may think is undesirable, but more importantly a manager should examine if an impact limits a visitors experience

In order to help create equilibrium in this battle, it is important for managers to know and understand

- 1) The desired activities and settings of recreating visitors,
- 2) The motivations, preferences, and desired benefits of recreating visitors, and
- 3) How much change is acceptable within a specific natural area.

Currently, there are a number of management guidelines for managing resources and visitor experience such as

- Limits of Acceptable Change (LAC),
- Recreation Opportunity Spectrum (ROS),
- And Visitor Impact Management (VIM).

However, studies have shown those visitors' perceptions of impacts and management tactics vary greatly from those of the managers themselves. As a result, natural resource managers need to bridge the gap between visitor and management perceptions while still implementing management strategies that will benefit most aspects of the visitor's experience.

In addition to the frameworks for managing visitation to natural areas, the Visitor Experience and Resource perception Framework (VERP) developed abroad can be used. The concept of this framework is similar to that of to provide guidelines for capacity use in various areas and provide standards for managing visitors in natural areas. The overall VERP framework consists of nine steps which can be condensed into the following basic concepts relevant to all management frameworks:

1. Define the existing condition of the resource,
2. Define the desired condition of that resource,
3. Develop management actions to achieve the desired condition.



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Defining the Existing Condition

The term itself provides a starting point for managing visitor use and impacts. Managers can define a site's current condition through:

1. Staff observations of current use and impacts
2. Public input about current use and impacts
3. Current indicators and standards of quality
4. Current and past research

5.10 Tourism Management Tactics and Strategies:

According to *Sustainable Tourism in Protected Areas, Guidelines for Planning and Management* a joint publication by the United Nations Environment Program (UNEP), the World Conservation Union (IUCN), and the World Tourism Organization (WTO), there are four main approaches that managers can use to reduce visitor impacts in protected areas:

1. Manage the supply of tourism or visitor opportunities
2. Manage the demand for visitation
3. Manage the resource capabilities to handle use
4. Manage the impact of use

Within these four broad areas of visitor management, there are several management tactics to achieve each approach. Following Table provides specific actions that site managers and tourism planners can take to manage visitor use. These tactics were compiled from *Sustainable Tourism in Protected Areas, Guidelines for Planning and Management*



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5.11 Action Plan:

Other than the above sector programs, Consultants suggest following action plan:

- 1 Start Visitor information booth at Neral and interpretation at the entry point at the earliest.
- 2 Organize eco-festivals imparting more information on the flora/ Fauna in the MESZ and also disseminate information through the web sites and through information brochures
- 3 The street plays can be organized for creating awareness amongst the tourist visiting these festivals.
- 4 Improve directional signage to attractions, particularly those that are in the region, buffer area and the known destination.
- 5 Conduct a simple visitor survey on at least a yearly basis so as to know the effectiveness of programs undertaken by the stake holders
- 6 Offering region produced snacks and juices in the interpretation Center.
- 7 Implement bi-monthly or quarterly tourism related workshop for existing companies and persons interested in initiating eco tourism enterprises such as Adventure tourism/ Agro- tourism and Heritage tourism.
- 8 Reduce Use of Problem Areas- Dispersal of tourist traffic
- 9 Inform potential visitors the disadvantages of visiting problem areas/site during peak season
- 10 Discourage or prohibit use of problem areas
- 11 Limit number of visitors in problem areas.
- 12 Make access to problem areas more difficult and / or improve access to alternative areas.
- 13 Eliminate facilities / attractions in problem areas and / or improve facilities / attractions in alternative areas.
- 14 Charge differential visitor fees during peak hour to discourage visitors during the peak seasons.
- 15 Following activities shall not be allowed in MESZ region and shall be placed in negative list of tourism activities.



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- a. Go carting & Race tracks
 - b. Amusement parks
 - c. Water parks & Water kingdom.
 - d. Music shows in open areas (noise making events).
 - e. Marriages attracting large numbers of outsiders.
 - f. Helicopters ride over jungles.
 - g. ropeways
 - h. Brick Klins
16. Separate Detailed studies are required for following proposals:
1. Developing nature interpretation centre at Matheran
 2. DPR for conservations of existing streams and Simpson Lake.
 3. DPR for parking lots at Neral ,Dasturi naka and at Malangad
 4. DPR for improvement of internal roads in Matheran.
 5. DPR for improvement of viewpoints.
 6. Setting up working group for follow up of Matheran as heritage town.

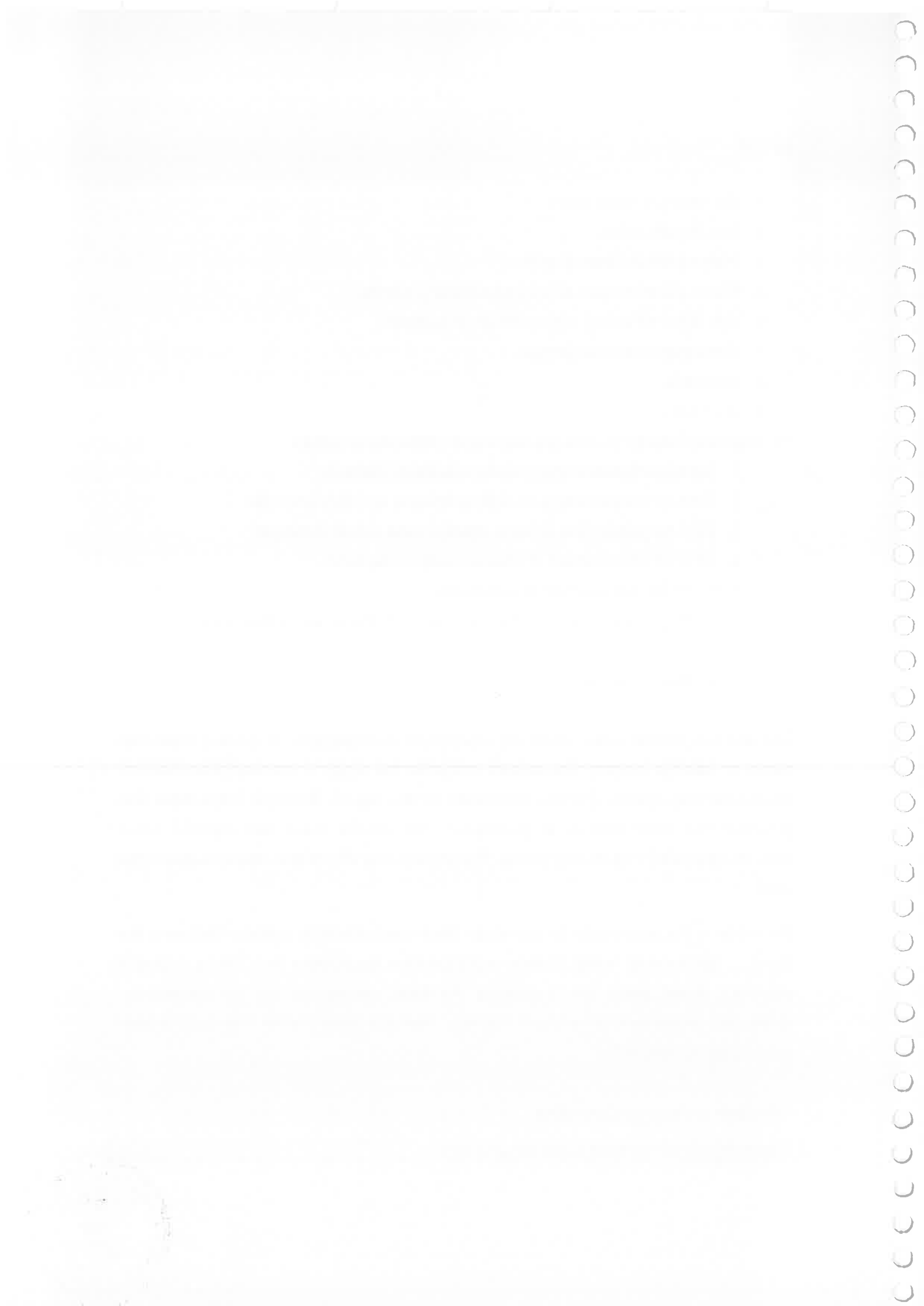
5.12 Base Map Preparation:

MMRDA has already under taken the assignment of preparation of detailed base map based on satellite imagery The satellite image for the region is procured from National remote sensing agency, (NRSA) Hyderabad for the region. Matheran maps were also procured from other sources as guidelines*. The satellite image was digitized and a map was prepared in auto-cad format. The ground data information was included in the map.

Base map is the prerequisite for any study. Base maps prepared contains the layers like Road, , Settlements, water bodies, administrative boundaries like Taluka / District boundary, forest areas etc. it provides the basic information like the connectivity, distribution of settlements / villages / city etc., available water bodies. The copy of base map is kept annexure L.

**Members of Heritage Committee*





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6. BEHAVIOURAL GUIDELINES FOR STAKE HOLDERS IN SUSTAINABLE ECO-TOURISM ENVIRONMENT

6.1 Guidelines for the Existing Hoteliers/ Restaurants with Reference to Eco-tourism:

In MESZ hotels can improve their environmental performance. A small manual can be produced by MTDC along with the proposed Tourism Development Committee (TDC). The Environment Friendly Holiday Hotel manual can be produced to give technical assistance to hotels. On the basis of the manual, hotels improve their environmental performance.

Topics which can be addressed in the manual include drinking water, landscaping and outside areas, energy conservation, purchasing local produce, solid waste and waste water management and communication. Each section can include a general description of the problem and concise suggestions about how to solve it. The manual needs to be presented in simple language and in a user-friendly layout.

The manual can be published in English, Hindi, Marathi and Gujarathi. Large number of manuals needs to be distributed and several large hotel / companies can also order the manual to use for staff training or reprint it on their own. This manual can be distributed to hotel managers, tour guides, buyers etc.

