

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

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

### **For Blue Flag Beach Certification of Marina Beach, Chennai**



**July, 2024**

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##### 5.1 Conclusions

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# Blue Flag Beach Certification of Marina Beach, Chennai

## Executive Summary

Marina Beach, located in Chennai, Tamil Nadu, is set to undergo significant enhancements to achieve the prestigious Blue Flag certification as part of the "Tamil Nadu - Sustainably Harnessing Ocean Resources and Blue Economy (TN-SHORE)" project, supported by the World Bank. This certification is globally recognized and emphasizes excellence in water quality, environmental management, safety, and educational services, aligning with international eco-tourism standards.

The project's primary objective is to transform part of Marina Beach into a sustainable beach management model, significantly enhancing its appeal and utility. Key interventions include implementing mechanized beach cleaning and waste management systems to reduce pollution, constructing eco-friendly amenities such as toilet blocks, changing rooms, solar power installations, and accessible pathways, enhancing safety measures through the installation of lifeguard stations and safety signage, and promoting environmental awareness through education programs and community engagement initiatives.

The anticipated outcomes include achieving an "A++ Category" cleanliness level, increasing safety, reducing marine litter, enhancing water quality, boosting the local economy by attracting more tourists, creating new job opportunities, and promoting sustainable tourism. The implementation involves a phased approach, including initial assessments, detailed planning, infrastructure development, and rigorous monitoring to ensure adherence to Blue Flag standards, with the Beach Management Committee overseeing the project execution to ensure timely completion and compliance.

The Environmental and Social Due Diligence (ESDD) conducted as part of the project preparation outlines the environmental and social impacts, proposing mitigation strategies to address potential risks. Key considerations include managing construction impacts, ensuring water quality, preserving local biodiversity, and involving the community in sustainable practices.

Comprehensive stakeholder consultations have underscored the community's support for the project, highlighting the benefits of Blue Flag certification for local economic and environmental health. Feedback from these engagements has been instrumental in refining project strategies and ensuring community benefits. The ESDD findings indicate that the project presents **moderate** environmental and social risks, with robust management strategies in place to mitigate these risks effectively. Ongoing monitoring and adaptive management will be crucial to addressing any emerging issues throughout the project lifecycle. This project not only aims to elevate the status of Marina Beach but also serves as a catalyst for sustainable development and environmental stewardship in line with the United Nations' Sustainable Development Goals.

