

**Tamil Nadu Sustainably Harnessing Ocean Resources and Blue Economy  
(TN-SHORE)**

## **Environment and Social Due Diligence Report**

*For*

**Blue Flag Beach Certification of Silver Beach, Cuddalore**



**National Centre for Sustainable Coastal Management  
Chennai**

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## Blue Flag Beach Certification of Silver Beach, Cuddalore

### Executive Summary

The Government of Tamil Nadu, in collaboration with the World Bank, has initiated the Tamil Nadu - Sustainably Harnessing Ocean Resources and Blue Economy (TN-SHORE) project aimed at enhancing the resilience and sustainable utilization of coastal resources. A key component of this initiative is the pursuit of the internationally recognized Blue Flag certification for Silver Beach in Cuddalore, which emphasizes high environmental standards, safety, and quality in beach tourism.

**Silver Beach**, located along the picturesque southeast coast of Tamil Nadu, covers an area of 20,000 square meters with designated zones for development to meet the Blue Flag program standards. This certification aims to elevate the beach as a premier eco-tourism destination while conserving marine and coastal ecosystems.

This Environment and Social Due Diligence Report (ESDDR) outlines the strategic interventions and implementation frameworks designed to mitigate adverse impacts and optimize sustainable development. The project includes pollution abatement measures like mechanized beach cleaning and wastewater treatment, infrastructure development for enhanced safety and accessibility, and environmental education to promote sustainable practices among tourists and local communities.

A robust institutional framework supports the project, with a Beach Management Committee led by a Beach Manager who ensures strategic oversight and operational management align with environmental sustainability and community benefits. The involvement of stakeholders, including local businesses, environmental specialists, and the community, has

been crucial in shaping the project to address local needs and environmental priorities effectively.

Risk assessments have categorized the project's environmental and social impacts as **moderate**, with comprehensive mitigation strategies in place to address potential issues such as water quality and labour conditions. The project aligns with the World Bank's Environmental and Social Standards (ESS) and adheres to CRZ notifications, ensuring compliance with legal frameworks and international best practices.

In conclusion, obtaining the Blue Flag certification for Silver Beach will significantly benefit the local community by enhancing livelihood opportunities and reinforcing the beach's status as a sustainable tourism model. This certification will boost tourism and ensure the long-term conservation of the beach's natural resources and beauty, supporting the broader objectives of the TN-SHORE project.

## 1.0 INTRODUCTION

### 1.1 Project overview

The Blue Flag Programme is an internationally acclaimed eco-label that promotes sustainable development in freshwater and marine areas. Recognized globally, the Blue Flag stands as a symbol of stringent environmental standards, uniting tourism and environmental sectors through a commitment to water quality, environmental management, environmental education, and safety. Responding to these challenges, the Government of Tamil Nadu has embarked on a strategic initiative to secure Blue Flag certification for ten of its beaches under the Beach Environment & Aesthetics Management Services (BEAMS) programme, with Silver Beach in Cuddalore being a key candidate.

Located on the southeast coast of Tamil Nadu along the picturesque Coromandel Coast of the Bay of Bengal, Silver Beach is the second longest beach on the Coromandel Coast and ranks among the longest beaches in Asia. Geographically defined by the South Cuddalore bay area and separated from the mainland by the Gadilam River backwaters, the beach is an inspiration for tourists and one of Cuddalore's most popular attractions.

The Government of Tamil Nadu has launched a project entitled Tamil Nadu - Sustainably Harnessing Ocean Resources and Blue Economy (TN – SHORE) with funding from the World Bank. The project aims to enhance the resilience and sustainable utilization of coastal resources through a multi-pronged approach. This initiative is not just aimed at enhancing tourist attraction but is also committed to the conservation of coastal and marine ecosystems, making it a pivotal venture in the state's environmental and tourism sectors. The comprehensive proposal includes the establishment of infrastructure facilities, pollution abatement measures, and the implementation of rigorous safety and surveillance services

to transform Silver Beach into a premier eco-tourism destination that meets and upholds the high standards required for the Blue Flag certification.

By adopting this initiative, the Government of Tamil Nadu not only aims to attract international visitors but also ensures the sustainable development of its coastal regions, aligning with global environmental standards and promoting a harmonious balance between human activity and nature conservation.

## 1.2 Sub-Project Description

Silver Beach is located in Cuddalore, Tamil Nadu, at coordinates 11°44'21.20"N, 79°47'13.12"E. The beach encompasses an area of 20,000 square meters, with approximately 776.7 square meters designated for development and demarcation under the Blue Flag Beach certification program. This location is a diverse hospitality hub, offering accommodations ranging from traditional fishermen's huts to luxury hotels, catering to a broad spectrum of budgets and preferences.

Silver Beach is a popular destination, attracting an average daily visitation of 2,000 people on weekdays and 3,000 on weekends and public holidays. Visitor numbers typically range from 1,500 to 2,000 daily during the peak summer months, underscoring its appeal as a significant tourist attraction in the region.

## 1.3 Proposed interventions/activities and intended outcomes

The Silver Beach Blue Flag project encompasses a comprehensive suite of interventions and activities aimed at enhancing the environmental, social, and economic aspects of the beach. These are designed to meet the stringent criteria required for Blue Flag certification, thereby ensuring the sustainable development of the beach area. The proposed interventions are categorized into the following areas:

### I. Pollution Abatement Services:

- a. **Site-Specific Interventions:** Implementation of targeted measures to address and mitigate pollution sources, including beach litter, debris, plastics, solid waste, and wastewater.
- b. **Mechanized Beach Cleaning:** Utilization of walk-behind machines for efficient and regular cleaning of the beach to maintain high cleanliness standards.
- c. **Wastewater Management:** Installation of BIO-Digester/BIO-Tank Units, including Grey Water Treatment Plants and Fluidized Aerobic Bio-Reactors, to treat and manage wastewater effectively.

- d. **Solid Waste Management Plan:** Development and execution of a comprehensive plan for the collection, segregation, recycling, and disposal of solid waste generated on the beach.

## **II. Infrastructure Facilities Development:**

- a. **Beach Planning and Zoning:** Strategic planning and zoning of the beach area to optimize usage and minimize environmental impact.
- b. **Infrastructure Development:** Construction of essential facilities such as toilet blocks, changing rooms with shower panels, bamboo-made items and structures (e.g., seating benches, umbrellas), a 40 KW solar power plant, purified drinking water facilities, LED landscape lighting, beach access pathways, and an amphibious wheelchair.
- c. **Safety and Information Infrastructure:** Installation of beach safety and information flags, a CCTV system, a control room, a site office, water rescue equipment, first aid and safety equipment, environment education displays, do's and don'ts kiosks, and a beach layout map and information board.

## **III. Environmental Education Events:**

Organization of events and activities aimed at raising awareness and educating visitors and the local community about environmental conservation and sustainable practices.

## **IV. Data Collection for Blue Flag Criteria Compliance:**

- a. **Pre-Field Screening:** Initial assessment to identify potential environmental and social issues.
- b. **Beach Suitability Assessment Survey (BSAS):** Comprehensive survey covering parameters such as geology, geomorphology, ecosystem, pollution, socio-economic factors, facilities, and other relevant issues.
- c. **Preparation of Geomorphological & CRZ Maps:** Creation of detailed maps to understand and manage the coastal zone effectively.
- d. **Ecology/Environmental Evaluation and Impact Assessment:** Assessment of the ecological and environmental impacts of the proposed interventions.
- e. **Safety & Risk Assessment:** Analysis of bathymetry, wave studies, currents, and biodiversity impact to ensure the safety of beachgoers.

- f. **Beach Water Quality Testing (BWQT):** Regular monitoring of beach water quality for physical, chemical, and biological contamination.

## V. Obtaining Blue Flag Beach Certification and Intended Outcome:

Completion of all necessary steps and fulfilment of the 33 criteria stipulated for Blue Flag certification. The implementation of these interventions is expected to result in the following outcomes:

- a. **Enhanced Cleanliness:** Achieving an "A++ Category (Outstanding)" cleanliness level for the newly developed Blue Flag beach.
- b. **Biodiversity Conservation:** Effective mechanisms in place to protect and conserve beach vegetation and associated biodiversity.
- c. **Marine Litter Reduction:** Reduction of marine litter by 80% to 85% from existing levels, with conversion/safe disposal mechanisms for marine litter.
- d. **Water Quality Monitoring:** Regular monitoring and maintenance of bathing water quality to ensure safety and hygiene.
- e. **Safe Recreational Areas:** Clear demarcation of safe areas for bathing, swimming, and other recreational activities.
- f. **Economic Development:** Income generation and livelihood development for local communities through enhanced tourism and the development of eco-labelled beach recreational facilities of international standards.
- g. **Increased Visitor Numbers:** Over 200% increase in visitors for beach recreational activities, leading to revenue generation and alternate livelihoods for local fishermen communities.