If hoteliers need further assistance beyond these tips, TDC should be in a position to provide the same through its expert team thus guaranteeing a continuous dialogue with hotels to improve their environmental performance.

Following are the broad guidelines:

- Respect and follow the planning restrictions, standards and codes provided by the government and local authorities.
- Implement sound environment principles through self-regulation.



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- Conduct regular environment audits for all ongoing activities, leading to development of environmental improvement programs.
- Employ eco-friendly techniques like use of solar energy, capture and utilise rainwater, recycle garbage, use natural cross-ventilation instead of air conditioning, ensure a high level of self-sufficiency in food through orchards, ecological farms, aquaculture and such other means.
- Employ energy and water-saving practices to the extent possible; freshwater management and controlled sewage disposal should also be practised.
- Control air emissions, chemical pollutants and noise.
- Control and reduce environmentally unfriendly products such as asbestos, CFCs, pesticides and toxic paints, corrosive, infectious, explosive or flammable material.
- Respect and support historic or religious objects and sites.
- Provide information and interpretive services to visitors especially on attractions and facilities, safety and security, local customs and traditions, prohibitions and regulations and expected behaviour.
- Provide correct information in marketing ecotourism products, as visitors who appreciate ecotourism products usually belong to environmentally-aware groups.
- Include training and research programs on environmental issues for company staff.
- Prepare tourists before their visit to minimise possible negative impacts while visiting sensitive environments and cultures.
- Ensure safety and security of visitors and inform them of precautions to be taken.
- Exercise due regard for the interest of the local population, including its history, tradition and culture and future economic development.
- Involve the local community to the extent possible in various activities and vocations.

6.1.1 Good Practices for Hotel Industry: Green Check List:

An environmental checklist can also be developed for suppliers, particularly for hotels and self-catering accommodation (ECO- tourism venues). The information collected through this checklist can enable to inform customers about which facilities have



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implemented environment friendly practices and by whom and what these practices are, and to offer these facilities a marketing tool that recognizes their commitment to the environment.

The Check list can include:

Water and Energy Saving

The facility:

1. Uses low-energy light bulbs.
2. Uses a separate electrical circuit on each floor.
3. Switches off the electrical system at night.
4. Uses solar energy for the production of hot water.
5. Can modify light intensity.
6. Use natural ventilation without A/c.
7. Uses aerators in sink and/or shower taps.
8. Have toilets with a flushing capacity of less than 12 liters.
9. Collects and re-uses rain water.
10. Waters green areas during the night.
11. Waters green areas with grey water.
12. Checks light and water consumption periodically.

Pollution

The facility:

1. Used of non-toxic paints in internal decoration.
2. Sound-proof rooms.
3. Total sound proof environment.
4. Preference to wooden furniture.
5. Changes sheets and towels on request only and not daily.
6. Use of low environmental impact products.
7. Regular analyses of wastewater quality.
8. A separate green area for the clients.
9. Regular analysis at internal air quality.
10. Collection solid waste separately.



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11. Collection of glass separately.
12. Collection of plastic separately.
13. Collection of aluminum separately.
14. Collection of paper and cardboard separately.
15. Structure built on the facility using mostly local inputs.
16. Client awareness by written notes.
17. Provides separate smoking areas.
18. Organises tour for tourist and discourages the use of cars
19. Has adequate parking space and can accommodate all the guest cars inside the premise.

6.1.2 Grading of Hotels/ Eco Rating:

In Europe, as part of the Sustainable tourism project, hotels have been awarded with the green Star on the basis of the initiatives taken up by the Hotels in energy conservation and environmental protection and up-gradation. These stars not only will create brand values but these green star hotels can be allowed to charge extra for the room stay and other facilities.

Points Eligible for:	
• Independent and locally owned accommodation	5 points
• Environmental/sustainability policy, certificates,	awards 5 points (maximum)
• Wastewater treatment system	15 points
• Waste management system	1 point/ Measure/max. 12
• Water saving and monitoring measures	5 points/ measure
• Energy saving measures	10 points
• Renewable energy sources	Max. 10
• Sustainable purchasing policy	2 points/ measure
• Community relations programmes	5 points (maximum)
Hotels can be classified at four levels:	
• Minimum level of acceptance	30-39 points
• One star	40-59 points
• Two stars	60-79 points
• Three stars	80-100 points



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Over a period of time, this type of marking system/ guidelines can be implemented in the MESZ.

6.2 Guidelines for Rural ECO Tourism Scheme:

Community Based Rural Tourism (CBRT) is envisaged to provide sustainable livelihoods and strengthen rural economy through the preservation and promotion of rural craft, culture, heritage and environment in their natural forms by offering an enhanced choice to visitors seeking a unique experience, thus increasing awareness and exposure to rural way of life across the state while improving the quality of life of the village communities, encouraging gender equity and community ownership through an equal partnership between hosts and tourists leading to overall holistic development through tourism.

Following are the objectives of scheme

- Tourism with the aim of human development in rural areas and support village economy, sustainable livelihoods and quality of life in village itself.
- To preserve, conserve, and promote rural culture, craft, heritage & natural environment.
- To provide the tourist with unique experience and enhanced choice.
- Improvement in the quality of village life, Community ownership, Overall development through tourism.
- Public participation, rural communities as stakeholders & equal partners.

6.2.1 Selection criteria for village:

The Tourism Development Committee (TDC) will select/designate the village for rural ECO tourism on following conditions:

1. The villages should be known for agriculture and allied activities, craft and cultural traditions, ethnic cuisine, vernacular architecture, heritage and history, and natural scenery.
2. The village should aim to reach zero-waste within a pre-defined period of time.
3. The village should have proper road Connectivity.



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4. The village should have at least one of the following Attractions:
 - a. Heritage structure : Temple, Fort Wada, Havali, Ghat, Rath, etc
 - b. Natural sites: Lake, Hill, View point, Plateau, Cave, Waterfall etc.
 - c. Agriculture farms. Poultry, Bee farm, Sericulture farm and Dairy etc
 - d. Festivals/Jatras.
 5. The village should have Home stay facility developed on qualifying conditions of home stay unit.
 6. The village should have Outdoor recreational activities like bullock cart ride, buffalo ride, rural games, working in fields, milking the cow etc :
 7. The village should have some entertainment programs like folk dances and folk song programs, Jagran, Ghondhaland Bonfire/campfire during winter seasons.
 8. The village should have meals facility for tourists prepared & served in hygienic conditions preferably a typical **Maharashtrian** or a local meal cuisine.
 9. The village should have trained local guides who will ensure the safety and security aspects of tourist during the tour. It should have communication measures like phone etc.
 10. The village should have Medical facilities in terms of First Aid /clinic etc.
- 6.2.2 Implementation of Scheme:
1. The rural ECO tourism project should be implemented through the gram Panchayat or group gram Panchayat. Each village will have a Village Tourism Development Committee (VTDC) comprising one representative of all the major tourism-related service providers in the village like crafts persons, tourist guides, cultural performers, ethnic food providers, home stay providers etc., representatives of the village Panchayat. Adequate representation of women in the VTDC shall be ensured.
 2. The VTDC will select the participants (Farmers), home stay units; Tourist guides from that particular village based on the qualifying conditions and recommend them to TDC for registration.
 3. The VTDC will also monitor the services of participants and will have right to deregister the participant if he/she does not perform well.



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4. The VTDC will also develop some village level infrastructure required for tourists like toilets, locker facility, maintenance of attraction points etc. through various government grants under tourism schemes, funds or by nominal fee collection from tourist.
5. Mobilizing and organizing the village community in to groups and measures for strengthening them.

6.2.3 Role of TDC:

1. To provide to aid, assist and advice various stakeholders in implementation of these scheme
2. Promoting and strengthening a multi-stakeholder public institution (Village Tourism Development Committee) for tourism governance in the village
3. Developing tourism related capacities and micro-enterprises among the community, aimed at meeting the needs of the visitor by providing appropriate services and products. It includes organizing exposure visits, conducting learning programmes, development of product catalogues, production of samples etc.
4. Safeguards against cultural, social and environmental pollution
5. Handholding micro-enterprises and people's collectives groups individuals developed during the project period
6. Product and destination marketing (aimed at both tourism and non-tourism related markets). It includes conducting surveys, developing promotional material (brochures, website etc.), workshops, organizing familiarization tours for media and travel trade, participation in travel trade promotional events etc.
7. Convergence of related rural development programs aimed at enhancing the quality of life of the villagers.
8. Sensitizing the Panchayat Raj Institutions toward their roles and responsibilities in strengthening community based eco tourism.
9. Hiring expertise (consultants) for activities for strengthening CBRT



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6.2.4 Criteria for Home Stay Unit Selection:

- I. The owner of household unit shall be local and shall reside in the place of home stay.
- II. Number of rooms provided under one unit shall not exceed (Two).
- III. At least one of the members of family shall be able to communicate in Hindi/English.
- IV. Preference will be given on basis of location of house
- V. Hygienic Quality and cleanliness of house and other facilities available for tourist
- VI. Educational background of applicant and family members
- VII. Tourist attraction of the area.
- VIII. Only one participation from one family.

The participant shall score at least 65 marks out of the score sheet based on the set conditions.