## 1.0 Introduction

### 1.1 Project overview

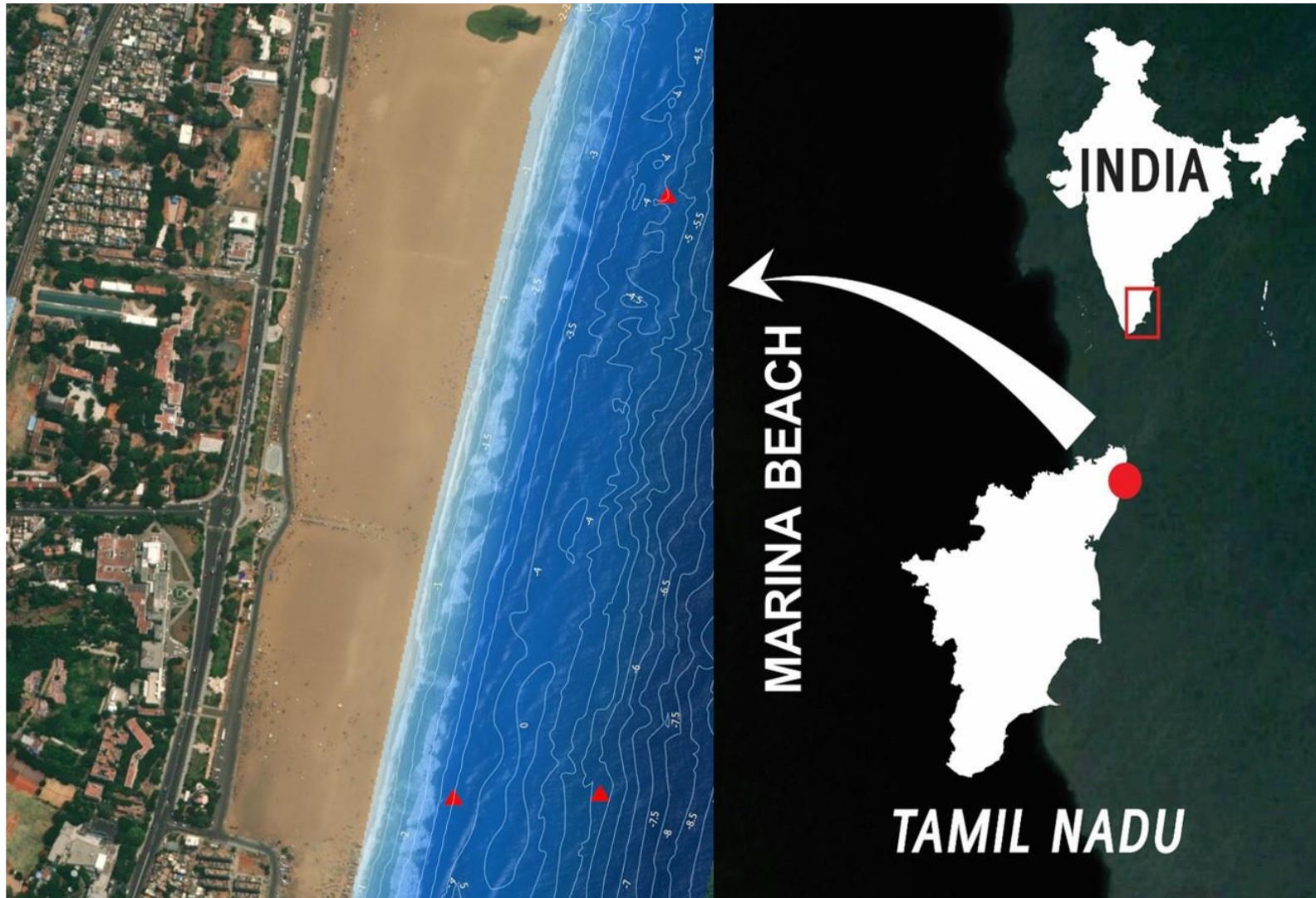
The Government of Tamil Nadu has launched a project entitled Tamil Nadu - Sustainably Harnessing Ocean Resources and Blue Economy (TN – SHORE) with funding from the World Bank. The project aims to enhance the resilience and sustainable utilization of coastal resources through a multi-pronged approach. It envisions a holistic integration of various sectors to drive a resilient and circular blue economy, empower local livelihoods, and enhance capacities for a greener future. One of the sub-projects identified is obtaining Blue Flag Programme for Marina Beach, Chennai.

The Blue Flag Programme, an esteemed international eco-label, is dedicated to promoting sustainable development in freshwater and marine areas. It has garnered recognition for its rigorous standards that integrate environmental management, water quality, safety, and environmental education. This holistic approach has been instrumental in promoting synergy between the tourism and environmental sectors at various levels, from local to national.

In alignment with its commitment to environmental sustainability and tourism development, the Government of Tamil Nadu has embarked on an ambitious initiative to attain Blue Flag certification for ten select beaches under the Beach Environment & Aesthetics Management Services (BEAMS) programme. Marina Beach in Chennai, a highlight of the state's coastal beauty, is one of the selected beaches for this esteemed certification.

### 1.2 Sub-Project Description

Located in Chennai City, Tamil Nadu, the Marina Beach (Figure 1) is a coastal marvel that stretches approximately 12 km, making it the longest beach in India and the second longest in the world. Extending from Besant Nagar in the south to Fort St. George in the north, the beach is renowned for its vast expanse of sandy shoreline. The beach's width varies between 300 and 437 meters for infrastructure development, while the intertidal zone spans about 30 meters. Geographically, the beach is positioned between 13° 3' 36.568" N and 80° 17' 12.723" E, covering a total area of 0.87 sq.km. Of this, a designated area of 0.14 sq. km (143,000 sq. m) is designated for the proposed infrastructure development (Figure 2). Marina Beach is a popular destination, attracting an average of 30,000 visitors on weekdays and up to 50,000 visitors on weekends and public holidays.



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



Fig.2 Proposed zonation for Blue Flag Certification area

## 1.3 Proposed Interventions/Activities and Intended Outcomes

The Marina 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 Marina Beach as a model of sustainable and responsible coastal tourism.

## 1.4 Implementation arrangement and schedule

The implementation of the Marina 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.