These interventions and outcomes are aligned with the SDGs and are aimed at establishing Silver Beach as a model of sustainable and responsible coastal tourism.

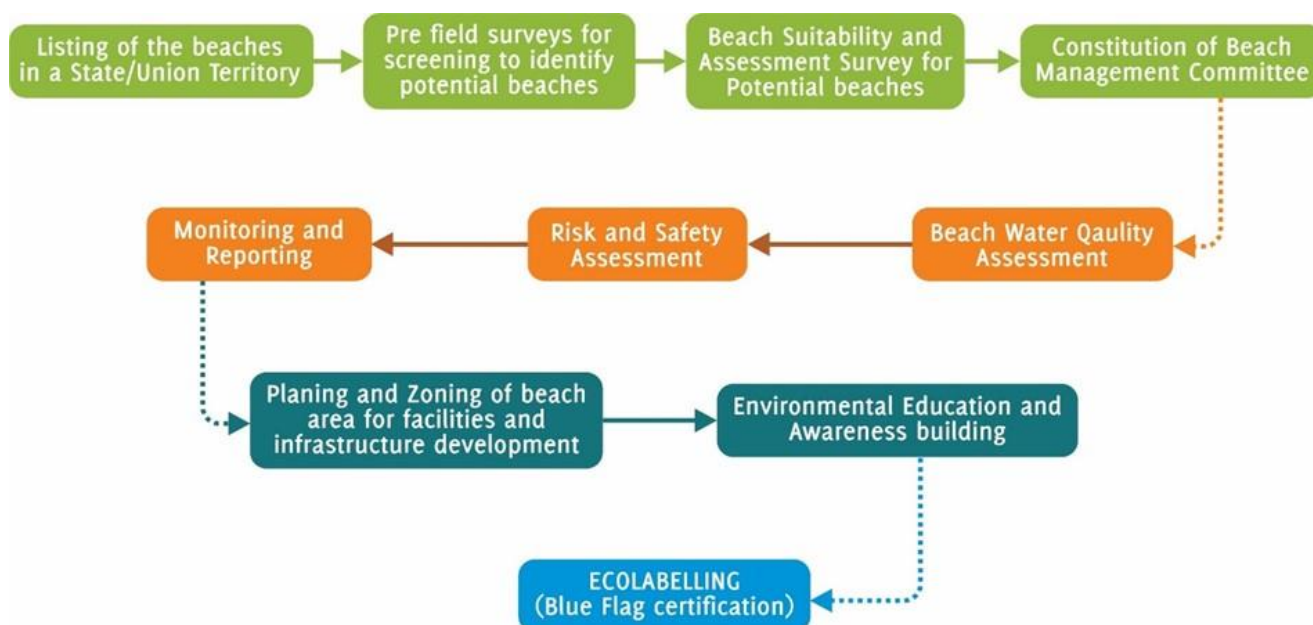
## 1.4 Implementation arrangement and schedule

The implementation of the Silver Beach Blue Flag project is structured around a strategic framework that ensures a systematic and phased approach to achieving the project objectives. The strategy encompasses the following aspects, all of which are critical for the successful attainment of the Blue Flag certification:

- suitability assessment,
- demarcation,

- infrastructure development, and
- certification processes

Strategy for implementation of suitability assessment, demarcation, infrastructure development and certification will be implemented as per Figure 3 given below:



**Figure 3: Strategy for implementations various activities for Blue Flag beach**

### Implementation Strategy:

The strategy for implementing the project is outlined in a detailed flow diagram which illustrates the sequential steps and interdependencies of the various activities. Key components of the implementation strategy include:

- Suitability Assessment:** Conducting comprehensive studies, including BSAS, to evaluate the beach's eligibility for Blue Flag certification based on established criteria.
- Demarcation:** Clearly demarcating zones for different activities and implementing measures to protect sensitive areas, ensuring the sustainable use of beach resources.
- Infrastructure Development:** Developing and upgrading infrastructure, such as toilet blocks, changing rooms, waste management systems, and safety facilities, to meet Blue Flag standards.

- d. Certification Process:** Undertaking rigorous monitoring and evaluation to ensure compliance with Blue Flag criteria, followed by the submission of an application for certification.

## Implementation Schedule:

The project implementation is divided into several phases, with each phase having specific timelines and milestones:

- a. Preparation Phase (Months 1-3):** Initial assessments, stakeholder consultations, and development of project plans.
- b. Assessment and Planning Phase (Months 4-6):** Conducting BSAS, environmental impact assessments, and finalizing the project design.
- c. Infrastructure Development Phase (Months 7-12):** Construction and installation of necessary infrastructure, with regular monitoring to ensure adherence to standards.
- d. Monitoring and Evaluation Phase (Months 13-15):** Continuous monitoring of beach water quality, safety measures, and other criteria, with adjustments made as necessary.
- e. Certification Application Phase (Month 16):** Compilation of documentation and submission of the application for Blue Flag certification.
- f. Post-Certification Phase (Month 17 onwards):** Ongoing maintenance, monitoring, and periodic reassessment to retain the certification status.

This schedule is designed to ensure a systematic and timely execution of the project activities, leading to the successful certification of Silver Beach as a Blue Flag beach.

|   |                          | During construction phase (12 months) |                         | Post construction phase (12 months) |                         |
|---|--------------------------|---------------------------------------|-------------------------|-------------------------------------|-------------------------|
|   |                          | Number                                | Salary (approx.)/ month | Number                              | Salary (approx.)/ month |
| 1 | Beach manager            | 1                                     | 90000                   | 1                                   | 90000                   |
| 2 | Beach engineer           | 0                                     | 0                       | 1                                   | 50000                   |
| 3 | Beach supervisor         | 1                                     | 45000                   | 2                                   | 45000                   |
| 4 | Clearing and maintenance | 10                                    | 27500                   | 15                                  | 27500                   |
| 5 | Security                 | 2                                     | 37000                   | 4 (M) +2 (F)                        | 37000                   |
| 6 | CCTV operator            | 0                                     | 0                       | 1                                   | 32000                   |

|   |                     |   |   |   |       |
|---|---------------------|---|---|---|-------|
| 7 | First aid attendant | 0 | 0 | 1 | 40000 |
| 8 | Life guard          | 0 | 0 | 4 | 37000 |

\*Total number of labours (in addition to the above manpower) to be involved directly in the construction activities (during construction phase only) may vary between 20 and 35 based on the requirement of the contractor.

## 1.5 Purpose of Environment and Social Due Diligence (ESDD)

The main purpose of the ESDD is to identify the key environmental and social impacts of the sub-project, and to develop an environmental and social management plan to mitigate the adverse impacts, if any. It is a tool for the implementing agency to

- a. Identify and evaluate possible environmental and social (E&S) impacts:** Systematically assess the potential environmental and social (E&S) impacts of the sub-project, including both positive and negative effects.
- b. Prepare a comprehensive mitigation and management plan:** Formulate a robust Environmental and Social Management Plan (ESMP) to address and mitigate identified adverse impacts, ensuring compliance with relevant standards.
- c. Ensure Compliance with Legal and Regulatory Frameworks:** Clarify relevance and applicability of various international, national and bylaws for the proposed activities.
- d. Determine the need for further assessments:** Based on the initial findings, decide whether a comprehensive Environmental and Social Impact Assessment (ESIA) or additional management plans are required for effective project implementation.

A detailed project report (DPR) is prepared for the baseline environment of the proposed area of execution. Then, a detailed assessment of each sub-project activity is laid out including risk assessment. ESDDR is done through use of initial E&S screening forms, using the information from the DPR document.