Sr.No.	Score Sheet Criteria	Max Marks	Comments
1	Location	12	Places of tourist attraction 8, Located at scenic place / farm / estate 6
2	Exterior & surroundings	10	Exterior environment 4 / Approach 1 / Landscaping 2 / Exterior lighting 2 / parking 1
3	Type of Building	08	Heritage building, Farm houses, Estate bungalow 8, New construction in traditional architecture 4.
4	Guest Rooms	12	Traditional Furniture 6 / Furnishing 2 / Décor 2 / Room facilities and amenities 2.
5	Bathrooms	08	Facilities 2 / Fittings / Linen 2 / Toiletries 2
6	Public Areas	04	Furniture & Furnishings 2 / Décor 2
7	Food	06	Traditional cuisine 6 / Choice of cuisine 4 / food quality 2
8	Kitchens	06	Cleanliness 2 / State of repair 2 / Food storage 2
9	Cleanliness	10	Overall impression
10	Hygiene	10	Overall impression
11	Safety & Security	04	Public area and room security 2 / Signage 2
12	Communications	02	Phone service 1 / internet access 1
13	Eco-friendly practices	08	Waste management, recycling, no use of plastics 4 / Water conservation, Harvesting 1 / pollution control – air, water, sound, light 1 / alternative energy usage 1
	100		

Note: The above marking is indicative



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6.3 Guidelines for Heritage Tourism:

- Criteria for Selection of Location:
 1. The location should be known for vernacular architecture, heritage and history, and natural scenery.
 2. The location shall be on Heritage List of Matheran Region (MMRDA).
 3. The selection criteria shall be as per the guidelines of Heritage committee constituted by Government of Maharashtra.
 4. Information Regarding the Heritage values shall be made available in form of Signboards on site.

The marking system as developed for the eco-tourism can be developed for the heritage tourism.

Similarly the heritage committee for Matheran has already formulated guidelines for conservation of heritage structures which shall be also adapted (Refer Annexure N)

6.4 Guidelines for Tourist Behavior:

Stress has to be given to modify the "attitude" of the tourists visiting MESZ. It should be borne in their minds that this is a place for adoring and enjoying natural beauty and not a place for partying, drinking, crowding, or such similar activities.

With this in mind the behavioral pattern of the tourists needs to be oriented for a more meaningful tourism experience.

The attitude should also be developed towards not harming the nature as well as other tourists and their privacy and enjoyment.

Instructions to Tourists

- In addition to visiting the points, also take an opportunity to enjoy tourist activities such as eco-tourism, adventure tourism, jungle treks, heritage tour etc.
- Use of plastic is banned in MESZ; please use the water bottle you have brought for refilling at the hotel or nearby Dispenser.



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- Search for tour guides that satisfy requirements for sustainable tourism. If you are going on jungle trail or forest trek or just a forest walk, make sure that your trip will follow the increasingly stringent standards set by MESZ ecotourism groups to ensure conservation of resources.
- Each tourist group may hire the authorized tour guide. For group of more than 10 tourists number of guides should be increased in proportion of 1 guide for 10 tourists.
- Listen to your guides to follow conservation measures.
- Do not destroy, trample, collect or remove any plant and animal specimen whether live or dead or any geological specimen – *“Take only memories”*
- Always walk on designated trek trail/path.
- Do not trample flora to climb rocks for rest
- Remove litter, bury paper and Carry back all biodegradable waste and non-biodegradable litter. Batteries should not be thrown away and should be carried back for proper disposal.
- Patronise tour operators who think green.
- Ask about ecological standards in hotels and lodges. Eco-lodges will become more popular in MESZ if you start using them, and they are distinguished by their use of alternative power sources, proper onsite waste management, and involvement in community projects. Make every effort to conserve resources such as water and energy, which are costly to hotel owners.
- Learn about appropriate social and cultural behavior in the areas you visit. Let the locals know that you support efforts to sustain natural resources.
- Support local operations rather than large corporate tourism. Tip tour guides and other local employees. Ask permission before photographing people and their animals.
- Visit natural attractions where you can observe impressive seasonal migrations and other natural phenomenon.
- Stay on the trails when hiking, refrain from touching wild life and observe other regulations when on jungle trek to avoid disturbing natural habitats.



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- Refrain from purchasing souvenirs taken from the natural habitat in MESZ or removing natural items yourself. Any plant or animal products that you find in MESZ have been taken from the environment and are exploiting MESZ resources.
- Refrain from purchasing the noise making instruments/ playing equipments. These tourist spots are best enjoyed in peace.
- Refrain from feeding animals; please note this may be harmful for them.
- Help conserve habitats of flora and fauna as well as any site, natural feature or culture, which may be affected by tourism.
- Make no open fires and discourage others from doing so. If water has to be heated with scarce firewood, use as little as possible. Where feasible, use kerosene or fuel-efficient wood stoves.
- Keep local water clean and avoid using pollutants such as detergents in streams or springs. If no toilet facilities are available, relieve at least 50 metres away from water sources and bury or cover the waste.
- Leave plants to flourish in their natural environment and avoid taking away cuttings, seeds and roots.
- Leave campsites clean after use.
- Help guides and porters to follow conservation measures. Do not allow cooks/porters to throw garbage in streams or rivers.
- Respect the natural and cultural heritage of the area and follow local customs.
- Respect local etiquette and to allow the dress code for tracks.
- Respect privacy of individuals.
- Respect holy places; do not touch or remove religious objects.
- Strictly follow the guidelines for personal safety and security and always take your own precautions and safety measures.



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6.5 Guidelines for Tour Operators:

Following are the guidelines for tour operators:-

- Should provide information prior to trip on culture and environment to be visited.
- Offers guidelines on appropriate dress code and behavior in writing before start of tour.
- Offers in depth guiding throughout the tour with well trained local guide.
- Prevent degradation of the environment and the local culture by offering literature, briefings leading by example and taking corrective actions.
- To minimize accumulated impacts, use adequate leadership and maintain small groups to ensure minimum group impact on destination.
- Avoid the areas that are under managed and over visited.
- Give manager, staff, and contract employees' access to programs that will upgrade their ability to communicate with and manage clients in sensitive natural and cultural settings.
- Employ locals in all aspects of business operations
- Ensure that facilities are not destructive to the natural environment and particularly that they do not waste local resources.
- Greeting procedures for travelers
- Waste control and treatment;
- Energy and water consumption;
- Contribution to the preservation and restoration of cultural sites;
- Fair distribution of revenues; and contribution to the local economy through travelers' purchases from local cooperatives.
- To manage logistical aspects of trips in the field, such as coordinating with accommodation, food and transport service providers
- Responsibility of protecting the local site or heritage site tour which they are operating.



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6.6 Guidelines for Local Host Community:

- Realize and respect the value of the environment, the flora and fauna, the monuments and your cultural heritage.
- Practice conservation of nature and culture as a way of life.
- Establish guidelines to protect valuable local resources and foster tourism management.
- React to the potential threat of investors who see opportunities in development but lack sensitivity to local values.
- Become effective nature guides and conservationists of natural areas by utilizing practical and ancestral knowledge of the natural features of the area.
- Be friendly to the visitors and help them to practice ecotourism principles.

6.7 Guidelines for Conducting School Picnics:

It is observed that many school picnics are conducted at Matheran which are unorganized and don't have the emphasis on educational aspect as well safety of students. These picnics cause some negative impact on the ESZ.

Following are the broad guidelines for conducting school picnics in MESZ region.

- Educational tours shall be organised on week days only and avoiding peak season (October and November)
- The charges for bus operations for school trips during the Peak season can be 3 to 4 times the off season charges to discourage school trips during peak season holidays and weekends.
- The schools have to plan their educational tours well in advance and on the designated circuits depending upon the entry point.
- The school teachers should make the students aware of the environment and culture of the region.
- Should provide briefing about safety precautions like walk in groups, don't feed the animals, don't ride the horses in absence of the teacher, etc.
- The teachers should ensure that the group is not making noise, throwing litter etc and polluting the environment.



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7. AWARENESS AND TRAINING PROGRAM

7.1 Rational:

For eco tourism to be rooted in authenticity and have grassroots participation a prerequisite is sensitization, education, and awareness of the local community. Time/attention need to be concentrated on development of human attitude and awareness.

The definition of 'Eco – Tourism' as is articulated by The International eco Tourism society 'Ecotourism is responsible travel to natural areas that conserves the environment and improves the well-being of local people'. Consultants are of the opinion that eco-tourism should be in the form where education and interpretation play an important role. This is also congruent with the direction of the Ministry of Tourism that states that ecotourism 'be made a grassroots community based movement through awareness, education, and training of local communities'.

The present trend is towards following the urbanized pattern, attended with hyper consumerism and Limitation/reinforcement of a lifestyle that is the very antithesis of the natural environment. As a result, majority of the local population of the Matheran and those of the surrounding villages are on a march in that direction and are moving at an alarming pace!

It is therefore imperative that we garner much of our energy and resources towards people to execute a strategy which ensures the protection of their natural areas coupled with success in educating and creating awareness. There needs to be an existing sense of confidence in what their natural heritage and culture has to offer. First ensuring that the local communities of Matheran town and surrounding villages are sensitized and their confidence in their culture and natural heritage restored. That the relevance of their natural spaces, its diversity, and inherent wealth be contextualized in terms of a quality of life and survival imperatives. For example introducing the biodiversity register to



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relevant communities could be one such step. Weaving the process into the curriculum in all the numerous schools would bring relevance and life to their unrelated.

7.2 Stakeholders:

The following are the various focused groups /stakeholders in the MESZ that where dissemination of ecological awareness is vital. Unless all these below mentioned groups are impacted, the authentic transition to strengthening the management of natural resources, organizing communities and conserving biodiversity in MESZ will not materialize so as to befit an Ecological sensitive zone that MESZ is.

7.2.1 Local communities:

a) Village communities:

As mentioned in the introduction, for people to implement a plan which guarantees the protection of their natural areas coupled with success in educating and creating awareness, there needs to be an existing sense of belief in what their natural heritage and culture has to offer.

Towards this end, the practice of People's Biodiversity Register, (PBR), needs to be encouraged in all the surrounding villages of MESZ.