1. suitability assessment,
2. demarcation,
3. infrastructure development, and
4. certification processes

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

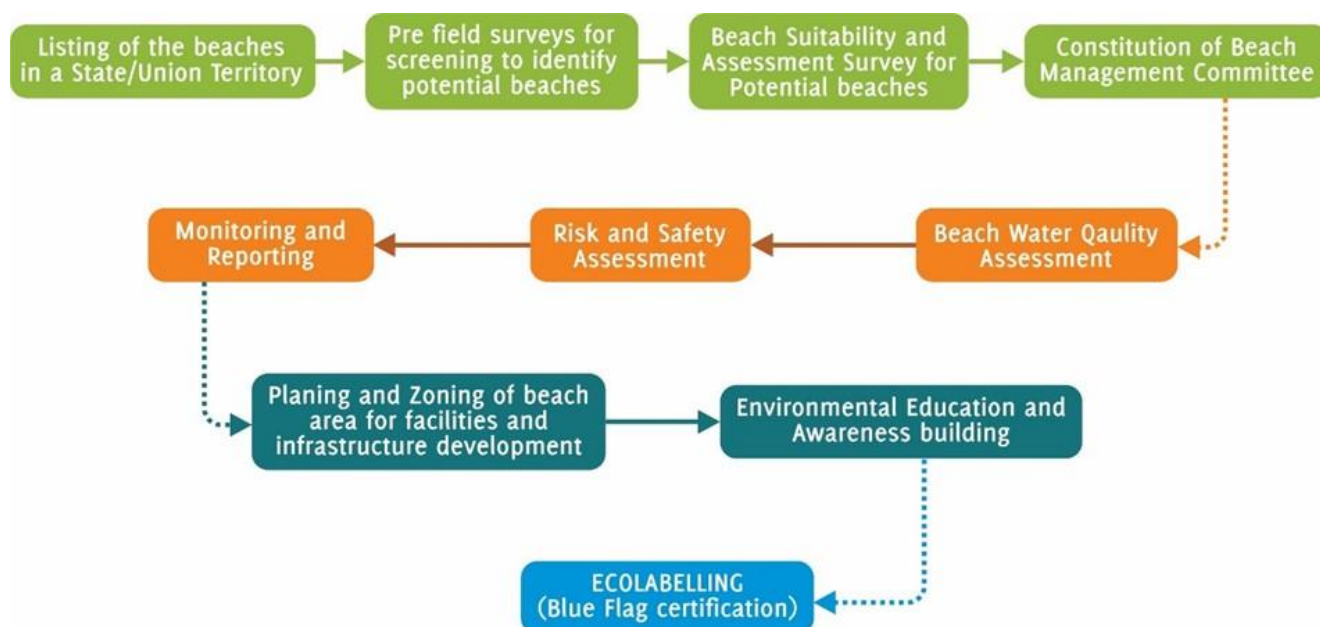


Figure 3: Strategy for implementations various activities for Blue Flag beach

#### A. 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:

- a. Suitability Assessment:** Conducting comprehensive studies, including BSAS, to evaluate the beach's eligibility for Blue Flag certification based on established criteria.
- b. Demarcation:** Clearly demarcating zones for different activities and implementing measures to protect sensitive areas, ensuring the sustainable use of beach resources.
- c. 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.

## B. 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 Marina Beach as a Blue Flag beach.

|   |                          | During construction phase<br>(12 months) |                               | Post construction phase<br>(12 months) |                               |
|---|--------------------------|------------------------------------------|-------------------------------|----------------------------------------|-------------------------------|
|   | Position                 | Number                                   | Salary<br>(approx.)/<br>month | Number                                 | Salary<br>(approx.)/<br>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 ESDD

The ESDD is a critical component of the Marina Beach Blue Flag project, serving as a comprehensive framework for identifying, assessing, and managing the environmental and social impacts associated with the sub-project. The primary objectives of the ESDD are to identify the issues of concern and address them to ensure sustainable development practices and to safeguard the well-being of the local community and natural environment.

**This ESDD aims to:**

- I. Identify and evaluate environmental and social impacts:** Systematically assess the potential environmental and social (E&S) impacts of the sub-project, including both positive and negative effects.
- II. Develop a 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.
- III. Ensure Compliance with Legal and Regulatory Frameworks:** Clarify the relevance and applicability of international, national, and local bylaws and regulations pertaining to environmental and social aspects of the project.
- IV. 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.