## 1.6 Approach for conducting the ESDD

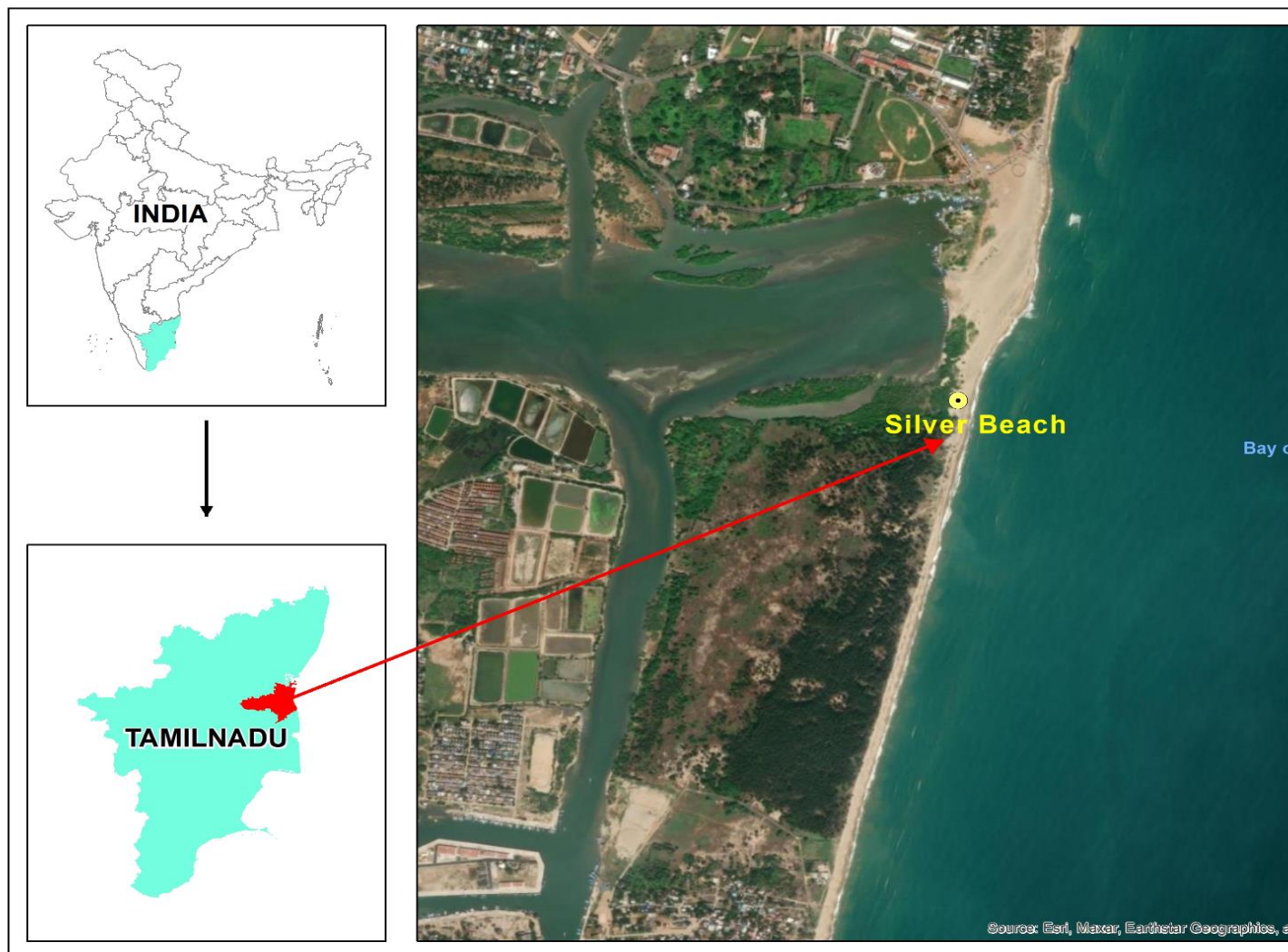
The approach for conducting the ESDD involves a systematic and phased process:

- a) Preparation of a Detailed Project Report (DPR):** Compile a baseline environmental report for the proposed project area, outlining the existing environmental and social conditions.

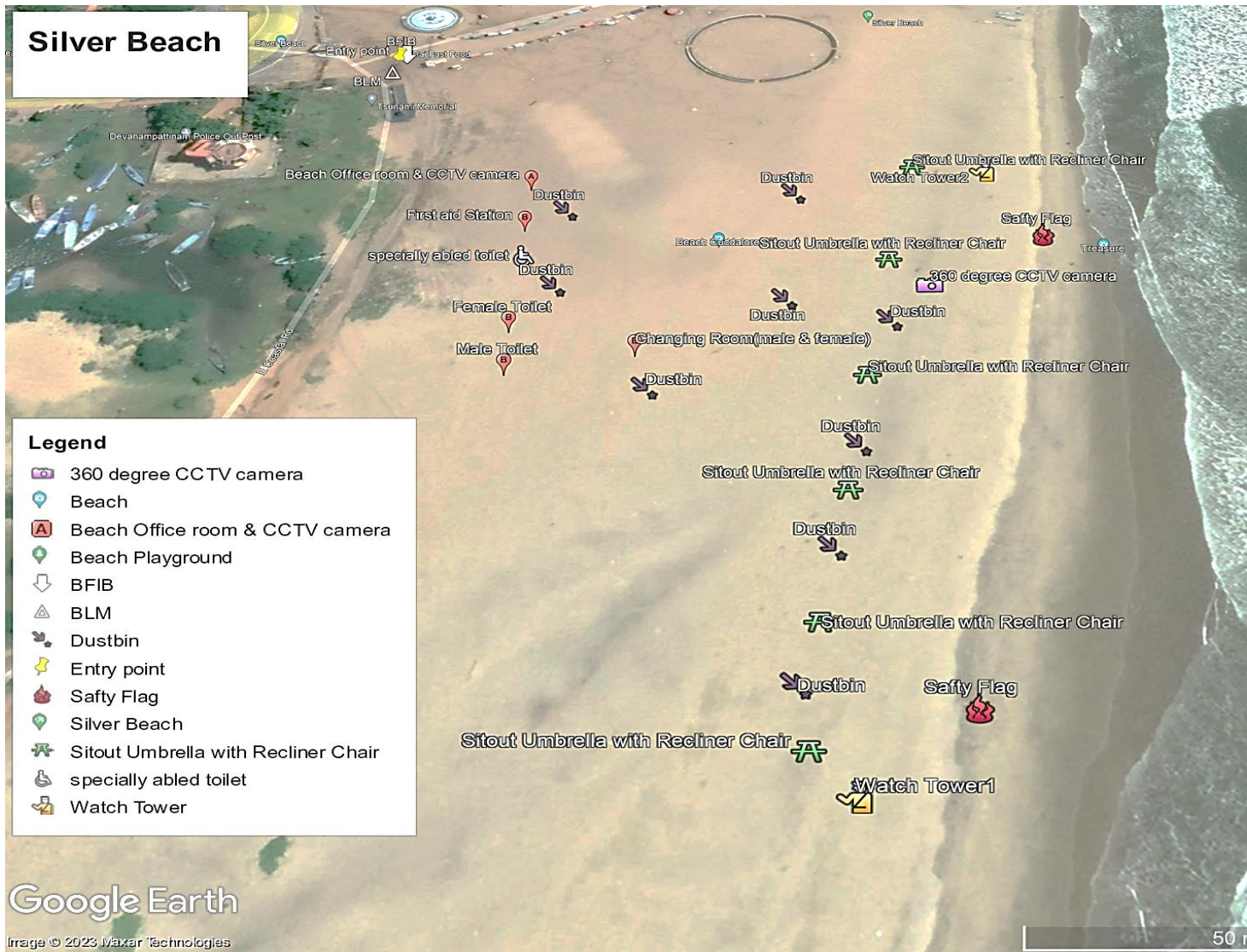
**b) Initial Screening:** Utilize environmental and social screening forms to identify potential impacts and risks based on information from the DPR.

**c) Stakeholder Engagement:** Engage with local communities, government authorities, and other stakeholders to gather input and ensure transparency throughout the process.

The ESDD serves as a dynamic tool for the implementing agency, guiding the integration of environmental and social considerations into the planning and execution of the Silver Beach Blue Flag project, thereby promoting sustainable development and social inclusivity.



