

## INTRODUCTION TO THE MASTER PLAN FOR SABARIMALA

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**List of Abbreviations used in the Report**

ABASS	Akhila Bharata Ayyappa Seva Sangham
ATM	Automatic Teller Machine
BOD	Biological Oxygen Demand
BOT	Build Operate Transfer
BSNL	Bharath Sanchar Nigam Limited
BSRT	Biological Sludge Retention Time
BTS	Base Transmitting Station
CBD	Central Business District
CBO(s)	Community Based Organization (s)
CCT	Closed Circuit Television
CEC	Central Empowered Committee
CI	Circle Inspector (of Police)
COD	Chemical Oxygen Demand
CPCB	Central Pollution Control Board
CSC	Customer Service Centre
CWRDM	Centre for Water Resources Development and Management
DFMD	Door Frame Metal Detectors
DHS	Department of Health Services
DIG	Deputy Inspector General (of Police)
DPR	Detailed Project Report
DTPC	District Tourism Promotion Council
Ecosmart	IL&FS Ecosmart Ltd.
EDC(s)	Eco-Development Committee(s)
EIA	Environmental Impact Assessment
FAR	Floor Area Ratio
GLSR	Ground Level Service Reservoir
GLSS	Gas Liquid Solid Separator
GO	Government Order (Government of Kerala / India)
GoI	Government of India
GoK	Government of Kerala
HCU(s)	Health Care Unit(s)
HRT	Hydraulic Retention time
ICU	Intensive Care Units
IEC	Information, Education, Communications
KFD	Kerala Forest Department
KMBR	Kerala Municipal Building Rule
KSEB	Kerala State Electricity Board
KSPCB	Kerala State Pollution Control Board
KSRTC	Kerala State Road Transport Corporation Ltd.
KSTP	Kerala State Transport Project
KTDC	Kerala Tourism Development Corporation
KWA	Kerala Water Authority
l	Litres
LED	Light Emitting Diode
LIC	Life Insurance Corporation of India
lpcd	Litres per capita per day
LPG	Liquefied Petroleum Gas
LUZM	Land use Zoning Maps
m	Metre
MLD	Million Litres Per Day
MoEF	Ministry of Environment and Forests, Government of India
MPN	Most Probable Number
MSL	Mean Sea Level
NBWL	National Board of Wildlife



**List of Abbreviations (Contd.)**

NEERI	National Energy Engineering Research Institute
NGO(s)	Non-Governmental Organisation(s)
NH	National Highway
NTCA	National Tiger Conservation Authority
OHSR	Over Head Service Reservoir
PAC	Public Accounts Committee
PAP	Pampa Action Plan
PCU	Passenger Car Units
PHS	Primary Health Centre
PTR	Periyar Tiger Reserve
PWD	Public Works Department (Roads & Bridges), Government of Kerala
RWSS	Rural Water Supply Scheme
SAPP EDC	Swami Ayyappa Poongavana Punarudharana Eco Development Committee
SP	Superintendent of Police
SSA	Secondary Switching Areas
SSS	Sabarimala Sanitation Society
STP	Sewage Treatment Plant
SWM	Solid Waste Management
TDB	Travancore Devaswom Board
ToR(s)	Terms of Reference(s)
UASB	Upflow Anaerobic Sludge Blanket
VEC	Village Eco Development Committee
VHP	Vishwa Hindu Parishad
WLS	Wildlife Sanctuary
WSS	Water Supply Scheme

## 1. INTRODUCTION TO THE MASTER PLAN FOR SABARIMALA

### 1.1 Background

Sabarimala temple, dedicated to Lord Ayyappa, is situated in a deep, dense forest of Sabari Hills, in the Ranni-Perunad Panchayat of Pathanamthitta District of Kerala. The region falls under the Periyar Tiger Reserve (PTR) of the Western Ghats.

Considering the unique location of the temple, the heavy pilgrim flow during the peak pilgrim season (usually from mid-November to mid-January) converging at Pampa and Sannidhanam, the influence of the pilgrimage on the region and the resultant impacts on pilgrim safety, facilities and the environment; the Public Accounts Committee (PAC) of the Parliament of India and other stakeholders recognized the need for a comprehensive Master Plan for Sabarimala.