## 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 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 Marina Beach Blue Flag project, thereby promoting sustainable development and social inclusivity.

## 2.0 Legal and Institutional Framework and Capacity Assessment

### 2.1 Policy and Legal Framework

The policy and legal framework for the Marina 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 Marina, 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, 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 institutional framework for the implementation of the sub-project activities and strategies at the Marina Beach includes Greater Chennai Municipal Corporation which has the overall responsibility to implement the sub-project. The management is structured around a Beach Management Committee (BMC), which is led by a dedicated Beach Manager. The BMC is responsible for ensuring the efficient and profitable operation of the beach, while upholding the company's reputation and adhering to its ethos. The Beach Manager plays a pivotal role in leading the beach team to achieve the set goals and in coordinating a variety of activities, including:

- i. **Strategic Planning and Oversight:** The Beach Manager is responsible for overseeing the operation of the entire beach area, including the recreation complex, parking lots, toilets, and changing room facilities. This involves strategic planning to ensure that all beach operations are aligned with the overall goals of the project.
- ii. **Supervision and Training:** The Beach Manager provides supervision to attendants and lifeguards, ensuring they are well-trained and equipped to perform their duties effectively. This includes conducting regular training sessions to keep the staff updated on the latest safety protocols and customer service standards.
- iii. **Safety and Cleanliness:** A key responsibility of the BMC is to create a safe and clean environment for beach patrons and guests. This involves regular monitoring and maintenance of the beach area, including the sun-beds and bathing zones, to ensure they meet the required standards of safety and cleanliness.
- iv. **Resource Management:** The Beach Manager is responsible for controlling and managing stock levels, deploying resources efficiently, and ensuring that all equipment and facilities are in good working condition.
- v. **Reporting and Communication:** The Beach Manager is tasked with daily and weekly reporting to higher management, providing updates on the beach operations and any issues that need to be addressed.

- vi. **Delegation of Responsibilities:** In the absence of the Beach Manager, responsibilities are assigned to Assistants or Supervisors to ensure the smooth operation of the beach.

The detailed duties and responsibilities of the BMC and the Beach Manager are outlined in the DPR document (Chapter 5). This framework is designed to ensure that the beach operates efficiently and profitably, with a focus on maintaining high standards of service quality, health, and safety for all beach patrons and guests.

## 3.0 Assessment of Environmental and Social Conditions

The ESDDR for the Blue Flag certification of Marina Beach encompasses a comprehensive assessment of the environmental and social conditions of the project area. This section elaborates on the physical, protected, social, and cultural environments, providing a detailed understanding of the baseline conditions and potential impacts associated with the project.

### 3.1 Physical Environment

The physical environment of the project area, including its physiography, topography, land use-land cover, and climate, is extensively described in Chapter 3 of the DPR. To describe it briefly, the terrain is relatively flat, with contours between 2 and 10 m above mean sea level and some isolated hills. It rises slightly as you move away from the sea, but the city's average elevation is less than 7 m above mean sea level, and the average gradient is 0.7 m per km, with some areas at or below sea level. This section provides an in-depth analysis of the baseline environmental conditions, which is crucial for identifying potential environmental impacts and formulating mitigation measures. The assessment covers aspects such as coastal geomorphology, sediment characteristics, hydrodynamics, and prevailing climatic conditions, which are essential for understanding the natural setting of Marina Beach and its surrounding areas.

### 3.2 Protected Area

The project area and its immediate vicinity have been thoroughly examined to determine their status concerning wildlife or forest protected areas. It has been confirmed that the proposed area for the Blue Flag certification does not fall under the jurisdiction of any such protected areas.

This assessment ensures compliance with national and international conservation regulations and helps in identifying potential environmental constraints that may need to be addressed during project implementation. Although there are protected monuments identified by the Archaeological Survey of India in the district, none of them are in proximity to the project area. Furthermore, no tangible or intangible heritages have been identified that could be impacted by the project activities.