**Fig. 1: Location of Silver Beach, Cuddalore, Tamil Nadu for Proposed Blue Flag Beach Development**



**Fig.2 Proposed zonation for Blue Flag Certification area**

## 2.0 LEGAL AND INSTITUTIONAL FRAMEWORK AND CAPACITY ASSESSMENT

### 2.1 Policy and Legal Framework

The policy and legal framework for the Silver Beach Blue Flag project is governed by a comprehensive set of national and state laws, regulations, and notifications that are pertinent to the proposed beach development activities. These legal instruments provide the foundation for ensuring environmental protection, social welfare, and sustainable development throughout the project lifecycle. For the execution and implementation of the Blue Flag beach at Silver beach, the following key laws and regulations are essential:

- i. **Environment Protection Act, 1986:** Overall environment protection, compliance to environmental standards (air, water, and noise) issued under Environment (Protection) Rules.
- ii. **Coastal Regulation Zone (CRZ) Notification, 2011/2019:** Governs all aspects of the proposed development in coastal areas, ensuring the protection of the coastal environment while allowing sustainable development. It has relaxations for Blue Flag beaches.
- iii. **Air (Prevention and Control of Pollution) Act, 1981, 1987:** Protection of air quality, requiring Consent to Establish (CTE) and Consent to Operate (CTO) for units/activities causing air pollution.
- iv. **Water (Prevention and Control of Pollution) Act, 1974, 1988:** Protection of water quality, requiring Consent to Establish (NOC) and Consent to Operate (CTO) for units/activities causing water pollution.
- v. **Solid Waste Management Rules, 2016:** Management of solid waste generated from the project activities.
- vi. **Plastic Waste Management Rules, 2016:** Management of plastic/micro-plastic wastes on the beach.
- vii. **Noise Pollution (Regulation and Control) Rules, 2000:** Compliance with ambient noise standards, especially during construction and operation phases.
- viii. **Biodiversity Act, 2002:** Conservation and preservation of existing ecosystems in the beach area.
- ix. **Wildlife Protection Act, 1972:** Protection of species in coastal and marine areas adjacent to the proposed beach.

- x. **Construction and Demolition Waste Management Rules, 2016:** Management of construction and demolition wastes.
- xi. **Disaster Management Rules, 2005:** Management of disasters and adherence to codes of construction in disaster-prone areas.
- xii. **Public Liability Insurance Act, 1991:** Public liability insurance for providing immediate relief to persons affected by accidents occurring while handling hazardous substances.
- xiii. **Marine Fisheries (Regulation and Management) Act, 1983:** Regulation of fishing activities and conservation of marine resources in the coastal zones.
- xiv. **Code on Wages (2019):** Deals with minimum wages, bonus payments, and wage deductions [reference: Ministry of Labour and Employment (<https://labour.gov.in/>)].
- xv. **Occupational Safety, Health and Working Conditions Code (2020):** Focuses on workplace safety, health, and working conditions [reference: Ministry of Labour and Employment (<https://labour.gov.in/>)].

## 2.2 Description of Institutional Framework

The sub-project activities and strategies at Silver Beach will be orchestrated by a Beach Management Committee (BMC), led by a Beach Manager. The Beach Manager is tasked with leading the team and coordinating various operational activities to ensure that the designated beach area—including sun-beds and bathing zones—operates efficiently and profitably while upholding the company’s reputation and ethos. Responsibilities encompass a wide range of management and strategic duties:

- i. **Strategic Planning and Oversight:** The Beach Manager is charged with the comprehensive oversight of the beach area, including the recreational complex, parking lots, toilet facilities, and changing rooms. This role involves strategic planning to align all beach operations with the overarching project goals.
- ii. **Supervision and Training:** Under the guidance of the Beach Manager, attendants and lifeguards receive supervision and training to ensure they are well-prepared and equipped to fulfil their duties effectively. This includes regular training sessions to update staff on the latest safety protocols and customer service standards.
- iii. **Safety and Cleanliness:** A primary responsibility of the BMC is to maintain a safe and clean environment for all beach patrons and guests. This involves routine monitoring and maintenance of the beach and its facilities, ensuring they meet the necessary safety and cleanliness standards.

- iv. **Resource Management:** The Beach Manager also handles the control and management of stock levels, the efficient deployment of resources, and the maintenance of all equipment and facilities to ensure they are in optimal condition.
- v. **Reporting and Communication:** The Beach Manager is responsible for regular reporting to higher management, providing updates on beach operations and addressing any operational issues that arise.
- vi. **Delegation of Responsibilities:** In the absence of the Beach Manager, duties are delegated to Assistant Managers or Supervisors to ensure uninterrupted operations.

The comprehensive duties and responsibilities of the BMC and the Beach Manager are detailed in Chapter 5 of the Detailed Project Report (DPR). This structured framework is designed to ensure that the beach is managed effectively and profitably, maintaining high standards of service quality, health, and safety for all visitors.

## 3.0 ASSESSMENT OF ENVIRONMENTAL AND SOCIAL CONDITIONS

The Environmental and Social Systems Diagnostic Report (ESSDR) for the Blue Flag certification of Silver Beach provides a thorough examination of the environmental and social conditions within the project area. This assessment details the physical, protected, social, and cultural environments, offering comprehensive insights into the baseline conditions and identifying potential impacts that may arise from the project's implementation.

### 3.1 Physical Environment:

The physical environment of Silver Beach is extensively detailed in Chapter 3 of the DPR. It is the second longest beach on the Coromandel Coast and one of the longest beaches in Asia. The 57 km-long stretch of beach faces severe seafront erosion. The land is completely flat with large black and alluvial soil inland and coarse sand near the seashore. The sandstone deposits in the town are popular. The Pennayar River runs north of the town, while Gadilam River runs across it. Cuddalore is situated at 200 km (120 mi) from the state capital Chennai and 18 km (11 mi) from Puducherry, the neighbouring union territory. The district is drained by Gadilam and Pennaiyar rivers in the north, Vellar and Coleroon in the south. The Malattar and Gadilam rivers also originate in the uplands within the district and flow eastwards to Cuddalore district. The Gadilam River (sometimes pronounced Kedilam) has a small water flow, drainage area and sand deposit, is generally flooded during the monsoon season, and raises the water table and feed tanks on its basin. The city of Cuddalore has a tropical climate as it has three main seasons: summer, monsoon and winter. The average annual rainfall in Cuddalore is about 1150 mm. The average rainfall during the northeast monsoon and southwest monsoon is 670 mm and 420 mm respectively. The minimum temperature is around 18-20 °C in January and the maximum temperature in May/June is around 38-42 °C. Understanding these elements is vital for identifying potential environmental impacts and developing appropriate mitigation measures, thereby ensuring that the project aligns with sustainable environmental management practices.

### 3.2 Protected Area

The project area, including its immediate vicinity, has been meticulously evaluated to ascertain its classification concerning wildlife or forest protected areas. It has been verified that the designated area for the Blue Flag certification at Silver Beach does not fall within the boundaries of any protected areas governed by wildlife or forest conservation laws. This confirmation ensures adherence to both national and international conservation regulations.

Furthermore, this thorough assessment aids in pre-emptively identifying potential environmental constraints that may require mitigation during the implementation of the project, thereby facilitating a smooth and compliant development process.

### **3.3 Social Environment**

The social environment of the project area at Silver Beach is defined by the demographic characteristics, socio-economic conditions, and community dynamics of the local population. This section provides an in-depth analysis of the social fabric, examining factors such as population density, livelihood patterns, and existing social infrastructure. Additionally, this assessment contemplates the potential social impacts stemming from the project, including modifications to beach access, employment opportunities, and the enhancement of community involvement in beach management and conservation initiatives.

Silver Beach serves as a vibrant communal space, frequented by a diverse cross-section of society. It is a favoured destination for local residents engaging in leisure activities such as walking, picnicking, kite flying, or simply relaxing and enjoying the seaside ambiance in the evenings. The survey observed a broad spectrum of visitors, including families, young couples, and groups of friends, along with street vendors and performers contributing to the lively atmosphere. The beach experiences peak visitation during weekends and holidays, underscoring its role as a significant social and recreational hub in the community.

### **3.4 Cultural Environment**

An extensive review of both National Monuments in Tamil Nadu and State Protected Monuments in the Cuddalore district has been conducted, supplemented by local knowledge from the project team. While there are several protected monuments identified by the Archaeological Survey of India in the district, none are situated in proximity to the project area. Notably, the 17th-century Fort St David, located near the town of Cuddalore, remains a historic site, albeit in ruins.

The cultural landscape of Silver Beach is characterized by a rich tapestry of traditional Tamil influences, the daily lives of the fishing community, and the transformative impact of tourism. This area serves as a vibrant showcase of the local culture, where language, cuisine, arts, and festivals converge to offer visitors a profound insight into the cultural heritage of Silver Beach and the broader Cuddalore district. This dynamic interplay enhances the region's appeal as a tourist destination and plays a crucial role in the ongoing efforts to promote sustainable and culturally sensitive tourism development.