In view of the above, IL&FS Ecosmart Limited (Ecosmart) was commissioned by the Government of Kerala (GoK) for preparation of an “Outline of the Master Plan for Sabarimala” (Concept Plan) that would form the basis for a Master Plan for Sabarimala, based on the Terms of Reference prepared by the GoK. The Concept Plan was submitted to the GoK on March 24, 2005 and was accepted by the GoK on May 9, 2005.

### 1.2 Outline of the Master Plan for Sabarimala [The “Concept Plan”]

Ecosmart prepared a Concept Plan with an objective to meet the essential needs of Sabarimala pilgrims while protecting the fragile environment where the Sabarimala temple is located. The plan addressed all aspects related to the Sabarimala pilgrimage including traffic and transport management, solid waste management, water and sanitation, development of base camps and pilgrim logistics, health care and hospital facilities, communication facilities and disaster management in a wider regional context since the repercussions of the pilgrimage are spread beyond the immediate surrounds of the temple.

Currently, the concentration of pilgrim activities at Pampa and Sannidhanam and lack of proper management results in overcrowding, limited access to basic amenities and very adverse impact on the safety of the pilgrims. To address this, the Concept Plan delineated an approach for decentralising those activities and providing efficient linkages between all areas and activities. It was proposed to achieve this through the development of Base Camps at Nilakkal, Erumely and Uppupara and transit facilities at Vandiperiyar and along the trekking paths en-route to Sabarimala. The Concept Plan suggested development of Nilakkal as the primary base camp. These base camps would provide adequate infrastructure for accommodation, dining, toilets, lockers, information kiosks, medical care, transportation, commercial outlets, solid waste management, sanitation, water supply, emergency services and parking facilities.

In addition, full-fledged “Queue” complexes along the Marakkootam-Sannidhanam stretch of the trekking path and at Pandithavalam for pilgrims trekking from Uppupara, up-gradation and widening of trekking paths to Sannidhanam from Pampa, rapid shuttle bus service systems, ropeway system for transportation of goods and supplies for the temple and for emergency evacuation, were some of the measures that had been recommended in the Concept Plan.

The Concept Plan was developed through extensive research and consultations with the stakeholders associated with the pilgrimage to the Holy Shrine and considering all previous reports on streamlining pilgrimage to Sabarimala. An assessment of existing situation was made based on several visits to the Shrine and the surrounding region. A detailed strategy comprising of short and medium term measures were also recommended.

On arriving at the Concept Plan, Ecosmart was able to build consensus between all relevant stakeholders including the representatives of Travancore Devaswom Board (TDB), GoK, Ministry of Environment and Forests (MoEF), Department of Forest, GoK, Central Empowered Committee (CEC) constituted by the Honourable Supreme Court of India, Honourable Members of the PAC, Central and State Government Departments, Principal Secretary to Prime Minister's Office, Standing Committee Members of the National Board of Wildlife (NBWL), Non-Governmental Organisations and Local Administration officials directly associated with facilitating the Sabarimala Pilgrimage.

The Concept Plan not only identified solutions but also prioritised and recommended several feasible short-term interventions that would improve facilities prior to the pilgrim season of 2005-2006; particularly in the areas of solid waste management, water supply and sanitation, and pilgrim management based on reconnaissance survey and extensive consultations with the stakeholders.

To this effect, Ecosmart coordinated a field survey with the TDB and Forest Department, GoK to identify actual forestland area to be diverted for implementing the recommended measures. The approach and details outlined in the Concept Plan, including the forestland area calculations had the consensus and support of all the key stakeholders of the project including the TDB and Forest Department, GoK.

In addition, Ecosmart also coordinated with the TDB and Forest Department, GoK for submission of a consolidated proposal to the NBWL and the MoEF for seeking approval of the Central Government for diversion of the forestland for non-forestry purposes in accordance with Section 2 of the Forest Conservation Act, 1980.