### 3.3 Social Environment

The social environment of the project area at Marina Beach encompasses the demographic characteristics, socio-economic conditions, and community dynamics of the local population. The beach is a popular spot for people from all sectors of the society. Locals come for leisure walks, picnics, kite flying, or simply to relax and soak in the sea breeze. Presence of families, young couples, friends, street vendors, performers, and fortune tellers, were noticed during the survey at the beach. The beach remains crowded, especially on weekends and holidays. It is a popular tourist destination, so traffic conditions can vary depending on the time of day and the events or festivals taking place. Moderate to heavy traffic congestion can occur around Marina Beach on weekdays, particularly during morning and evening rush hours. This is mainly due to vehicle movements related to office and school trips. Marina Beach is often used as a venue for various events, festivals, and cultural programs. Due to the number of visitors associated with the event and additional vehicles, traffic conditions may be heavier than usual on such days.

The introduction of Blue flag beach strategies and guidelines could bring new customs and ideas, potentially leading to a gradual shift in the contemporary way of life. This interaction can have both positive and negative effects, depending on the community's perspective. However, by prioritizing community involvement and promoting responsible tourism practices, tourism can become a positive force for economic growth, enhancing livelihoods while preserving the unique cultural identity and social fabric of the local community.

### 3.4 Cultural Environment

The cultural environment assessment involves a review of the National Monuments in Tamil Nadu and the State Protected monuments in the Chennai district, in conjunction with the local knowledge available with the project team.

Marina Beach is a popular venue for various cultural festivals throughout the year. From Pongal, the harvest festival, to Independence Day celebrations, the beach transforms into a stage showcasing traditional music, dance, and food. Beach vendors selling trinkets, souvenirs, and local delicacies like

Murukku (savory deep-fried rice flour snack) and Sundal (curried lentil dish) add to the cultural vibrancy.

In recent years, there has been a growing emphasis on environmental conservation and cleanliness at Marina Beach. Various initiatives and awareness campaigns have been undertaken to promote responsible tourism and to preserve the natural beauty of the beach for future generations. This assessment ensures that the project respects and preserves the cultural heritage of the region while promoting sustainable tourism and environmental conservation.

## **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 Marina 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 Marina Beach as a Blue Flag certified beach. The screening process for environmental and social risks and impacts associated with the Blue Flag certification of Marina 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 activities applicable from Step I have been further evaluated for risk/impact extent. The intensity of risk/impact is categorized as Low (L), Moderate (M), Substantial (S), or High (H) based on the screening criteria. 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/<br>Sub activity                                                                           | Nature of<br>Risk /Impact | Cause and Effect on Environment/Social                                                                                                                   | Risk/Impact<br>intensity |
|----------|-------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <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                                                                 | 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                        |
| <b>2</b> | <b>Infrastructure Facilities Development</b>                                                                            |                           |                                                                                                                                                          |                          |
| 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>B</b> | <b>Project Operational Stage</b>                                                                                        |                           |                                                                                                                                                          |                          |
| 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 Cooum 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 human life when people move to deeper areas                                              | L                        |
| 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 Marina 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 | Tribal | Gender |
| <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               | None   | None   |
| Bio-Digester/ Bio-Tank Unit                             | None                 | None  | None                          | L                         | None                                     | None         | None                        | L                        | None               | None   | None   |
| Solid Waste Management Plant                            | None                 | None  | None                          | L                         | None                                     | None         | None                        | L                        | None               | None   | None   |
| <b>2. Infrastructure</b>                                |                      |       |                               |                           |                                          |              |                             |                          |                    |        |        |
| Solar power plant facility (40 KW)                      | None                 | None  | None                          | None                      | None                                     | None         | None                        | M                        | None               | None   | L      |
| Purified drinking water facility                        | None                 | None  | None                          | None                      | None                                     | None         | None                        | None                     | None               | None   | None   |
| Beach access pathways                                   | None                 | None  | None                          | None                      | None                                     | None         | None                        | None                     | None               | None   | L      |
| <b>B Operational stage</b>                              |                      |       |                               |                           |                                          |              |                             |                          |                    |        |        |
| Human (visitors) contact with seawater                  | None                 | None  | None                          | None                      | None                                     | None         | None                        | L                        | None               | None   | None   |
| Physical forces- waves & currents                       | None                 | None  | None                          | None                      | None                                     | None         | None                        | L                        | None               | None   | None   |
| Toilet Blocks Facilities                                | None                 | None  | None                          | None                      | None                                     | None         | None                        | L                        | None               | None   | None   |
| Changing room with shower panels facility               | None                 | None  | None                          | None                      | None                                     | None         | None                        | None                     | None               | None   | L      |

| 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 | Tribal | Gender |
| 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               | None   | L      |