Prof. Madhav Gadgil says "The best way of making people aware of science is to get them to practice it. An excellent opportunity of taking the practice of science right down to the grass-roots has recently opened up with the passage of the Biological Diversity Act. This Act provides for the establishment of **Biodiversity Management Committees** in all local bodies, whether Panchayats or Municipalities throughout the country. It stipulates that "***the main function of the BMC is to prepare People's Biodiversity Register in consultation with local people. The Register shall contain comprehensive information on availability and knowledge of local biological resources, their medicinal, or any other use or any other traditional knowledge associated with***



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them.” Preparation of “*People’s Biodiversity Registers (PBR)*” will be a rather unusual scientific activity. But it will be an activity that is very much appropriate to our biodiversity rich country, and very much timely in the current era of rapid technological developments.

b) **Communities in Matheran towns:**

A zero waste campaign (which has already started) needs to be well publicized and implementation support provided.

There should be regular talks and presentations on environmental issues, screening of films, slide presentations, street plays followed by discussions. Courses on natural history like bird watching would be periodically organized in the MESZ region. Hiking groups, bird watching groups, will be initiated.

c) **Bungalow owners within Matheran municipal limits:**

Zero waste concepts should be brought to their notice. In situ composting of bio degradable waste at source should be mandated. A Practice akin to Corporate Social Responsibility can be introduced with the bungalow owners. They can be encouraged to participate in creating signage, sponsors or arrange for relevant resource persons, media, advertising and other communication means can be provided.

7.2.2 Guides:

Guides can help by mitigating negative environmental impacts by providing information and regulating tourists.

Training of existing guides:

The course will be designed either as an introductory course in practical guiding skills or is suitable for guides who have had regular experience in guiding in local knowledge but require improvement practical guiding skills and awareness of environmental issues and codes of behavior in eco sensitive zone.



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Aims:

- To develop a cadre of guides who will be responsible, knowledgeable and resourceful
- To illicit -from the guides- their basic knowledge of the natural history (flora fauna and landscapes) of the region which many have and enhance it where there are gaps.
- Eco literacy.
- To introduce the idea and meaning of responsible eco tourism and understand the relevance and importance in the world today
- To ensure that the wilderness and other natural spaces are well protected when they take tourist around
- To develop a sense of confidence and empowerment to impart and implement ecologically appropriate behaviour from the tourists
- To gain and depth and accurate knowledge of the history of the places of interest
- To develop and enhance their expertise so as to enable them to get better financial returns.
- To standardize fees for services rendered.
- To work towards a registration of trained guides, provide them with an ID/badge.
- Developing a desire to use the skills and perspectives derived from the course, towards impacting positive change in the environmental and social milieu.
- The overall actualization of the guide's potential.

Methodology:

- Interactive- discussion, eliciting information, gathering from their experience, giving respect and to their previous experiences.
- Field trips
- Use of audio visuals, Films, slides.
- The awareness training of guides should cover following components and aspects as a part of the study.



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Environmental Component:

- Relevance of MESZ. History. Present status and thrust
- Importance of Conservation
- Orientation to holistic perspective on sustainable Life style.
- Different Eco-system in the region.

Code of conduct:

- Do and don'ts in wilderness areas
- Counseling for those who have certain addictions such as alcoholism
- Ensuring safety of the visitors
- Badges/Dress code
- How to conduct yourself on Different kinds of trips: Nature walks, on a moving vehicle.

a) Recruiting guides after surveying villages for people who are in touch with the resources and have local knowledge systems.

b) Recruiting youth who are inclined and interested.

7.2.3 Hoteliers:

- Well planned seminars on Eco tourism to be organized. International and national level speakers and presenters to be invited.
- Regular inputs on Eco tourism and short courses, talks, films and presentations will be organized.
- Zero waste culture to be mandated- segregation of waste.

7.2.4 Shopkeepers:

- Zero waste culture to be mandated -paper bags, cloth bags- no plastic bags.
- Workshop to be organized on consumption patterns and sustainable lifestyles/ ecological living.



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7.2.5 **Tourists:** Presentations at each hotel, booklet distribution at entry points, signage with natural materials, clear instructions at the time of leaving to wilderness areas.

7.2.6 Sessions, camps and workshops for those who have special interest with hands on experiences. Natural history, bird watching, local crafts, organic farming, sustainable living etc.

- Zero waste culture to be mandated.

7.2.7 Municipal council and regular municipal staff need to have workshops on ecological awareness to understand the interconnections between the various issue listed or else all that is done will be rendered futile.

- Zero waste campaign to be mandated after having orientation to it.
- Eco tourism to be explained through a workshop and seminar held for hoteliers and other stakeholders.

7.2.8 The Ministry of Tourism launched a special initiative called Hunar Se Rozgar Tak (HSRT) in 2009-10, for creation of employable skills amongst youth belonging to economically weaker strata of the society. The programme is fully funded by the MoT. The basic objective was to reduce, the skill gap that afflicted the Hospitality and Tourism Sector. Another objective was to put in place a dispensation to ensure that the economic benefit of a growing tourism reached the poor.

The initiative covers namely Food Production and Food & Beverage Services. Trades namely Housekeeping and Bakery. Apart from the mentioned hospitality related trades, the HSRT also offers training related to driving skills; revive the languishing skill of heritage conservation and stone masonry.

The course is conducted through MTDC/Hotel management institutes or through workshops etc. The participants get certificate and stipend for joining the course.

The duration of course is 6 weeks or 8 weeks



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8. STRATEGY FOR PROMOTION OF ECO-TOURISM IN MESZ REGION

8.1 Strategy for marketing and promotion:

There is a need for identification of the strategy for the marketing and promotion of the MESZ destination so that the activities in the area are promoted in such a way that the objectives of sustainable tourism are met with. The strategy can begin with the setting of goals, leading to the evaluation of alternative courses of action to achieve those goals, and then developing plans to achieve the ends sought.

It is recommended that an iterative process be adopted in reviewing this Marketing Strategy, particularly considering the paucity of available information and data at present.

Consultants are of the opinion that MTDC being in the business of promotion of tourism activities should take a lead in developing the promotion campaign for the MESZ as eco-sensitive zone.

8.2 Marketing Objectives:

The Basic objectives of marketing strategy will be:

- To increase the level of awareness about the region and its eco-tourism attractions in the international and domestic marketplace.
- Establish effective visitor management
- To increase repeat visitation to the region.
- To divert responsible tourists to the region through increased visitation by the target market
- To increase community pride, involvement, awareness, and support of ecotourism.



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The strategies are worked out targeting following types of tourists:

- Self-directed travellers: Some visitors like to come and explore the region at their own pace. Strategies such as online maps, access to outdoor rental accommodation (Home stays), clear signage, and locations of bed & breakfast facilities all work together to improve the experience of the self-directed traveller and bring them back to the region for repeat visits.
- Travellers who seek education and guided interpretation: In addition to the above strategies, a cooperative of local guides who are knowledgeable about the natural and cultural history of the region would provide a customized educational experience to visitors.
- Travellers who are interested in the culture and history of the region: These visitors, whether self-directed or guided, would benefit from tours of local farms, forts, and festivals.
- Travellers who come for the leisure and enjoyment, major effort will be needed to re-orient them for the desired activities in this location. Efforts will be needed to explain them the fragility of this eco-sensitive zone and activities which are harmful and not permitted in this zone. At the same time their attention can be diverted to more eco-friendly activities such as adventure tourism etc.
- MESZ Residents: Community members would benefit from all of the Strategies.

8.3 Recommendations and Guidelines for Promotion:

8.3.1 Promotional Strategy

No large scale promotion is planned for the MESZ region as the region has limited capacity and the **objective is not to bring in more no of tourists but to re-orient them**. The objective of Promotion is to create more awareness among key segments about the significance of the region, the facilities and services available and the expectations from tourists.

The main Promotion strategy is promotion of new eco-tourism destinations and product through web, in addition to this; the effort domestically shall be as follows:



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- A brand needs to be created for this zone as Eco friendly zone and all the products which are sold here starting from the water bottles, juice, jam packets, local produce should have messages all over the packing material so that the tourist are made aware about the eco-sensitivity of the place and they start their behaviour consciously.
- The awareness effort shall concentrate on markets within the state and other neighboring states.
- All Promotion should be preferably in the local languages (Hindi Marathi and Gujarati). In order to ensure that the Promotion message is clearly understood, the promotion should be pre-tested.
- To promote aiming at quality and responsible tourists only, the Promotion effort shall bear in mind the limited tourism period of the region and hence the Promotion period should correspond vacation decisions time, say from April/ May and October/ December.

Consistency, frequency, and longevity in the Promotion message are necessary, so that the message is continually reinforced in the minds of potential tourists.

- The overall effectiveness of the campaigns must be evaluated to determine if communications goals have been accomplished.
- Outdoor Promotion by the way of attractive lamp post signs and roadside signs is required in the entire region carrying details of attractions and events in the region, which will encourage visitors to visit places they may not have planned to visit. The message necessarily must be brief and directional. This should form part of signage.
- Response driven Promotion should be considered for print media
- More exposure is required through photo boards displayed.
- The promotion by the way of more high tech means such as SMS alters, FM radio messages, messages over the Television sets of the hotel room/ local channels will attract the young generation



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8.4 Tools for Promotion of eco Tourism:

8.4.1. Websites:

More and more, travellers are looking to the internet for maps and information about potential destinations. Online maps would allow self-directed individuals the ability to design their own experience. They would also be an invaluable resource for MESZ residents.

Web content must provide the following:-

- The MESZ area web sites must make visit to the site and to the resources, fun places, cool and educational locations. The sites need to be image rich rather than text heavy. The site needs to show people participating in activities not just show wildlife and landscapes. Age of people used in images can subliminally influence the browser.
- The site must be able to direct browsers from different age (life cycle) segments into sections of the site so that it appeals to them. I.e. family friendly activities and information, back packer information, active seniors, adventure enthusiasts, birders, cultural & archaeological tourists etc.
- There must be a focus on linking web sites to as many relevant partner sites as possible (public and private sector, national and international, eco clubs, NGOs etc.).
- Web site content must appeal and relate to national, regional and international visitors.
- The web site must as a minimum be available in English and Marathi.
- There must be detailed travel/access information, along with information about conceptual, themed, and actual routes and trails.
- The web site must be promoted aggressively on a global basis via key search engines and portals.
- The content must have an underlying environmental conservation theme so that visitors know that they can make a difference by travelling to a protected area or along a conceptual route.