Based on the forestland land requirement outlined in the Concept Plan, the Supreme Court of India gave permission to divert **12.675 hectares** of forestland in the PTR for developing the recommended immediate and short-term projects in Sabarimala. In addition, MoEF also gave permission to divert **110 hectares** of forestland (outside the PTR area) at Nilakkal for establishing a base camp facility for the pilgrims visiting Sabarimala.

### **1.3 Implementation of Immediate Interventions (Pilgrim Season 2005-2006)**

As all the stakeholders, including TDB have accepted the Concept Plan, Ecosmart was retained by the GoK and MoEF<sup>1</sup> for preparing a framework for implementation of short term measures and rendering assistance in implementation of the immediate interventions during

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<sup>1</sup> Work Order served by GoK to Ecosmart GO(Rt) No:5277/2005 RD dated 05-09-2005 : Assignment of Works of Second Phase of Master Plan for Sabarimala Development to M/s Ecosmart India Ltd – sanctioned – orders issued

the 2005 and 2006 pilgrim season [**Phase I of Master Plan**] and an implementable Master Plan for guided development at Sabarimala for the next 50 years [**Phase II of Master Plan**].

As part of the Phase I of the Master Plan, a layout plan was prepared by Ecosmart for the proposed Base Camp at Nilakkal which was submitted by TDB to the MoEF for getting the land transferred for developing the Base Camp and associated facilities. In addition, immediate interventions that could be implemented prior to the pilgrim season of 2005-2006 were identified, prioritised and detailed out after consultation with the executing agency (TDB) and other stakeholders.

As a part of the deliverable, a comprehensive *Report on Implementation of Immediate Interventions* was submitted to the stakeholders in October 2005. (dated October 28, 2005) was submitted to GoK and other key stakeholders of the project based on which TDB carried out development activities during 2005-2006 pilgrim season.

*Implementation work was initiated by the TDB in August 2005 and completed in January 2006.* During this implementation phase, Ecosmart provided monitoring supervision support to the TDB. The observations made, as a part of the performance review, during these site visits were submitted to the GoK. This completed the work on Phase 1 of the Master Plan. Work Progress reports, including observations made during fortnightly monitoring visits were submitted to GoK in November, 2005.

As a result of the efforts of the Ecosmart, following objectives were achieved during **Phase I of Master Plan** implementation:

- Permission to divert the forestland (outside the PTR area) for establishing a Base Camp facility at Nilakkal for the pilgrims visiting Sabarimala was granted by the MoEF based on the Plan submitted by Ecosmart;
- Completion of construction of 400 toilets at Nilakkal;
- Procurement of equipments for solid waste management at Pampa, Sannidhanam and Nilakkal;
- Improvement and development of water supply network, including laying of pipes, installation of overhead tanks and maintenance of ponds and bathing ghats at Nilakkal;
- Partial completion of sewage network and treatment system, including bioreactor, effluent sump and oxidation tank at Nilakkal;
- Creation of parking facilities at Nilakkal; and
- Placement of storage bins for segregated waste collection at Pampa.

#### **1.4 Development of the Master Plan for Sabarimala [Phase II of the Master Plan]**

The work on Phase II of the Master Plan was started in November 2005. This report presents a long-term Master Plan (**Perspective: 2050**) encompassing all aspects of regional development in the context of Sabarimala pilgrimage based on the agreed Concept Plan. *Provision of sustainable basic infrastructure facilities to the pilgrims while safeguarding the environment is the overall objective of the Master Plan.* The plan include aspects related to pilgrim management, development of base camps and transit facilities and the land use – transportation linkages and incorporates latest technological and economically feasible solutions wherever possible. It also analyses the infrastructure requirements, physical and social amenities and services required to support the pilgrimage, land / development management strategies at

Pampa and Sannidhanam, development models for built spaces, implementation and monitoring plan and options on phasing, resource mobilisation, disaster management and institutional mechanism to oversee regional development.

In order to facilitate guided development during the ensuing 5-10 year period and to plan in advance for the longer term (following one or two decades), the Master Plan Perspective : 2015 and Perspective 2050 have been prepared as a part of this exercise. The Perspective: 2015 plan would facilitate planned development considering the on-going projects and immediate necessities. This would also prepare ground for initiating base camp development, infrastructure provision and to address relevant areas from Pampa Action Plan in the context of pollution control. This would take care of the medium term requirements till such time the long-term perspective plan starts getting implemented. The long term plan, Perspective: 2050 would aid in setting apart required land and other resources for development over the following decades.