## **4.0 ACTIVITY WISE ENVIRONMENT & SOCIAL SCREENING, RISK AND IMPACTS IDENTIFICATION**

### **4.1 Sub-Project Screening**

The sub-project screening for the Blue Flag certification of Silver Beach is conducted following a structured three-step screening methodology, as outlined in the Environmental and Social Management Framework (ESMF). This process is designed to systematically identify and assess the potential environmental and social (E&S) risks and impacts associated with each proposed intervention within the project area.

#### **Step I: Initial Screening (using Form SF-1)**

The initial screening is carried out using the Project Screening Template and the first screening format (SF-1). This step involves a detailed review of each proposed intervention to ascertain its applicability to the sub-project, its location (whether within or outside the project area), and the likely risks and impacts. The SF-1 format is specifically designed to identify various types of E&S risks for each rehabilitation activity, including but not limited to:

- Water Quality
- Fisheries
- Conservation Areas
- Protected Areas
- Ecology
- Physical Environment
- Cultural Environment
- Tribal Presence
- Private Land/Assets/Encroachers/Squatters
- Labour
- Migrant Labour
- Gender-Based Violence (GBV) risks

During the screening of various project components, it was determined that none of the activities are likely to have any impact outside the project area. However, two of the project components were identified as having potential impacts within the project area, specifically related to environmental and social risks.

#### **Step II: Risk/Impact Intensity Assessment (using Form SF-2)**

The second screening format (SF-2) is employed to assess the extent of risk/impact intensity for each identified E&S risk. This assessment is crucial for categorizing the risk level as Low, Moderate, Substantial, or High. The categorization helps in prioritizing the risks and focusing on mitigation measures for those with higher intensity.

### **Step III: E&S Risk Summary (using Form SF-3)**

The third E&S risk summary format (SF-3) is used to consolidate the risk categories for all different types of E&S risks and impacts. The highest of the risk categories is then assigned as the overall risk category for the given Blue Flag sub-project. This comprehensive risk summary aids in the formulation of targeted mitigation and management strategies.

Based on the findings from the three-step screening process, the ESDD report recommends the risk category of the sub-project – whether it is Low, Moderate, Substantial, or High. Additionally, the report suggests the types of instruments that need to be prepared to effectively manage and mitigate the identified risks and impacts.

This systematic screening approach ensures that all potential environmental and social risks and impacts are thoroughly assessed and addressed, paving the way for the sustainable and responsible development of Silver Beach as a Blue Flag certified beach.

The screening process for environmental and social risks and impacts associated with the Blue Flag certification of Silver Beach is meticulously carried out using Forms SF-1 and SF-2. The following tables provide a structured assessment of the potential risks and impacts for each project component and sub-activity:

## Form SF-1: Screening of Project components

| Sl. No.  | Project Component                                                                                                        | Applicability  | Location of Risk:<br>within the Restoration Area (RA)/<br>Outside the Restoration Area (ORA) | Likely Nature of Risk/Impact <ul style="list-style-type: none"> <li>• Water Quality (WQ),</li> <li>• Solid Waste Generation (SWG)</li> <li>• Fisheries (F)</li> <li>• Protected Area (PA)</li> <li>• Biodiversity (B)</li> <li>• Physical Environment (PE)</li> <li>• Cultural (C),</li> <li>• Tribal Presence (T)</li> <li>• Impact on private land / assets / encroachers/ squatters (LA),</li> <li>• Labour (L),</li> <li>• Gender Based Violence Risks (G)</li> <li>• Occupational Health and Safety (OHS),</li> <li>• Human Health and Safety (HS)</li> </ul> |
|----------|--------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A</b> | <b>Project Development Stage</b>                                                                                         |                |                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>1</b> | <b>Pollution Abatement Services</b>                                                                                      |                |                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| a.       | Mechanized cleaning of Beaches with walk behind machine                                                                  | Applicable     | RA                                                                                           | L, OHS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| b.       | Bio-Digester/ Bio-Tank Unit                                                                                              | Applicable     | RA                                                                                           | L, OHS, WQ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| c.       | Solid Waste Management Plant                                                                                             | Applicable     | RA                                                                                           | L, OHS, SWG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>2</b> | <b>Infrastructure Facilities Development</b>                                                                             |                |                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| a.       | Toilet Blocks Facilities                                                                                                 | Applicable     | RA                                                                                           | L, OHS, HS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| b.       | Changing room with shower panels facility                                                                                | Applicable     | RA                                                                                           | G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| c.       | Solar power plant facility (40 KW)                                                                                       | Applicable     | RA                                                                                           | L, OHS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| d.       | Purified drinking water facility                                                                                         | Not Applicable | RA                                                                                           | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| e.       | Beach access pathways                                                                                                    | Applicable     | RA                                                                                           | L, G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| f.       | Office block with: Control Room, Site office, Water rescue, First aid & safety Equipment, Environment education displays | Applicable     | RA                                                                                           | G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>B</b> | <b>Project Operational Stage</b>                                                                                         |                |                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| a.       | Human (visitors) contact with seawater                                                                                   | Applicable     | RA                                                                                           | HS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|    |                                                                                                                          |            |    |    |
|----|--------------------------------------------------------------------------------------------------------------------------|------------|----|----|
| b. | Physical forces- waves & currents on visitors                                                                            | Applicable | RA | HS |
| d. | Beach access pathways                                                                                                    | Applicable | RA | G  |
| e  | Toilet facility                                                                                                          | Applicable | RA | HS |
| f  | Dress change room and showers                                                                                            | Applicable | RA | G  |
| f. | Office block with: Control Room, Site office, Water rescue, First aid & safety Equipment, Environment education displays | Applicable | RA | G  |

**Note:** All applicable activities identified in Step I are further evaluated for the extent of risk/impact (**SF-2**). The intensity of risk/impact is categorized as **Low** (L), **Moderate** (M), **Substantial** (S), or **High** (H) based on the criteria outlined in the screening process. During this screening, all activities deemed to carry possible risks were assessed as low to moderate risk.

#### Form SF-2: Assessment of Risk/Impact Intensity for Sub-Activities

| Sl. No. | Applicable Project Component/ Sub activity              | Nature of Risk /Impact | Cause and Effect on Environment/Social                                                                                                                     | Risk/Impact intensity |
|---------|---------------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| A       | Project Development Stage                               |                        |                                                                                                                                                            |                       |
| 1       | Pollution Abatement Services                            |                        |                                                                                                                                                            |                       |
| a.      | Mechanized cleaning of Beaches with walk behind machine | L, OHS                 | Likely injury to labour                                                                                                                                    | L                     |
| b.      | Bio-Digester/ Bio-Tank Unit                             | L, OHS,WQ              | Labour and occupational health risk, noise pollution, leakage                                                                                              | L                     |
| c.      | Solid Waste Management Plant                            | L, OHS, SWG            | Labour and occupational health risk, noise pollution, spillage                                                                                             | L                     |
| 2       | Infrastructure Facilities Development                   |                        |                                                                                                                                                            |                       |
| a       | Solar power plant facility (40 KW)                      | L, OHS                 | Negligence to safety instructions could cause health risk                                                                                                  | M                     |
| b.      | Purified drinking water facility                        |                        | NA                                                                                                                                                         |                       |
| c.      | Beach access pathways                                   | G                      | Possibility of Gender Based Violence                                                                                                                       | L                     |
| B       | Project Operational Stage                               |                        |                                                                                                                                                            |                       |
| a.      | Toilet Blocks Facilities                                | HS                     | Improper maintenance leads to pathogenic environment                                                                                                       | L                     |
| b.      | Changing room with shower panels facility               | G                      | Possibility of Gender based violence                                                                                                                       | L                     |
| c       | Human (visitors) contact with seawater                  | HS                     | Seawater contaminated with bacteria due to discharges from Gadilam estuary flow along the coastal waters especially in the months of January and February. | L                     |
| d       | Physical forces- waves & currents on visitors           | HS                     | Freak waves occurring sometimes and rip currents pose a risk to                                                                                            | L                     |

|   |                                                                                                                          |   |                                                                   |   |
|---|--------------------------------------------------------------------------------------------------------------------------|---|-------------------------------------------------------------------|---|
|   |                                                                                                                          |   | human life when people move to deeper areas                       |   |
| e | Beach access pathways                                                                                                    | G | Possibility of gender based violence especially during dark hours | L |
| f | Office block with: Control Room, Site office, Water rescue, First aid & safety Equipment, Environment education displays | G | Possibility of Gender Based Violence                              | L |

This comprehensive screening process ensures that all potential environmental and social risks and impacts associated with the Blue Flag certification of Silver Beach are identified, assessed, and categorized, enabling the formulation of appropriate mitigation and management measures.