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- There must be clear information on safety issues as we know that a section of the travelling public are concerned about travel to both the region and protected areas.
- There must be clear information about quality standards and infrastructure available in the region.
- The site must list or provide 'links' to private sector service providers and it must pay attention to effective targeted methods of doing this especially relating to accommodations. Browsers need to be able to find the right type of accommodations for their needs and budget quickly.
- Downloadable PDF (including maps) files that relate to trails and interpretative information should be available via the web site.
- Ideally the web site should have a basic booking component or as a minimum (i.e. re-direct enquiries to tourism hubs for distribution to service providers) information on how reservations can be made. The bookings for the home stays, heritage stays should be possible from the web sites.
- The website would also link to equipment rental opportunities, accommodations and local businesses, and other information about the region.
- At the same time the web should enable viewing and sharing of experience of the travellers so that they become guiding factors for the new tourists. The suggestion so as to improve the tourism experience can also be a feature which will go long way in guiding the Tourism development Committee and other stake holders in this region.
- The use of social internet media for communication is an increasing trend. Formal outlets such as Twitter, Face book, and MySpace, as well as informal outlets such as blogs and wikis, provide a platform for marketing ecotourism business on the internet. Consideration for a social media plan which addresses the outlet(s) and the information (e.g., text, graphics, downloadable materials) you choose to communicate will add greater depth to marketing plan that meets the technological trend.



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8.4.2 Printed Brochures and Travel guide Manual:

Print collateral is important for the Ecotourism especially for travellers that have already arrived within the region. Web site resources will initially be the most important source of information for travellers doing trip research and planning their vacations. However, once on the ground in MESZ region it is the printed materials that will be the most important guiding tool. Of all the printed matter that can be considered it is the tourist map that is the most important. The Map will visually explain the concept of the Ecotourism Route along with key information on tourism infrastructure, protected areas, and attractions. A small, attractive brochure needs to be available throughout the region and its key message is to briefly tell of exciting cultural and active experiences before directing readers to the more informative web site.

The development of a comprehensive travel guide manual is also one of the strategies. Special interest travel segment professionals only sell things that they know something about. It is therefore recommended that there is a two staged strategy for educating travel trade professionals and creating interest in the destination.

Stage 1: Educate them through a range of print collateral, web site, travel shows, and seminars.

Stage 2: Invite and host them on familiarization trips to the region (with support from the private sector).

The Travel Trade guide Manual must contain detailed information as follows:-

- i. Direct access to the region (air, land, sea)
- ii. Travel restrictions (i.e. when to visit, length of stays allowed etc. The differential fares in this region i.e. peak and off peak rates can be the featured here)
- iii. Maps of the route -All the routes such as jungle trails, horse riding routes, adventure sports locations and routes leading to Home stays as well as heritage tourism sites should be explained here
- iv. Inter-regional transport (routes, times, costs)
- v. Accommodations (variety of levels including Bed and breakfast accommodations)
- vi. Protected areas information
- vii. Natural History Information (flora & fauna with species lists)



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- viii. Calendar of events (natural events, cultural and historical events, festivals)
- ix. Cultural & historical information (contemporarily and past)
- x. Geographical and ecological information
- xi. Practical information (shop opening hours, medical centres, national holidays, help lines and booking lines etc)
- xii. Climate information (temperatures and rainfall charts)
- xiii. Location of visitor centres, information points or meeting places.
- xiv. Tour & guide information.
- xv. Contact details – telephone, e-mail, web sites.

These manuals should be made available at entry points by the Nagar Parishad officials at the interpretation centres. Similarly they can be made available at all the hotels, State transport bus stands, taxi stands, local Shops etc. Even the guides should be able to provide the copy of the same to the tourists.

8.4.3 Press Media:

Media Relations is absolutely important as it will promote the eco-tourism policies of MESZ and can make the tourist aware of the various aspect of Eco – tourism

The campaign can be started with the circulation of MESZ region and its importance in Western Ghats i.e. what are the travel opportunities that are available to visitors. This initial campaign would target a variety of media such as large daily and weekend newspapers, travel sections of magazines, travel or special interest magazines that focus on nature, conservation, culture & heritage and adventure travel.

Additional press releases throughout the year would then focus on a variety of destinations throughout the MESZ region and cover features such as natural and cultural events. These features would be between 500 and 1,000 words and would be more closely targeted towards specific media and writers. Media releases must be sent a minimum of 4 months prior to any specific feature to be covered.



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8.4.4 Signage:

Improved signage should guide visitors to information centres, trailheads, restrooms, and other tourist facilities. Consistent graphics will make it easier for tourists to find their way around and will build an identity for the region. Signage could also include information about local standards and acceptable use of the region's resources.

8.4.5 Guided Tours:

There is demand for education and interpretation of the natural and cultural history of the MESZ. Nature guides could offer a wide range of trips to visitors, including hiking, tracking, bird watching, history, and more. The tourism authority shall initiate program to train community members in natural history, hospitality management and other necessary skills to serve visitors to the region. In addition, the guides will be offered small business and marketing skills, and the opportunity to work cooperatively to best attract visitors from inside and outside the region.

8.4.6 Fairs and Festivals:

Community fairs and events in the MESZ region reinforce the feeling of small villages and towns. The fruit festival, the flower show, and other fairs and jattras should receive the necessary promotion to reinforce the position. Fair organizers should be encouraged to use consistent community promotion materials.

8.4.7 Promotion of Existing Assets:

The MESZ region should reinforce its unique community personality. Several strategies would address this goal. Tours of working trails would highlight the role of forests and nature products like honey etc. History trails, developed in partnership with local historical societies, would highlight our rich cultural history.

Local handicraft shops can promote their businesses collaboratively and draw connections to the heritage of the region.



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9. STRATEGY FOR IMPLEMENTATION

9.1 Proposed Institutional Frame Work:

Presently the MESZ is under the overall control of the collector, Raigad and Thane. The administrative affairs of Matheran are looked after by Superintendent & Thasildar, of respective Tehsils. There is Nagar Parishad at Matheran for local administration. The MESZ falls within the Mumbai metropolitan region development authority (MMRDA). MMRDA has an important role in development of region. MMRDA has funded various infrastructure and social projects in the region. MMRDA also controls and regulates the development within the region. This has also given rise to some conflicting administrative issues. There is no separate dedicated administrative set-up to look after the specific needs of the MESZ. The matters are looked after during routine course by various departments and MMRDA. The department of forests is the most important stakeholder in the process. However, overall co-ordinated efforts are missing. This results in overall neglect on the major common issues like encroachments, lack of tourist facilities, lack of clear guidelines etc for tourists. It is important to note that maximum land is owned by forests department, particularly the points of scenic views. The high level monitoring committee appointed for this purpose of carrying out the provisions of the MOEF act in the MESZ area is mostly advisory in nature and without execution powers or any monetary provisions for implementation.

The overall opinion of the stakeholders has indicated a need for an independent and strong organization for administration of the MESZ.

It is, therefore, proposed that an independent and strong organisation be set-up for implementation and monitoring the independent activities in MESZ. The Committee is proposed to be headed by an administrative officer of the rank of a Deputy Collector who would play the role of chief of the committee and various Governments Departments like Forest, PWD, MJP, Zilla Parishad, Nagar Parishad etc will report to him in respect to the matters related to MESZ.



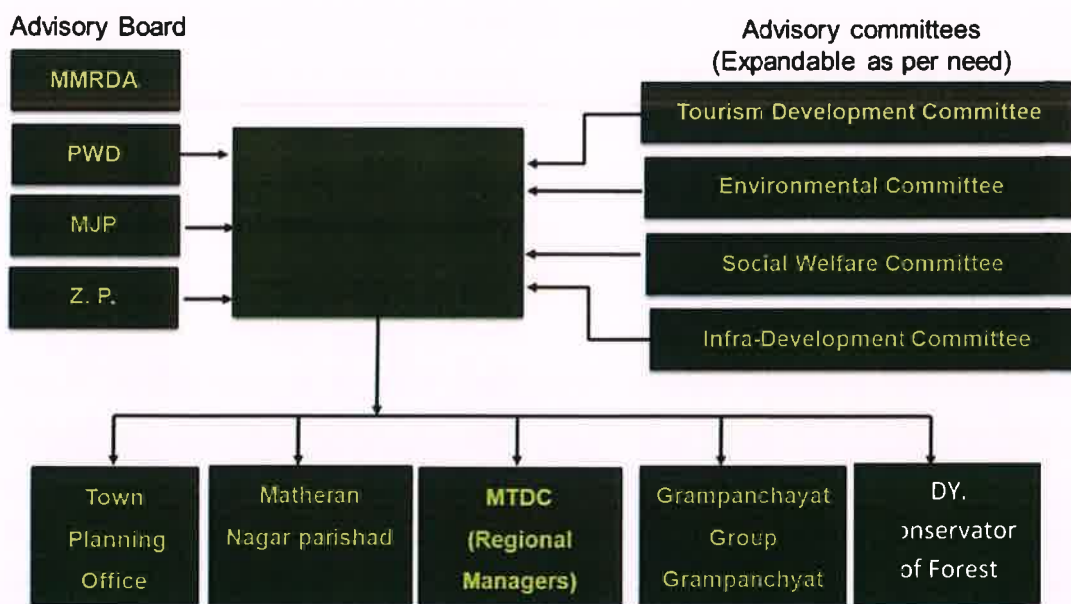
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Refer figure 9.1 for the structure of the committee.