A Draft Master Plan was submitted to GoK, TDB & Forest Department on July 11, 2006. Stakeholder consultations were organised by GoK on August 11, 2006 during which many of the major stakeholders discussed and forwarded their comments. These comments have been incorporated to finalise this Master Plan.

### **1.5 Additional Support for Implementing Interventions for 2006-07 pilgrim season**

*Although not within the purview of the work order served by the GoK*, Ecosmart upon request made by GoK & TDB during the **Working Committee Meeting** on Sabarimala Master Plan held at Secretariat, Thiruvananthapuram on August 7, 2006, furnished detailed designs for implementing the immediate works prior to the 2006-07 peak pilgrim season. This included detailed designs for toilets and bathrooms under Pampa Action Plan, Accommodation for police, developing roads in Nilakkal, resting areas along the trek route from Pampa to Sannidhanam, cardiology centres at Neelimala & Appachimedu, preliminary design and guidelines for queue complex, etc among the many.

A report titled “**Details for Implementing Proposed Works at Sabarimala and Nilakkal 2006-2007**” was submitted to the GoK and the key stakeholders of the project in September 2006 based on which TDB initiated implementation of immediate requirements for the 2006-2007 pilgrim season.

### **1.6 Methodology Adopted for Preparation of Master Plan**

The Master Plan details out the development vision for a time span of 50 years. The Plan addresses the aspects related to the pilgrimage in a wider regional context. The prime vision of the Master Plan is to provide a great pilgrim experience to the pilgrims by ensuring essential facilities at the same time conserving and upgrading the pristine location and traditional values which form the essence of the pilgrimage.

The Plan examines in sufficient detail, the impact of Sabarimala pilgrimage on the districts such as Pathanamthitta, Idukki and Kottayam and discusses micro planning for core zone encompassing Sannidhanam, Pampa and the proposed base camps. The plan suggests general as well as specific interventions for providing the pilgrim facilities in the planning area based on detailed surveys, studies, consultations and analysis.

Detailed methodology adopted for the planning process for preparation of this Master Plan is shown in **Figure 1**.

Development of Master Plan for Sabarimala also included undertaking primary surveys and studies in the planning region. Ecosmart initiated these surveys and studies during the pilgrim season from November 2005 through January 2006. Considering the seasonal fluctuations in the pilgrim flow, Ecosmart conducted these studies in phases (i.e., pre-pilgrim season, during pilgrim season, during peak pilgrim season, post peak pilgrim season and the lean and off seasons) to capture the various environmental parameters for planning amenities and assessment of impacts due to Sabarimala pilgrimage.

The Master Plan has been presented in the form of various subject-based modules for ease of study and analysis along with a guideline document which would aid easy implementation. The modules form the key documents which discuss each aspect in detail, including baseline situation review, gap analysis and perception of pilgrims and stakeholders. The information collected has been used to suggest guidelines and interventions specific to the subject dealt with.

These modules are:

- Regional Module
- Infrastructure Module
  - Traffic & Transportation Sub-module
  - Water & Sanitation Sub-module
  - Other amenities and Services Sub-module
- Landscape Module
- Built Fabric Analysis Module, and
- Guidelines for Disaster Management

Presented below is a summary of each of these modules:

### ***1.6.1 Regional Module***

Sabarimala draws pilgrims from various parts of the Country and Abroad. The pilgrimage has an itinerary which proceeds through many places of worship and intermediate halt. These trans-geographical cross boundaries of the pilgrimage strongly underline the need to discuss regional implications of the pilgrimage or the need for providing pilgrim facilities across the region in addition to Sabarimala, as these points also experience the impacts of the pilgrimage annually, mainly during the peak pilgrim season.