### Form SF-3: Summary of Identified Risks/Impacts

| Project Activity                                        | Environment Risks    |       |                               |                           |                                          | Social Risks |                             |                          |                    |
|---------------------------------------------------------|----------------------|-------|-------------------------------|---------------------------|------------------------------------------|--------------|-----------------------------|--------------------------|--------------------|
|                                                         | Land, Geology & Soil | Water | Biodiversity & Host Community | Waste, Pollution & Hazard | Protected Area (WLS, National Park etc.) | Land         | Loss of Livelihood/ HH etc. | Labour*/ Health & safety | Cultural/ Heritage |
| <b>A. Project Development Stage</b>                     |                      |       |                               |                           |                                          |              |                             |                          |                    |
| <b>1. Pollution Abatement Services</b>                  |                      |       |                               |                           |                                          |              |                             |                          |                    |
| Mechanized cleaning of Beaches with walk behind machine | None                 | None  | None                          | None                      | None                                     | None         | None                        | L                        | None               |

| Project Activity                          | Environment Risks    |       |                               |                           |                                          | Social Risks |                             |                         |                    |
|-------------------------------------------|----------------------|-------|-------------------------------|---------------------------|------------------------------------------|--------------|-----------------------------|-------------------------|--------------------|
|                                           | Land, Geology & Soil | Water | Biodiversity & Host Community | Waste, Pollution & Hazard | Protected Area (WLS, National Park etc.) | Land         | Loss of Livelihood/ HH etc. | Labour*/ Health& safety | Cultural/ Heritage |
| Bio-Digester/ Bio-Tank Unit               | None                 | None  | None                          | L                         | None                                     | None         | None                        | L                       | None               |
| Solid Waste Management Plant              | None                 | None  | None                          | L                         | None                                     | None         | None                        | L                       | None               |
| <b>2. Infrastructure</b>                  |                      |       |                               |                           |                                          |              |                             |                         |                    |
| Solar power plant facility (40 KW)        | None                 | None  | None                          | None                      | None                                     | None         | None                        | M                       | None               |
| Purified drinking water facility          | None                 | None  | None                          | None                      | None                                     | None         | None                        | None                    | None               |
| Beach access pathways                     | None                 | None  | None                          | None                      | None                                     | None         | None                        | None                    | None               |
| <b>B. Operational stage</b>               |                      |       |                               |                           |                                          |              |                             |                         |                    |
| Human (visitors) contact with seawater    | None                 | None  | None                          | None                      | None                                     | None         | None                        | L                       | None               |
| Physical forces- waves & currents         | None                 | None  | None                          | None                      | None                                     | None         | None                        | L                       | None               |
| Toilet Blocks Facilities                  | None                 | None  | None                          | None                      | None                                     | None         | None                        | L                       | None               |
| Changing room with shower panels facility | None                 | None  | None                          | None                      | None                                     | None         | None                        | None                    | None               |

| Project Activity                                                                                                         | Environment Risks    |       |                               |                           |                                          | Social Risks |                             |                         |                    |
|--------------------------------------------------------------------------------------------------------------------------|----------------------|-------|-------------------------------|---------------------------|------------------------------------------|--------------|-----------------------------|-------------------------|--------------------|
|                                                                                                                          | Land, Geology & Soil | Water | Biodiversity & Host Community | Waste, Pollution & Hazard | Protected Area (WLS, National Park etc.) | Land         | Loss of Livelihood/ HH etc. | Labour*/ Health& safety | Cultural/ Heritage |
| Office block with: Control Room, Site office, Water rescue, First aid & safety Equipment, Environment education displays | None                 | None  | None                          | None                      | None                                     | None         | None                        | None                    | None               |

### Overall Risk Classification:

Based on the summarized risks and impacts, the overall risk classification of the sub-project may be inferred as **Moderate**.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Anticipated Environmental Impacts:</b> 1 Impacts due to storage and Wastes - Pollution and Hazards</p> <p><b>Anticipated Social Impacts:</b> 1) Gender, 2) Labour/ Occupational Health &amp; Safety</p> <p><b>Criteria for Risk Evaluation:</b></p> <p><b>Low:</b> Localized, temporary and Negligible</p> <p><b>Moderate:</b> temporary, or short term and reversible under control</p> <p><b>Substantial:</b> medium term, covering larger impact zone, partially reversible</p> <p><b>High:</b> significant, non- reversible, long term and can only be contained/compensated</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 4.2 Stakeholder Consultation

The stakeholder engagement process is a crucial element of the ESSDR for the Blue Flag certification of Silver Beach. A field survey conducted on the afternoon of October 4, 2023, highlighted the diversity of stakeholders in Cuddalore, Tamil Nadu, encompassing a range of local entities who demonstrated a keen interest in the development, maintenance, and management of the beach and its surrounding areas. Out of 17 local stakeholders present in the meeting 12 were male and 5 were female.

Stakeholders including the TTDC, local businesses and vendors, the local fishing community, residents, community groups from neighbouring areas, environmental organizations, other government agencies, cultural and heritage organizations, and educational institutions were identified. Discussions during the survey focused on the current state of beach tourism at Silver Beach, examining existing infrastructure, tourist demographics, occupancy rates, and unique selling points. Conversations also explored opportunities to attract new tourist segments, enhance eco-tourism, and invest in water sports. The local business owners see development as a way to attract tourists, boost the economy, and create jobs in hotels, restaurants, and shops. Environmentalists showed concern about increased erosion and the impact of development on the beach.

The feedback from these consultations has been instrumental in shaping the approach to developing a section of Silver Beach with eco-friendly infrastructure. The table below summarizes the key concerns and feedback from various stakeholder groups, alongside the responses and actions taken by the project team:

| Stakeholder group | Key concerns and feedback points | Response and Action |
|-------------------|----------------------------------|---------------------|
|-------------------|----------------------------------|---------------------|

|                                 |                                                                                                        |                                                                                                                                                                                                                              |
|---------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Government officials</b>     | The project must promote tourism and boost the local economy.                                          | The Blue Flag initiative contributes to combating poverty by enhancing local economies through increased tourism and promoting free access to beaches, business activities, and services.                                    |
|                                 | Developments must not degrade the environment.                                                         | Infrastructure developments are designed to promote a healthy coastal environment, attracting both local and international tourists. Enhancements aim to generate revenue through taxes and create employment opportunities. |
| <b>Environmental Specialist</b> | Conservation of sand dunes if present on the beach.                                                    | No hind dunes were observed at Silver Beach; ongoing efforts will increase awareness and appreciation for the natural beauty of Silver Beach.                                                                                |
|                                 | Concerns about water quality status.                                                                   | A comprehensive Bathing Water Quality test and Risk Assessment survey have been conducted to ensure water quality standards are met and maintained.                                                                          |
| <b>Local community</b>          | The beach's location in a low to medium population density area makes it an ideal tourist destination. | The development of Silver Beach is targeted to enhance sustainable tourism activities while maintaining environmental integrity. Out of 17 local stakeholders present in the meeting 12 were male and 5 were female.         |

This structured approach to stakeholder feedback and subsequent actions ensures that all concerns are addressed systematically, aligning the project with both community expectations and environmental sustainability goals.

#### **Additional benefits of Blue Flag beach certification:**

- i. **Community Engagement and Inclusivity:** The project team is committed to promote active engagement with the local community to ensure their direct involvement and benefit from the development of Silver Beach. This commitment will manifest in the creation of job opportunities, the promotion of local businesses, and the provision of specialized training for beach management and conservation practices. This inclusive approach aims to empower the community and ensure the sustainable growth and development of the region.
- ii. **Environmental Monitoring and Management:** An ongoing regimen will be established for the continuous monitoring of critical environmental parameters, including water quality, biodiversity, and coastal erosion. These efforts are essential to ensure that the development and ongoing operations at Silver Beach strictly adhere to established environmental sustainability principles, thereby safeguarding the natural resources and ecological balance of the area.