The committee may consist of Dy. Conservator of Forest, Raigad, Asst. Director Town Planning, Raigad, Thane, Chief Executive Officers of the Matheran Municipal council, representatives of Panchayats samitee, Regional Manager MTDC and senior officers from other departments involved in day to day administration and working in MESZ region will be directly reporting to Dy .Collector. In addition the committee shall be supported by experts from the field of Environment, Tourism, social sector and infrastructure development. These members can be nominated by the Ministry of Environment and forest either at State/ centre level.

The Dy. Collector will also form various sub- committees in order to get the specific guidance in the matters relating to the tourism promotion, infrastructure development, Social welfare and Environment. The committees will scrutinise various proposals relating to their subject and then advice/recommend to the Dy.Collector on these aspects.

Figure 9.1 Frame work for the Tourism Development Authority for MESZ



MTDC

9.1.1 Roles and responsibilities of the 'TDC':

The broad role and responsibilities of the TDC are outlined below.

1. Formulate Tourism policies and implement the policies in the MESZ as per MOEF and state guidance.
2. Define and control development in buffer zones after proper environmental impact assessments.
3. Establish and enforce standards, building codes and other regulations for hotel industry.
4. Specify environmental, physical, and social carrying capacities to limit development.
5. Control constructions of additions in the existing structures that create visual pollution, un-aesthetic views and restrict the uses of non-compatible architecture, encourage use of local building material and structures befitting the environment
6. Prevent and demolish un-authorized constructions.
7. Ensure continuous monitoring of adverse effects of various policies, tourism and other activities and initiate suitable corrective measures so as to reverse the present impacts and enhance the ecological biodiversity.
8. Recognise and award accreditation to ecotourism operators.
9. Provide visitor information and interpretation services.
10. Formulate and Implement various guidelines for Eco Tourism, Heritage tourism.
11. Identify and develop of new tourist destination outside MESZ and within Raigad &Thane District. Co-ordinate development of new destinations outside the district if it will help the tourist dispersal policy.
12. Capacity building by conducting training programs on ecotourism, for tourism administrators, planners, operators, and officers from the Nagar Parishads. TDC will also facilitate the training programs for other stake holders such as Horse owners, Taxi owners, Hotel Owners association either through the NGOs or through appropriate Government organizations.



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13. Decide priority for funding the proposals for Environmental conservation Eco-tourism promotion etc.

9.1.2 Composition of TDC:

The TDC will be headed by a senior administrative officer of the rank of not less than "Deputy. Collector" (As per the Govt. Of Maharashtra Civil administration cadre) who will possess sufficient power and authority over policy making and also implementation. The TDC will have a permanent Advisory Board

Advisory Board:

The TDC will have a permanent 'Advisory Board' consisting of senior officers from the departments related to various facts of Tourism, execution, control etc. Following disciplines are suggested. This may be modified and expanded.

- MOEF
- Mumbai Metropolitan Region Development Authority (MMRDA)
- Maharashtra Tourism Development Corporation
- Dy.Conservator of Forest department of GOM
- Public works Department of GOM
- Maharashtra JeevanPradhikaran
- Zilla Parishad.

The 'Advisory board' shall be mainly responsible to advise the TDC on policy matters and to approve the policy recommendations made by various advisory committees.

'Advisory committees'

Advisory committees shall be appointed by TDC on the advice of the Advisory Board. These committees shall be responsible to form policy guidelines, make various studies, organize and supervise the monitoring. Following basic committees are suggested. However, these can be modified or formed later as per specific requirements of the project.



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The advisory committees shall be formed with the experts in various fields related to tourism.

1. Tourism Development committee
2. Infrastructure development committee
3. Environment committee
4. Social welfare committee

9.2 Tourism Development Committee:

Attracting “responsible” tourists and providing good tourism experience to them will be one of the TDCs’ main responsibilities. Funds will have to be, therefore, used for various types of promotional activities. In keeping with the current trend of internet use, can create websites to promote the sustainable tourism concept. These websites range from the basic information providing site, to the more sophisticated type. An important factor to consider when creating these websites is the ease of access which the visitor has in both locating the website initially, and accessing useful information for planning a trip. The web site will also try and create awareness about the Environmental measures needed to restore the environment as well as the precautions/ do and don’ts to be followed in the MESZ. The web site can also give information on the

- Nature trails
- Heritage routes
- Historical tours
- Adventure tourism activities
- Locations in the buffer area where tourism needs to be promoted
- Promotions for the Eco-tourism locations- locations for the farm stay etc.

The web- site can also give information on the efforts taken up by the NGOs/ individuals for the eco-tourism sector- environmental protection etc. Tourists if interested can join the efforts in this area.



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As far as tourism sector is concerned the Tourism Development Committee will be one of the main forces behind the entire re-orientation of the existing tourism scenario into the eco-tourism promotion and development in the MESZ region.

The Committee may have at least nine members comprising elected officials, experts from the tourism and related industry, Hotel sector, Eco tourism sector, Adventure tourism sector, environmental expert and Horticulture expert tenure of the committee may be fixed for a certain period and the committee shall meet at a pre-determined interval.

9.2.1 Basic Duties of the Tourism Development Committee:

These include making recommendations for use of funds or special projects and delivering reports to the Deputy Collector, TDC, MESZ. In addition to these broad responsibilities, Committee should develop its own mission or vision statements, goals and objectives.

The mission statement of Committee may be on following objective.

“Direct the efforts in a manner that will assure long-term sustained growth in tourism revenues while also guaranteeing the sustainability and improvement of tourism product, including both our man-made and natural resources, and improvements to the quality of life in MESZ”.

9.2.2 Administration of TDC:

In order to carry out their mandate more effectively, TDC can set up advisory committees to lead different projects and initiatives. TDCs can also establish an executive office to conduct their day to day operations. The office may consist of an executive officer and also employ support staff. The present MTDC set up at Matheran can be very useful in this regard. A separate regional Manager can be appointed for MESZ and who can co-ordinate the efforts of the TDC. He can also work as member secretary.



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The TDC will create the various departments as per the requirement. It will direct various other Govt. departments, Nagar Parishad to carry out specific works as approved by the board. For this purpose the TDC may have implementation and monitoring group which will keep track of the works. This implementation group may consist of officers from Forest department, MTDC, B&C, MJP, Deptt. of Town Planning etc.. They will ensure the implementation in time.

9.2.3 Use of Funds:

Another significant duty of the TDC shall be recommendations to the Deputy Collector - MESZ for use of the revenue generated by the tourist development tax and various other funds. This revenue may be spent on infrastructure improvements, promotion and advertising, convention/tourist, tourist information centers and the like, and restoration or enhancement of natural or cultural resources.

9.3 **Infrastructure development Committee:**

This committee will comprise of nominated officers from PWD, MJP, RTO, Traffic Police, MSDCL, City Engineers of Matheran municipal councils, Planners from Town planning departments. In addition the committee can have experts in infrastructure development such as retired Chief Engineers of PWD, MJP and also Heritage Conservation experts etc. The committee will be primarily responsible for guiding the Advisory Board on the proposed infrastructure improvements in MESZ to be undertaken by various departments of the Government.

9.4 **Environment Committee:**

This committee may comprise of representative of pollution control board, local Non-Governmental Organizations, Environmentalist with a demonstrated history of environmental action in the MESZ, an Ecologist and Wildlife Expert. The committee will be primarily responsible for developing the policies and strategies of conservation and will monitor the impact on environment in MESZ and guiding the TDC on various



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environmental conservation aspects. They will also implement the environmental awareness programs as well as the capacity building programs at various levels in MESZ.

The consultants also agree with Recommendation of Environmental status reports for the MESZ “that an officer of the rank of a DFO be appointed and stationed at Karjat so that the ecologically sensitive areas, forests, natural heritage sites and the flora and fauna are accorded the level of protection they require for exercising and enforcing their powers under the Wildlife Conservation Act of 1972”.

9.5 Social Welfare Committee:

This committee may comprise of representatives from Taluka panchyat samitee, local MLA, President of Municipal councils, local teachers & eminent personalities in the social welfare sector and local/ Non-Governmental Organizations with demonstrated experience in capacity building /social upliftment in MESZ region. The committee will be primarily responsible for developing and implementing the strategy for community development programs, capacity building programs, and formulating guidelines for the social sector upliftment through various programs being implemented in the MESZ. They shall also emphasize on welfare of local residents.

9.6 Monitoring and Evaluation Process:

Monitoring and evaluation of various parameters should be undertaken by Deputy collector so as to evaluate the progress of various schemes. Parameters for monitoring and evaluations have been indicated. Various surveys will have to be initiated so these parameters can be monitored & evaluated. Some of the schemes and issues that need monitoring and evaluation are mention below

9.6.1 Environment:

- Soil erosion at a particular site
- Site spreading (vegetation loss in campgrounds or along trails)



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- Invasion or introduction of harmful plant species, fungi etc.
- Stress on a particular wildlife species (nesting success, animal aggression against visitors, etc.)
- Illegal fires or campfires
- Landslides along a road
- Coliform bacteria count in river, lakes and water bodies.
- Visibility from points, haze etc.
- Number of damaged trees in picnic area, along the trails.

9.6.2 Behavior of Tourist:

- Left out garbage (solid waste) disposal.
- Disturbing or provoking animals in wildlife.
- Percent of visitors pleased with their visit to the area / site.
- Number of visitors who do not follow instructions.
- Tourist concerns about environment
- Number of encounters with other groups per day
- Number of safety violations per month
- Number of students using area for environmental education
- Number of illegal hunters encountered in particular location
- Evidence of human waste
- Number of repeat visitors
- Visitor perception of naturalist guides.