- Includes OHS

### Overall Risk Classification:

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

**Anticipated Environmental Impacts:** 1 Impacts due to storage and Wastes - Pollution and Hazards

**Anticipated Social Impacts:** 1) Gender, 2) Labour/ Occupational Health & Safety

#### Criteria for Risk Evaluation:

**Low:** Localized, temporary and Negligible

**Moderate:** temporary, or short term and reversible under control

**Substantial:** medium term, covering larger impact zone, partially reversible

**High:** significant, non- reversible, long term and can only be contained/compensated

## 4.2 Stakeholder Consultation

The stakeholder engagement process is a critical component of the ESDDR for the Blue Flag certification of Marina Beach. During the field survey on 26th June 2023 afternoon, it was noticed that stakeholders of Marina Beach in Chennai, India, are diverse and include various local entities. Out of 28 stakeholders, present during the survey, 18 were male and 10 were female. They have a vested interest in the development, maintenance, and management of the beach and its surroundings. Among various stakeholders, Chennai Corporation, Tamil Nadu Tourism Development Corporation (TTDC), local businesses and vendors, local fishermen community, residents and community groups of the neighbouring areas, Environmental Organizations are the most important. Other government agencies, cultural and heritage Organizations, and educational Institutions have been identified during the field survey.

Fishing is their primary source of livelihood of the local community, and they use traditional methods such as catamarans and nets to catch fish. Seasonal ban in fishing often impacts the livelihood options. Many fishermen lack alternative skills or resources to find work during the ban. However, Government support programs are available to bridge the income gap. The community wants to ensure free access to the beach and sustainable use of local resources (water, energy etc.) to avoid any conflict. The local stakeholders expressed optimism that enhanced tourism could bring economic benefits through job creation and improved infrastructure development, such as roads and sanitation. They want to be involved in decision-making processes regarding tourism development. They desire a say in how tourism is managed and a chance to benefit directly from it, perhaps through ownership or profit-sharing schemes.

The following Table presents key concerns and feedback points raised by various stakeholder groups, along with the corresponding responses and actions taken by the project team:

The feedback from the primary stakeholder consultation for the development of an identified area of Marina Beach with eco-friendly infrastructure yielded the following outcomes:

- i. **Economic Benefits:** Enhanced tourism is expected to generate new employment opportunities and stimulate economic growth.

- ii. Infrastructure Improvement: The development of infrastructure, including roads and sanitation facilities, is anticipated to benefit the entire community.
- iii. Tourist Needs: There is a demand for well-maintained beaches, quality accommodation, and diverse recreational activities.
- iv. Cultural Promotion: Initiatives that display and preserve local culture and heritage are seen as attractive and beneficial for promoting sustainable tourism.

This feedback has been integral to shaping the project design, ensuring that the proposed activities align with the needs and expectations of both the local community and visitors.

**Table:** Stakeholder Concerns, Feedback, and Actions for the Blue Flag Certification of Marina Beach

| 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 certification aims to support local economies by increasing tourism and promoting free access to beaches, business activities, and services                  |
|                                 | The developments must not degrade the environment.                                                                            | The infrastructure development is designed to promote a healthy coastal environment, attracting both local and international tourists while preserving the natural habitat |
| <b>Environmental Specialist</b> | The hind dunes located at the Marina beach must be conserved.                                                                 | No hind dunes have been observed at Marina Beach. The project team is committed to conserving the natural landscape and biodiversity of the area.                          |
|                                 | Adyar and Cooum River mouths are located within a distance of 2 km from the Marina Beach, which may impact the water quality. | A comprehensive Bathing Water Quality test and Risk Assessment survey have been conducted to ensure the water quality meets the Blue Flag standards.                       |
| <b>Local community</b>          | The beach is located in the municipality and hence would                                                                      | The sub-project aims to develop Marina Beach to enhance sustainable tourism activities                                                                                     |