- iii. **Cultural and Heritage Conservation:** A focused initiative will be undertaken to integrate cultural and heritage conservation into the overall project design. This initiative will ensure the preservation and enhancement of any historical or archaeological sites within the vicinity, making them a highlight of the tourist experience at Silver Beach. These efforts aim to celebrate and promote the rich cultural heritage of the region, adding depth to the tourist experience.
- iv. **Infrastructure Development:** The infrastructure development plan for Silver Beach has been carefully crafted to minimize environmental impacts. This plan includes the use of eco-friendly materials, the implementation of advanced waste management systems, and the assurance of energy efficiency in all facilities. These measures are designed to reduce the environmental footprint of the development while enhancing the functionality and sustainability of the infrastructure.

This summary provides a comprehensive overview of the key concerns and feedback from various stakeholders, together with the targeted responses and actions taken by the project team. These efforts underline the project's commitment to addressing stakeholder concerns and to promote the sustainable development of Silver Beach as a certified Blue Flag destination.

## 4.3 ESDD findings and Key impacts to be addressed

ESDD provides details on screening carried out to assess the environmental and social impacts likely to occur. The ESDD has analysed the E & S impacts arising due to the planned activities and it was found that the activities lead to low to moderate E&S impacts. The screening of potential activities associated with the Blue Flag certification of Silver Beach has identified few environmental and social risks and impacts that need to be addressed. These are summarized below

### 1. Environmental Risks and Impacts:

- i. **Pollution and Hazards Due to Storage and Wastes:** The management of waste and storage of materials during construction may pose environmental hazards if not properly handled.
- ii. Leakage from the Bio-digester unit can cause ground water pollution and release of Gas can harm the person maintaining the unit.

### 2. Social Risks and Impacts:

- i. **Gender:** The project should consider the gender-specific impacts and ensure equitable participation and benefits for both men and women. It would strictly ensure non-prevalence of Gender based violations.
- ii. Labour, OHS and HS: The influx of labour during construction should be managed to ensure fair working conditions and minimize social disruptions.

### 3. Environmental and Social Standards:

These are a set of ten benchmarks set by the World Bank for achieving a minimal social and environmental standard during project execution. They ensure inclusion of good management practices of international/national standard to achieve sustainability, good governance, accountability, inclusiveness and transparency. These Environmental and Social Standard (ESS) are:

**ESS 1:** Assessment and Management of Environmental and Social Risks and Impacts;

**ESS 2:** Labour and Working Conditions;

**ESS 3:** Resource Efficiency and Pollution Prevention and Management;

**ESS 4:** Community Health and Safety;

**ESS 5:** Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;

**ESS 6:** Biodiversity Conservation and Sustainable Management of Living Natural Resources;

**ESS 7:** Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;

**ESS 8:** Cultural Heritage;

**ESS 9:** Financial Intermediaries; and

**ESS 10:** Stakeholder Engagement and Information Disclosure.

The following ESS categories are relevant and suggested mitigation measures

**Table: ESS Applicability analysis and recommended management measures/ plans**

| ESS                                                                                  | Recommended Management Plans                                                                                                                                                                                                                                                                                                                                                                            | Applicability                        |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>ESS1:</b> Assessment and Management of Environmental and Social Risks and Impacts | Precautionary steps to avoid environmental damages while carrying out all the activities and briefing the people involved on non-engagement of Gender-based violence or Harassment<br>Safety from waves: Warning boards for occasional freak waves. Watch towers and lifeguards stationed across the designated area. The safe bathing zone is demarcated well with the aid of visible lines and buoys. | Applicable<br>(Included in the ESMP) |
| <b>ESS2:</b> Labour and Working Conditions                                           | Adopting labour management rules and instructions to prevent Occupational Health issues and adopting safety norms especially to avoid injuries while using manual or electric tools                                                                                                                                                                                                                     | Applicable<br>(Included in the ESMP) |

| <b>ESS</b>                                                                                     | <b>Recommended Management Plans</b>                                                                                                                                                                                                                                                                                                         | <b>Applicability</b>               |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| <b>ESS3:</b> Resource Efficiency, Pollution Prevention and Management                          | Adopting prescribed solid waste management practices including disposing of solid wastes at designated places<br>Polluted seawater: Regular water quality monitoring and display of results in the beach information board.<br>Leakage from Bio-digester unit<br>Solar based power sources to minimise conventional electricity consumption | Applicable (Included in the ESMP)  |
| <b>ESS 4:</b> Community Health and Safety                                                      | Cultural and social environment is included in the baseline details, for proper monitoring and assessment in the DPR document (Environmental and Social Safeguards Monitoring Plan)                                                                                                                                                         | Applicable (Include in the ESMP)   |
| <b>ESS 5:</b> Land Acquisition, Restrictions on Land use and Involuntary Resettlement          | The project is in area that is under the control of the Government and land acquisition is not involved. There is no resettlement required for execution of the project.                                                                                                                                                                    | Not Applicable                     |
| <b>ESS 6:</b> Biodiversity conservation and Sustainable Management of Living Natural resources | The project area does not fall within any Environmentally Sensitive Area and not linked to any activities that will affect the biodiversity and natural resources                                                                                                                                                                           | Not applicable                     |
| <b>ESS 7:</b> Indigenous Peoples Historically Underserved Tradition Local Communities          | No indigenous people or tribal live in the area                                                                                                                                                                                                                                                                                             | Not Applicable                     |
| <b>ESS 8:</b> Cultural Heritage                                                                | Cultural sites are located far away from the mangrove areas                                                                                                                                                                                                                                                                                 | Not Applicable                     |
| <b>ESS 9:</b> Financial Intermediaries                                                         | No financial compensation etc., involved                                                                                                                                                                                                                                                                                                    | Not Applicable                     |
| <b>ESS 10:</b> Stakeholder Engagement and Information Disclosure                               | A stakeholder consultation was carried out during site screening. A feedback mechanism is in place to address any grievances of the stakeholders (including beach goers).                                                                                                                                                                   | Applicable (Included in the ESDDR) |

#### 4. Mitigation and Management Measures:

The project will implement a range of mitigation and management measures to address the identified risks and impacts. These will include environmental monitoring, pollution control measures, water Conservation, energy efficiency, community engagement, and capacity building initiatives. The project will also develop an Environmental and Social Management Plan (ESMP) to guide the implementation of these measures. These activities will help to prevent overexploitation of the resources and ensure that the beach remains a healthy ecosystem.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Conclusions

#### 5.1.1 Justifications for undertaking the project

- i. **Blue Flag Certification:** Achieving Blue Flag status for Silver Beach will signify a commitment to coastal conservation, environmental education, and the provision of safe and quality services through ecotourism. This certification will enhance the beach's reputation, attract more visitors, and promote sustainable tourism practices.
- ii. **Implementing Agency & Institutional Framework:** The Department of Environment and Climate Change, Government of Tamil Nadu, will spearhead the project's implementation, collaborating with consultants and contractors to ensure successful execution and adherence to environmental and social standards.
- iii. **Target Beneficiaries:** The local community, particularly the vulnerable sections such as fisherwomen and women-headed families, will benefit from increased livelihood opportunities and enhanced environmental awareness. The project will also contribute to the state's tourism and environmental goals by attracting more tourists and promoting conservation.

- iv. **Legal Framework:** The project aligns with the Coastal Regulation Zone Notification 2011/2019 issued by the Ministry of Environment, Forests and Climate Change, which aims to protect and preserve coastal zones. The initiative to obtain Blue Flag Certification is part of a broader effort to maintain high standards of cleanliness, safety, and infrastructure on selected beaches.

### 5.1.2 Risk Classification

The ESDD exercise has identified risks related to water quality, physical environment, labour, and social and environmental health (SEAH)/gender-based violence (GBV). The overall risk classification for the sub-project is categorised as **low to moderate**, with specific components such as bio-digesters, grey water treatment plants, and solar power facilities presenting moderate occupational health risks.

### 5.1.3 National Legislation and World Bank ESS Applicability Screening:

The Coastal Regulation Zone (CRZ) notification 2011/2019 outlines activities prohibited within the CRZ, including the establishment of new industries, discharge of untreated waste, and extraction of groundwater. For Blue Flag beaches, specific structures and facilities are permitted within the CRZ, subject to maintaining a minimum distance from the High Tide Line (HTL).

The World Bank Environmental and Social Framework comprises 10 ESS. The applicability of this standard varies depending on the nature of the activities.