9.6.3 Economic indicators:

- Number of ecotourism entrepreneurs in neighboring communities
- Amount of entrance fees collected in a month
- Average length of stay in the MESZ, farm stays etc.
- Overall contribution of ecotourism to site's budget (percentage)
- Level of tourism employment
- Level of investment in local public services and facilities

9.6.4 Socio-cultural (communities) indicators:

- Maintenance of traditional practices
- Change in pollution



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- Reports of negative behavior by visitors towards residents
- Change in crime rate
- Number of visitors at local cultural events / sites
- Perception of guides to ecotourism activity
- General perception of residents to ecotourism activities

9.6.5 Managerial (infrastructure) indicators:

- Number and length of trails
- Amount of time spent on infrastructure maintenance
- Amount of litter found in campgrounds

9.6.6 Hotel owners:

- To check the quality of drinking water and food.
- To check the proper disposal of solid as well as waste water.
- To promote the use of renewable energy.
- Green star can be awarded on the basis of initiatives taken up by the Hotels in energy conservation and environmental protection



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10. PHASING AND COSTING

10.1 Costing of project:

Consultants have worked out broad costing for the proposals suggested based on previous experience of similar projects. The costing does not include the cost for traffic and transportation proposals like eco buses etc.

Summary of Cost Estimate

Sr. No.	Programs	Amount in Cr.
1	Improvement of Tourist Points (Repair, Signs, Security cabins, Railing, Dust bins, telescope etc.)	10
2	Development of Separate pathways.	5
3	Parking Lot at foot hill	2.5
4	Improvement of existing jungle trails	1
5	Eco toilets at various locations	3
6	Interpretation Centers & Tribal Museum	2
7	Cost for awareness programs (Film, Brochures, Manuals, Web site, etc)	2.5
8	Capacity building programs	2.5
9	Administrative expenses (TDA meeting, Guest lectures, advisors etc)	1.5
	Total	30

The total cost works out to 30 cr. which will be implemented in ten years' time period. The provisions for any cost escalations have not been suggested over the plan period. The cost provisions are given at today's rate in a master plan. Any escalation on the project components has to be taken care of by the implementing agencies during preparing the detailed plans and estimates.



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10.2 Funding:

Following recommendations are made for funding the tourism master plan.

1) Budget Provision by the Central Government:

The region is declared by the MOEF of Central Government as Eco sensitive zone. Therefore financial help from Tourism, Ministry of Environment, and Forest Department of the Central Govt. can be received. Attempts for this are necessary. Funds can be availed from central government Product/Infrastructure Development for Destinations and Circuits (PIDDC)

The Ministry of Tourism extends Central Financial Assistance to the State Governments/Union Territory Administrations for tourism projects identified in consultation with them for the improvement of existing tourism products and also for developing new ones. Under the Centrally Sponsored Scheme of Product / Infrastructure Development for Destinations and Circuits, 100% Central Assistance is given for development of destinations/ circuits including mega projects to world standard and also for rural tourism infrastructure development.

The Ministry of Tourism provides financial assistance up to Rs.5.00crore for the development of Destinations and Rs.8.00crore for Circuits. The upper limit of financial assistance has been increased to Rs.25crore and Rs.50crore for development of identified mega destinations and circuits respectively.

- 2) MMRDA being regional planning authority shall make adequate budgetary provision for implementation of proposals in MESZ area. Funds can also be raised by charging congestion taxes on the tourists visiting their area.
- 3) The Forest Department shall raise adequate funds for development schemes of the forest areas. The required works related to conservation and preservation of the viewpoints falling within the forest area and within the municipal limits shall be done by the Municipal councils and Forest Department as applicable.



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- 4) For repairs and maintenance of private heritage buildings some tax-rebate is given to the property owner. However, appropriate funds can be made available to the Municipal Councils by D.P.D.C. to avoid such burden on them.
- 5) The Gram Panchayat in the region can avail funds under rural tourism scheme. Under this scheme to promote rural tourism in the country, the thrust is for development of tourism infrastructure at the identified rural tourism sites so that socio-economic benefits percolate down to the rural community. A maximum of Rs. 50.00 lakh is sanctioned for each project under this scheme for development of tourism related infrastructure. Some projects can be implemented through community participation.



Other Funding Options

Fee Type	Description
Entrance fees	Allow access to points beyond the entry gate
Admission fees	Collected for use of a facility or special activity, e.g. museum or photography class.
User fees	Fees paid by visitors to use facilities within the protected area, e.g. parking camping, visitor centers, boat use, shelter use etc.
Licenses and permits	For private tourism firms to operate on protected area property, e.g., tour operators, guides, transport providers and other users.
Royalties and sales revenue	Monies from sales of souvenirs.
Concession fees	Charges or revenue shares paid by concessionaires that provide services to protected area visitors, e.g., souvenir shops.
Taxes	Such as on hotel rooms, eco buses use and vehicles.
Lease and rent fees	Charges for renting or leasing property or equipment
Voluntary donations	Includes cash, 'in-kind' gifts and labor, often received through 'friends of the environment' groups.

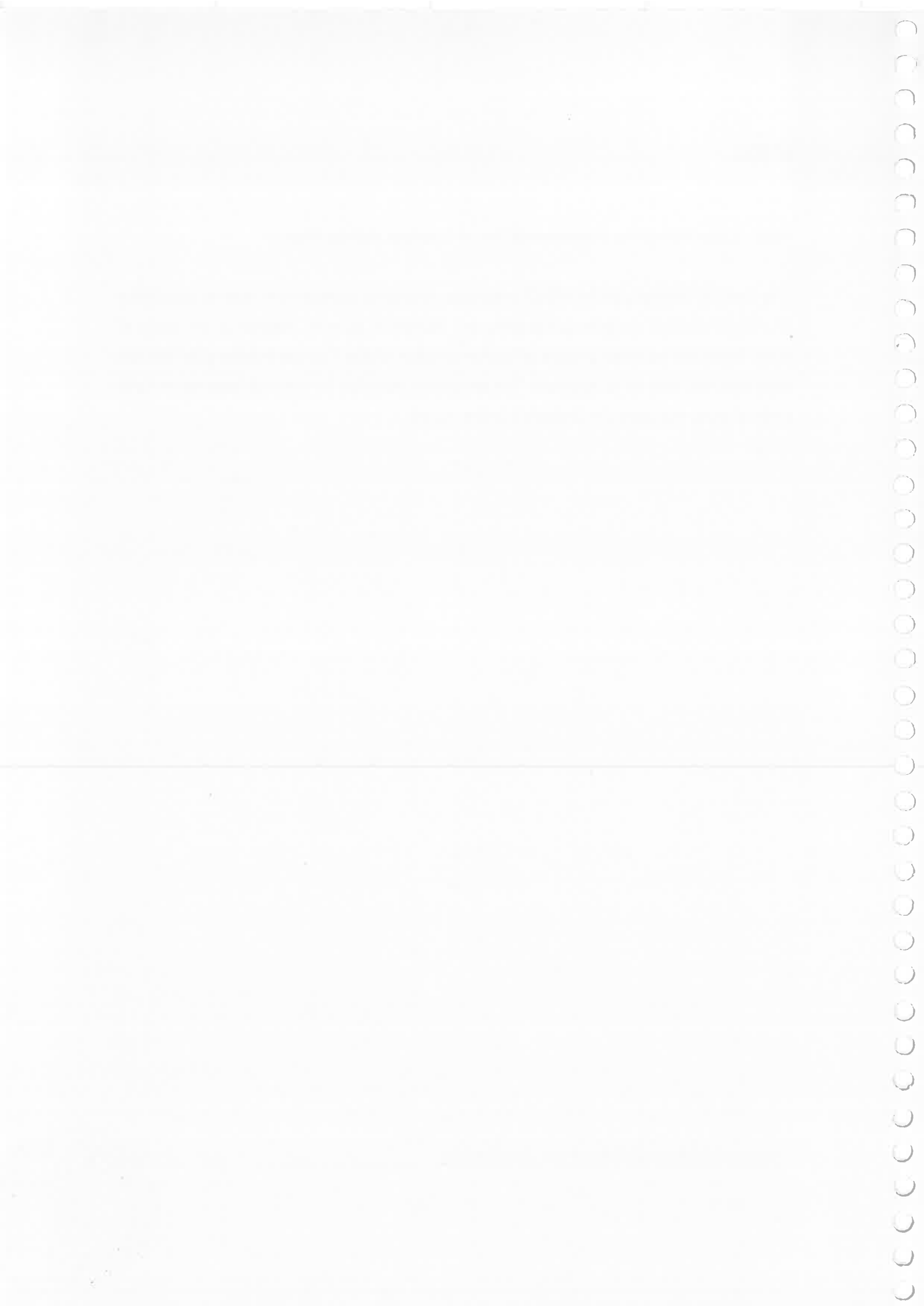


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10.3 Time Period for Implementation of Tourism Master Plan:

The tourism master plan for MESZ proposes restrictive development and re orientation of present tourism towards sustainable eco tourism in phased manner in ten years of time. There will be three phases of Implementation of the Tourism master plan that will start from the date of its approval. The programs identified for the implementation have been already discussed in Chapter 5 of the report.





11. CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of the tourism master plan are presented below:

1. The tourism carrying capacity of the region is in the range of about 6500 to 7500 tourist per day on the basis of the physical parameters such as water supply, availability of Parking capacities, accommodations available at the hill stations From the analysis of entry ticket collected by MNP data and traffic about 7500 tourists visit the area per day during the peak season.
2. The present tourist flow in peak season and weekends is about the same as the TCC. However, the inflow surpasses on special festive days and peak season weekends (about 8000 – 10,000)

It can be concluded broadly that the TCC of Matheran has reached its limit and that there is a need to contain and restrict the present inflow of tourists.