|  |                                                        |                                                                                                                                                                   |
|--|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | serve as an excellent tourist destination if developed | while maintaining environmental integrity and promoting community well-being. Out of 28 stakeholders, present during the survey, 18 were male and 10 were female. |
|--|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Additional benefits of Blue Flag beach certification:** Blue Flag certification can serve as a catalyst for positive change in urbanized beaches such as Marina beach, promoting environmental sustainability, safety, and responsible tourism while benefiting the local economy and community. Local stake holder showed positive intent towards sustainable tourism that can create new job opportunities. Sustainable practices such as waste management, recycling, energy conservation, and the use of eco-friendly materials can reduce the environmental footprint of the beach and promote a culture of sustainability within the local community. The internationally recognized Blue Flag Beach often attracts more tourists and visitors, leading to increased revenue for local businesses, hotels, restaurants, and tour operators. This can contribute to the economic growth of the surrounding area and create employment opportunities. Awareness programs on environmental conservation, marine biodiversity, and sustainable practices can provide learning opportunities for visitors of all ages and foster a greater appreciation for the natural environment.

**Community Engagement and Inclusivity:** The project team will actively engage with the local community to ensure their involvement and benefit from the development of Marina Beach. This will include creating job opportunities, promoting local businesses, and providing training for beach management and conservation practices. The process of obtaining and maintaining Blue Flag certification involves collaboration among various stakeholders, including government agencies, local businesses, community groups, and residents. This fosters community engagement and cooperation, leading to greater civic pride and a sense of ownership over the beach and its surroundings.

**Environmental Monitoring and Management:** Continuous monitoring of environmental parameters, including water quality, biodiversity, and coastal erosion, will be conducted to ensure that the development and operation of Marina Beach adhere to environmental sustainability principles. Urbanized beaches such as Marina Beach often face pollution and degradation due to human activities. Implementing the criteria for Blue Flag certification can help mitigate pollution, preserve biodiversity, and protect sensitive coastal ecosystems.

**Cultural and Heritage Conservation:** Efforts will be made to integrate cultural and heritage conservation into the project design, ensuring that any historical or archaeological sites in the vicinity are preserved and highlighted as part of the tourist experience.

**Infrastructure Development:** The infrastructure development plan will include measures to minimize environmental impacts, such as using eco-friendly materials, implementing waste management systems, and ensuring energy efficiency in facilities.

This stakeholder engagement summary provides a comprehensive overview of the key concerns and feedback from various stakeholders, along with the targeted responses and actions taken by the project team to address these issues and promote the sustainable development of Marina Beach for Blue Flag certification.

## 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 Marina 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

| <b>ESS</b>                                                                              | <b>Recommended Management Plans</b>                                                                                                                                                                                                                                                                                                                                                                     | <b>Applicability</b>              |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>ESS1:</b><br>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 (Included in the ESMP) |

| <b>ESS</b>                                                                                     | <b>Recommended Management Plans</b>                                                                                                                                                                                                                                                                                                         | <b>Applicability</b>               |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| <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 (Included in the ESMP)  |
| <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-digestor 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                                                      | A stakeholder consultation was carried out during site screening. A feedback mechanism is in place to address any                                                                                                                                                                                                                           | Applicable (Included in the ESDDR) |

| <b>ESS</b>             | <b>Recommended Management Plans</b>                     | <b>Applicability</b> |
|------------------------|---------------------------------------------------------|----------------------|
| Information Disclosure | grievances of the stakeholders (including beach goers). |                      |

#### **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

#### Justifications for Undertaking the Project:

- i. **Blue Flag Certification:** Achieving Blue Flag status for Marina 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.

#### 5.1.1 Risk Classification

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

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

The Coastal Regulation Zone (CRZ) notification 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 Environmental Standards (ESS). The applicability of this standard varies depending on the nature of the activities. This applicability is presented in the table below.

#### 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:** Perform regular water quality tests to ensure safety for swimming and other activities.
- ii. **Safety Measures:** Maintain and enhance safety measures, including lifeguard stations and first-aid facilities.

- iii. **Environmental Education:** Continue and expand educational programs to promote environmental awareness and conservation.
- iv. **Community Engagement:** Engage with the local community to encourage responsible behaviour and participation in conservation efforts.
- v. **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.
- vi. **Continuous Improvement:** Continuously seek ways to improve the project areas environmental and safety performance. This could involve implementing new initiatives or technology to enhance monitoring and management.
- vii. **Training and Capacity Building:** Ensure that beach management personnel receive proper training and have the necessary skills to maintain Blue Flag standards.

### 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 Marina Beach.