#### Environmental Codes of Practice (ECoPs):

ECoPs derived from the World Bank Environmental and Social Management Framework (ESMF) will guide the planning and implementation of mitigation measures during sub-project activities. These include ECoPs for construction activities, operation of treatment plants, water resources management, and solar energy plan. This practical tool to ensure World Bank financed projects consider and minimize environmental impacts throughout the project lifecycle.

## 5.2 Recommendations

Monitoring Blue Flag-certified beach activities is an important aspect of maintaining the high environmental and safety standards associated with this prestigious eco-label. The Blue Flag program, run by the Foundation for Environmental Education (FEE), certifies beaches and marinas worldwide that meet strict criteria related to water quality, environmental management, safety, and education.

### 5.2.1 Mitigation and Management of Risks and Impacts:

- i. **Water Quality Testing:** Regularly test the water quality to ensure it meets the required standards for swimming. Testing should include checks for bacteria levels, chemical contaminants, and general water quality parameters.
- ii. **Safety Measures:** Ensure that safety measures are in place and well-maintained. This includes lifeguard stations, safety signage, and first-aid facilities.
- iii. **Environmental Conservation:** Monitor the beach's environmental conservation efforts. This may involve checking for the protection of local flora and fauna, erosion control measures, and waste reduction initiatives.
- iv. **Educational Programs:** Verify that educational programs related to environmental awareness and conservation are being conducted at the beach or marina. This can include interpretive signage, guided tours, or outreach programs.
- v. **Community Engagement:** Engage with the local community and beachgoers to promote responsible behaviour and environmental awareness. Encourage participation in clean-up activities and recycling efforts.
- vi. **Record Keeping:** Maintain detailed records of all monitoring activities, inspections, water quality tests, and any incidents or violations. Proper documentation is essential for accountability and reporting.
- vii. **Feedback Mechanism:** Establish a feedback mechanism for beachgoers and stakeholders to report any concerns, issues, or violations. This can include a hotline, website, or contact person responsible for addressing inquiries.
- viii. **Communication:** Regularly communicate the Blue Flag status and the importance of responsible beach behaviour to the public through various channels, such as social media, local news, and beach signage.
- ix. **Compliance Enforcement:** Take appropriate action if violations are identified. This may involve issuing warnings, fines, or even revoking the Blue Flag certification if necessary.
- x. **Continuous Improvement:** Continuously seek ways to improve the beach's environmental and safety performance. This could involve implementing new initiatives or technology to enhance monitoring and management.

- xi. **Training and Capacity Building:** Ensure that beach management personnel receive proper training and have the necessary skills to maintain Blue Flag standards.

By diligently monitoring Blue Flag certified beach operations and promptly addressing any issues, we can contribute to maintaining the integrity of the certification, protecting beach environments and the safety of beachgoers.

### 5.2.2 Institutional Management, Monitoring and Reporting

Develop and implement an ESMP to address the identified impacts, including water quality, coastal erosion, wildlife conservation, and community impacts. The ESMP should include specific measures for the operation of treatment plants, waste management, and solar energy facilities.

The Blue Flag Beach Programme involves various roles and responsibilities to ensure that certified beaches adhere to programmes environmental, safety and sustainability criteria. Some major roles and responsibilities associated with Blue Flag Beach Programme: -

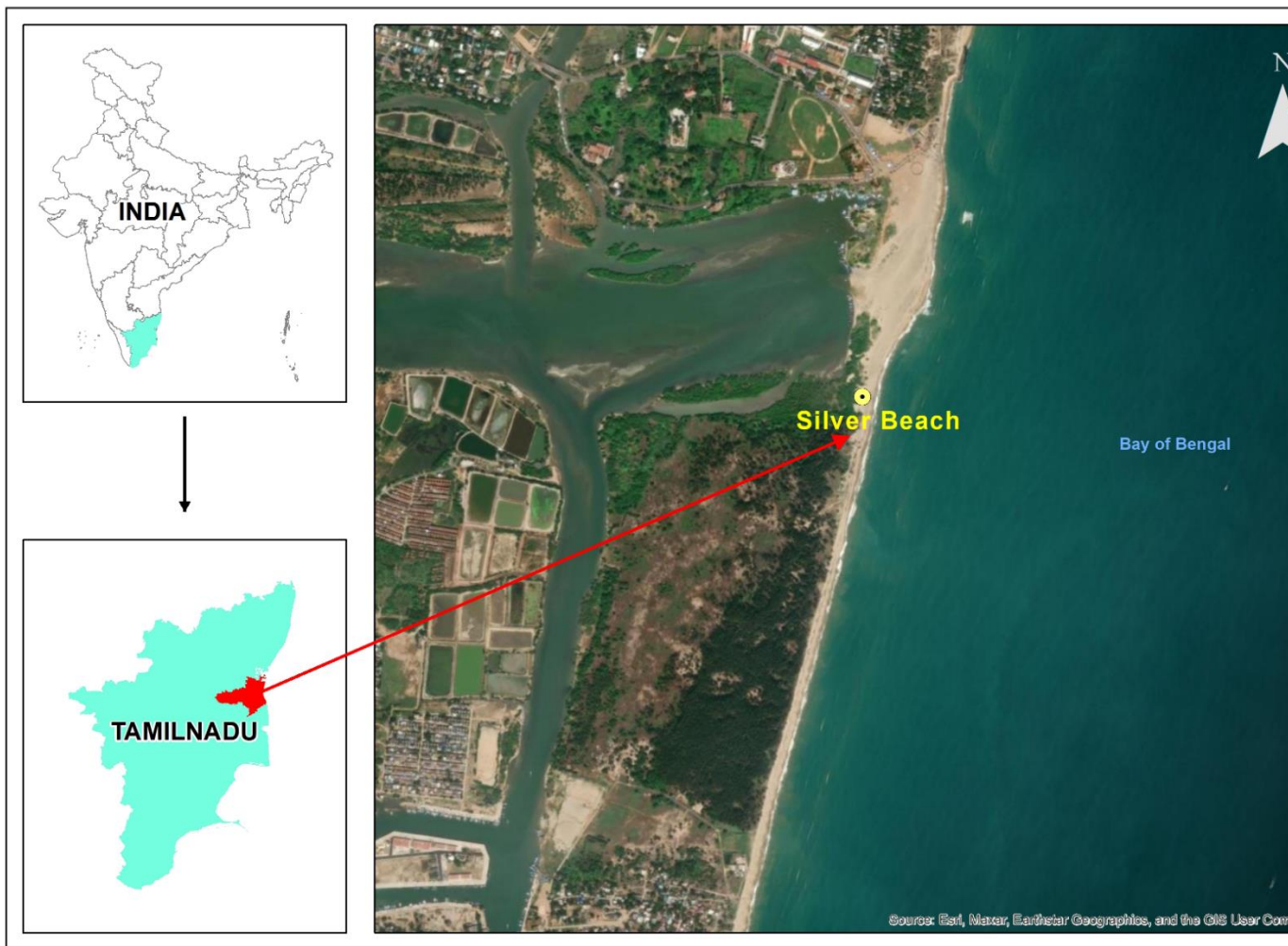
- (i) Beach Management Committee
- (ii) Beach manager

BMC may like to engage a “Beach Manager” for providing pollution abatement, safety & security services. This will help BMC to maintain & ensure continuity of a successful scheme. “Beach Manager” is responsible to coordinate with the BMC, National Operator, Local Community & Beachgoers (Tourists) and regulate, monitor & supervise the beach maintenance staff, if any, for the local environment management, beach infrastructure operations & safety of tourists.

- (i) Environmental Coordinator
- (ii) Safety coordinator
- (iii) Education coordinator
- (iv) Accessibility Coordinator
- (v) Monitoring and Reporting Team
- (vi) Blue Flag National Operator

Society of Sustainable Urban Development (SSUD), Pune is the National Operator in India for periodic announced / unannounced audits duly authorized by global NGO Federation for Environment Education (FEE) to monitor the Blue Flag beach and its compliance to its prescribed 33 Blue Flag Criteria.

More details on roles and responsibilities on institutional structure for various activities and method of reporting are provided in the “Chapter 6: Process of the Blue Flag Certification” of the DPR of Silver beach.



**Fig. 1: Location of Silver Beach, Cuddalore, Tamil Nadu for Proposed Blue Flag Beach Development**



**Fig.2 Proposed zonation for Blue Flag Certification area**