3. The nature of development in the region needs to be strongly based on the sustainability and eco-tourism. In order to reduce pressure on tourism. Following options are recommended.
 - I. Developing alternate tourist destinations.
 - II. Providing alternate tourism products.
 - III. Equal distribution of tourists throughout the week.
4. The promotion of sustainable tourism in terms of Eco tourism, adventure tourism, Heritage tourism have been identified as most suitable for the region here. Tourist visiting these areas can be attracted towards these new tourism products and efforts are needed for complete re-orientation of the existing tourism products to the new sustainable tourism.
5. Providing Facilities like Parking lot, Eco-Toilet block at base villages of Prabalgad (Wardoli), Peb (Fhanaswadi) Chendani (Chincholi).
6. Promoting forest tourism along with visit to Tribal village/Wadi like (Hassyachipatti, Vetal Wadi ,Burjachiwadi) where the visitors can be introduced to the tribal Culture,



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Craft and forest produce and nature these villages are identified as pilot sites as these are near to Matheran. This project will also provide economic benefit to tribal.

7. Matheran Nagar Parishad has already taken up the Nature Interpretation center in Matheran with the help of BNHS which will serve the purpose of nature awareness.
8. On the other hand dispersal methods for the dispersal of the existing tourist to the lesser known spots have been suggested. Location such as Prabalgad, Morbe dam etc. can be taken up for the development and is recommended to include the same in the District tourism development program and efforts will be required for promotion and development of these tourist destinations. Following Tourist circuits are proposed to promote Eco tourism ,Adventure tourism and Rural tourism
 1. Matheran –Malangad- Morbe Dam,
 2. Matheran-Prabalgad
 3. Matheran –Peb- Hassyachi patti .
9. At the same time as part of the tourism management program, circuits for the tourist movement with help of Eco- bus has been proposed so that in the long run the vehicular movement is restricted only up to the parking lots near the foot hill.
10. The frame work for management programs with a time horizon of 10 years has been identified and the programs for the traffic transportation, Improvement in the existing tourist view points, Environmental management, improvement in the present tourism accommodations, public awareness have been derived. These programs will have to be implemented rigorously so as to achieve the objective of restricting the tourists to the MESZ.
11. The improvement suggested at various tourist viewpoints can be further detailed by the Nagar Parishad by appointing Architects/ planner. Matheran Nagar Parishad has already assigned task of preparation of manual for street furniture for various view



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points and street within Matheran. Which can be incorporated while actual execution of the project.

12. Matheran has large numbers of heritage bungalows which are good examples of colonial architecture. These bungalows can be converted into heritage hotels as per the guidelines suggested by Heritage committee for Matheran.
13. As part of the master plan, guidelines have been developed for the Agro tourism, heritage tourism, tourist behaviour, Tour operators as well as for the hotel owners etc. the heritage committee for Matheran has also formulated heritage guidelines for conservation of heritage structures in region. These guidelines enforced over a period of time will help achieving the overall objective of making this place most favourite eco-tourism destination.
14. In order to re-orient the tourist activities in this region the promotion and marketing strategy has been developed. The emphasis is more about creating awareness about the eco-sensitive zone and making tourist conscious about the expected behaviour in the region than creating tourist attraction. A detailed guide for developing the web site for the MESZ region has been identified and it is recommended that MTDC should take up the development of WEB site for this eco-sensitive region.
15. In the master plan, capacity building has been identified as one of the important activity in achieving the goal of sustainable tourism. Hence the capacity building programs for locals, hoteliers, guides have been identified in the report and the same can be implemented through the Tourism development committee.
16. The effective operations and control will need a strong administrative set-up specifically for the eco-sensitive region of Matheran. The existing system has



MTDC

provided in affective as we experience considerable un-authorized constructions, encroachments on forest laws, felling of trees and ill maintenance of the viewpoints. A tourist management committee for MESZ has been proposed TMC. This TMC shall be headed by an officer of the rank of not less than "Deputy Collector". He will be advised by a permanent advisory board consisting of MOEF, MMRDA, Forest, MTDC, ZP, MJP, etc.

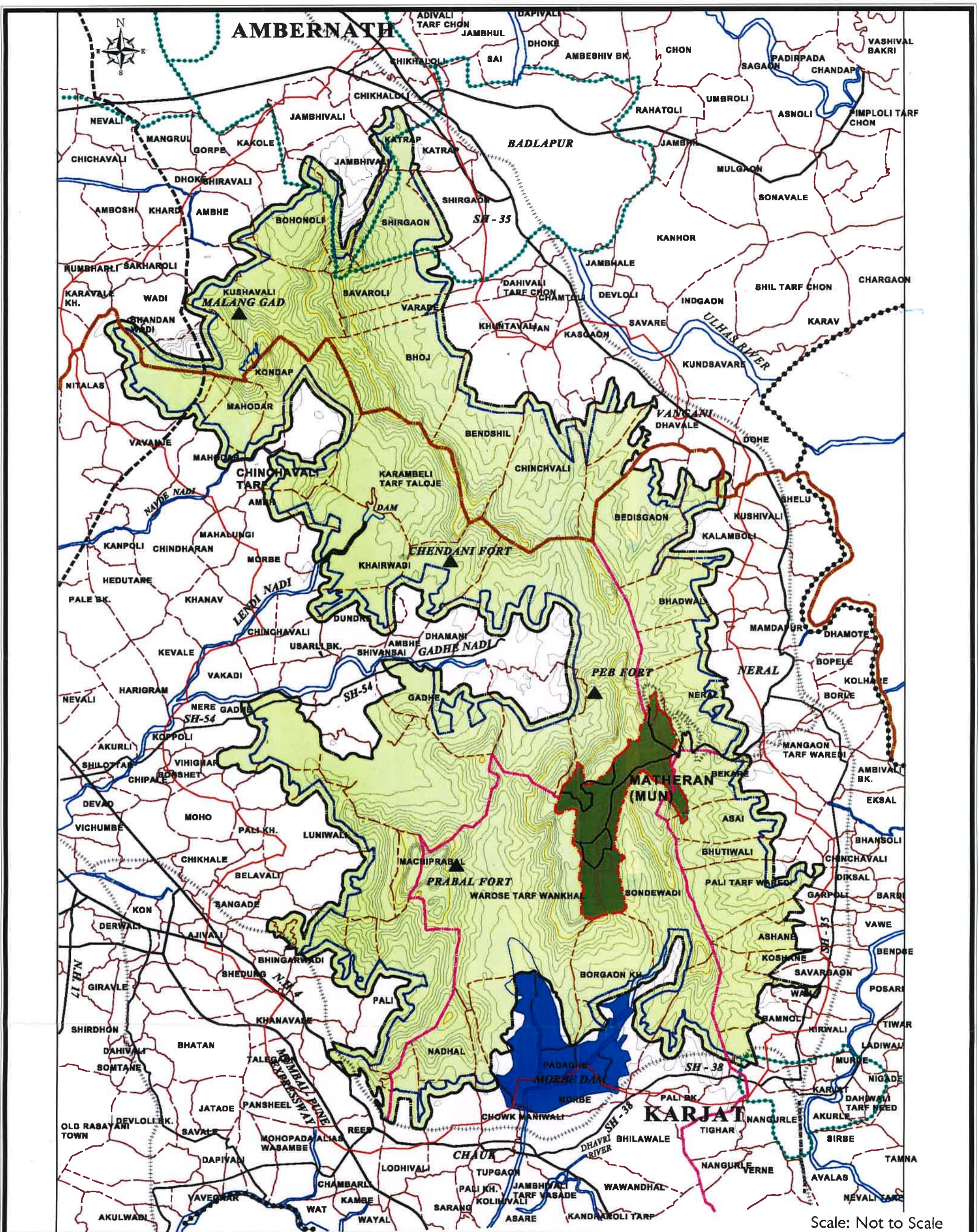
17. On the basis of the improvements suggested and the promotional activities envisaged the cost estimates for the funding under this master plan has been prepared. The total outlay of Rs. 30cr. will be needed in the next 10 years. The sources of funding also have been suggested in this chapter and it is felt that funding from the state/ central governments can be availed under various heads. In addition increased tourist taxes, environmental taxes, entry fees should be a major source of funding. Also the increased taxes and the entry fees will act as a deterrent for excess tourist flow.
18. As a way ahead consultants are of the opinion that the detailed projects and plans needs to be prepared for each of the action suggested in this master plan so as to make continual efforts in the direction of the sustainable tourism development and making MESZ as model location.



Compliance Report

Sr. No	HLMC Comments (Dated 5 th & 15 th DEC 2012)	Compliance	Chapter /para/pg
1	Consultants should study the impact of shuttle service from Aman lodge to Matheran and include it in report	Consultants have studied the impact of this train service on tourists/ Locals, porters, the horse service and on rickshaw pullers by conducting survey. The survey was conducted on 25th December on holiday and a peak day.	CH-2/2.7.1/2-27
2	Carrying capacity of Malangad /Prabal gad shall also be worked out	Complied –Write up added in report.	CH-3/3.1 Point No.5pg.3-2
3	Proposal of Tourist circuits shall be identified and incorporated in report.	Consultants have identified 3 tourist circuits on pilot basis and are presented in report.	CH-4/4.4/Pg.4.8 & 4.9
4	Detailed proposal for parking lot at Neral along with land maps.	Survey No 93 p a piece of Private land identified for parking lot at Neral. Identified land marked on village map along with parking lot layout.	CH-5/5.2.1.1/pg5-3 & Figure 5.2.1
5	It is suggested instead of separate pathways for horses & pedestrian it should be separate designated pathways for horses and pedestrians.	No new routes proposed only existing routes to be designated for horses and for pedestrians	CH-5/5.2.2/pg5-4
6	Matheran shall be promoted as heritage city	Complied –Write up added in report.	CH-5/5.4/pg5-7
7	Proposals at Malangad	Complied –Write up added in report.	CH-5/5.4.1/pg5-8
8	Ministry of Tourism and MMRDA role in funding	Complied –Write up added in report.	CH-10/10.2/pg10.2





Scale: Not to Scale

LEGENDS

Tourism Master Plan for Matheran Eco-Sensitive Zone (MESZ)
Part of Zonal Master Plan for MESZ