Regional Module adopts a “destination – based” approach to study the implications of the pilgrimage primarily focussing on the immediate region of influence as the ramification of the pilgrimage becomes important once the pilgrim / pilgrim group starts approaching the destination. Since a destination based planning is the requirement considering the importance of the stopovers closer to the final destination, it is not necessary to discuss the regions of origin of the pilgrimage, which lies scattered around the globe. For the purpose of the study, the planning region has been delineated in to three planning regions based on their relative importance with respect to the pilgrimage. The Region Module focuses on the main places of worship, intermediate transit points and the base camps which are important nodes in the pilgrim circuit.



The study is aimed at devising a Regional Planning Strategy to support the pilgrimage by providing facilities for the pilgrims in the region, and by mitigating the environmental issues associated with the pilgrimage over the region. Pilgrim Surveys, discussions with stakeholders and reconnaissance studies have been carried out towards this. The module studies the impacts of the pilgrimage on the immediate region comprising of the base camps and intermediate Thavalams. It identifies the transition which has occurred due to the activities over space at important halt points / Thavalams and looks into the need for upgrading existing facilities and for providing additional essential pilgrim facilities across the region to reduce their dependence / overloading at the final destination. It suggests the interventions required at each location of importance and summarizes the guidelines for development. The module also suggests strategies to ensure the protection and upgradation of the “critical environmental components” which have over the years suffered due to unregulated use at the intermediate halt points.

### **1.6.2 Infrastructure Module**

This module discusses the infrastructural requirements in the region, with specific reference to Sabarimala pilgrimage. Sub components of this module are Traffic & Transportation, Water Supply & Sanitation, Solid Waste Management and Amenities & Facilities. These sections deal with the analysis of existing facilities and required interventions to support the emerging infrastructure requirements in each of these sectors.

#### *1.6.2.1 Traffic & Transportation Section*

This section takes into perspective the regional linkages to Sabarimala and specific movement pattern of pilgrims and goods in and around Sabarimala. Surveys had been conducted to understand the traffic characteristics and the condition of existing facilities such as roads, terminals, public transport system etc and their usage. Issues and deficiencies of the existing system in terms of extent and condition of the roads, facilities at transit points, have been identified and interventions have been suggested to mitigate the issues and to improve the existing system, to provide infrastructure and facilities for the increasing transportation demands, and the need for alternate transportation systems at Sabarimala area as well as in the region. Review of existing proposals by various agencies has also been undertaken.

#### *1.6.2.2 Solid Waste Management (SWM) and Water and Sanitation Section*

This section covers the existing solid waste management facilities at Sabarimala and the base camps and specific issues related to this. Primary surveys have been undertaken to assess the waste quantity and characteristics. Interventions have been suggested to effectively and comprehensively address all aspects of the SWM system including the segregation of waste, primary storage and collection, secondary storage, collection and transportation and final treatment and disposal of waste.

This section also discusses the existing scenario of water supply, sanitation facilities and sewage and drainage systems at Sabarimala and the main places identified as base camps. Resource studies have been conducted to understand the availability and reliability of various resources. Analysis of existing water supply and results of primary surveys conducted to assess the quality of water supplied have been carried out to understand the issues and deficiencies. Resource availability, constraints and opportunities of the existing

system and the preferences and demands of the pilgrims have been considered while devising the interventions.

#### *1.6.2.3 Other Amenities and Facilities*

The Section on Amenities and Facilities discusses the existing supply side characteristics of basic amenities and utilities such as accommodation and shopping facilities, health care, fire fighting and police services, energy, communications etc. in terms of their suitability and lacunae. Supply characteristics have been weighed against the demands of various stakeholders established through a perception survey of the pilgrims and discussions with various stakeholders.

### **1.6.3 Landscape Module**

The Landscape module aims at devising strategies to reintroduce the lost pristine landscape character of the temple environ, trek routes and the base camps. It discusses in detail, the impacts of the pilgrimage on the environment and suggests strategies to reintroduce the lost pristine character of the temple, trek routes, its environs and the base camps.

Landscape study was undertaken in the immediate core region comprising of Pampa, Trek route from Pampa to Sannidhanam, Sannidhanam, trek route from Erumely to Pampa (Cheriyavattom), trek route from Uppupara / Sathram to Sannidhanam. Brief study was undertaken in Erumely, Vandiperiyar / Sathram / Uppupara and Nilakkal which have been identified as proposed base camps. The module summarises the baseline information of the core area and identifies the impacts due to activities and developments in these areas. This baseline information has been analysed to mould strategies which ensure minimisation of negative externalities. It also suggests the guidelines for eco-friendly construction typology (for services, facilities), guidelines to minimise negative impacts and guidelines for monitoring activities in the pre-season, during the season and in the post season. It also suggests an institutional set up which ensures eco-friendly provision of services & facilities. This would enable the document being used as a base record to formulate the plan of action and development format for the core and precincts mentioned.

### **1.6.4 Built Fabric Analysis Module**

The module presents information on the visual elements of the Sabarimala, and how they contribute to its identity and character mainly in terms of the extent and quality of the existing sprawl and description of strong, recognizable features, such as density, pattern, scale, views/vistas, gateways, nodes, streets, landmarks and other elements that define the character of the place and its imagibility. For this, an imagibility study was conducted with help of urban designers, artists and pilgrims who had been visiting the place since decades. Specific surveys to understand the perception of the pilgrims and other stakeholders were carried out in addition. Detailed component wise mapping of the landuse, vertical and horizontal development was carried out to work out the strategies for future development.

The elements of built form are analyzed at both macro and micro scale to identify those visual qualities that are valuable and worth preserving (religious context); those that are undesirable and which should be changed; and those vulnerable to change. Analysis of these qualities results in findings of opportunities and constraints that can serve as the basis for policies and programs which shape Sabarimala. It would provide the basis for a planning process that

would enable concerned authorities to shape the growth of the area in a manner most beneficial to the pilgrims and the environment. The effort has been to develop and redevelop Sabarimala to conform to all our religious aspirations and to imbibe the best of Kerala's traditions in accordance to art, culture, traditional temple architecture (*Vastuvidya*) and planning.

### **1.6.5 Guidelines for Disaster Management**

Considering the locational aspects, concentration of pilgrims and types of activities at Sabarimala, it becomes imperative to prepare disaster management plan to deal with the natural and man made disasters. However, the preparation of a disaster management plan would have a different subjective and temporal focus when compared to the Master Plan. Hence this document provides guidelines towards preparation of a detailed disaster management plan.

The main vision of this document is to initiate coordinated efforts to have an effective disaster management strategy for Sabarimala, which will minimise the future disasters as well as their impacts. This also focuses on the speed, efficiency and coordination required to implement the plans from the micro level to the regional level with a mechanism that will ensure increasing community participation in all disaster preparedness activities. The ultimate vision is to have a disaster - free Sabarimala ensuring risk reduction as the planning, evaluation and monitoring parameter in all developmental initiatives so as to ensure safe pilgrimage for Ayyappa devotees.

Based on the site reconnaissance conducted at Sabarimala, we have critically incorporated certain considerations with this perspective during the planning stage and these have been listed out in the document. An outline of the disaster management strategies could be developed from these guidelines.

The Master Plan aims to develop the Sabarimala temple complex and the surrounding region in a complimentary and eco-friendly manner, so as to provide a satisfying pilgrimage experience to the pilgrims visiting the Holy Shrine. The Master Plan outlines the vision and '**road map**' for development by proposing interventions for the immediate phase till 2015 and the long term phase till 2050 and by detailing out the guidelines to ensure that the development is as per the proposed vision.

A summary of the proposed interventions for the immediate phase till 2015 and the long term phase till 2050 are presented in **Annexure 1**. Based on this Master Plan, detailed development plans are to be formulated by the implementing agency incorporating the interventions mentioned herein. Further, these development plans may be divided into projects for which detailed project reports be prepared after and mandatory studies, based on which the projects may be implemented.

*Note: We would like to place on record that the collection of data and finalisation of the Master Plan had been extremely difficult due to the lack of cooperation from certain agencies.*

## **ANNEXURES**

### **Annexure 1: Summary of the Proposed Interventions**

## **Annexure 2: Summary of Land Required for Perspective 2015 & Perspective 2050**