

**Tamil Nadu –
Strengthening Coastal Resilience and the
Economy Project
(TN-SHORE)**

Environmental and Social Management Plan



**GREENSEA: Growing Resilient Ecosystems
through Enhancing Seagrass and Blue Carbon**



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**WILD LIFE WARDEN, RAMANATHAPURAM
DEPARTMENT OF FOREST**

GOVERNMENT OF TAMIL NADU

CONTENTS

SI	Chapter Description	Pages
	Executive Summary	
1.0	PROJECT OVERVIEW AND FINDINGS OF ESDD	
1.1.	Project Overview.....	4
1.2.	Objective and context of ESMP.....	5
1.3.	Sub-Project Description.....	6
1.4.	Proposed Interventions/activities and intended outcomes.....	7
1.5.	ESDD Findings and key impacts to be addressed.....	9
2.0.	ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS	
2.1.	Comprehensive Environmental and Social Impact Assessment and Management Plan (CESIA-MP) - ESS1.....	12
2.2.	Labor Management Plan (LMP) Including Occupational Health and Safety (OHS) Management Plan (ESS1 &ESS2).....	13
2.3.	Pollution Prevention, Monitoring, and Management Plan (ESS 3).....	13
2.4.	Biodiversity Conservation Plan (ESS 6).....	14
2.5.	Stakeholder Engagement Plan (SEP) (ESS 10).....	14
3.0.	ENVIRONMENTAL AND SOCIAL MITIGATION AND MONITORING PLAN	
3.1.	Purpose of E&S Mitigation and Monitoring.....	16
3.2.	E&S Mitigation and Monitoring Plan – Action Responsibility Matrix.....	17
4.0.	IMPLEMENTATION ARRANGEMENTS AND ESMP BUDGET	
4.1.	Implementation and Supervision Arrangements.....	20
4.2.	Reporting by Consultant and Monitoring by SPMU at TNGCC....	20
4.3.	Reporting by SPMU at TNGCC.....	20

GREENSEA: Growing Resilient Ecosystems through Enhancing Seagrass and Blue Carbon

Executive Summary

The Tamil Nadu Sustainably Harnessing Ocean Resources and Blue Economy (TN-SHORE) project, supported by the World Bank, aims to strengthen the resilience and sustainable utilization of coastal resources in Tamil Nadu through a comprehensive, multi-sectoral approach. The project is designed to stand-in a resilient and circular blue economy, enhance local livelihoods, and boost capacities for a sustainable future. With an investment of INR 1675 crores, the project encompasses six key components, ranging from strengthening institutions for Integrated Coastal Management to reducing plastic waste and pollution.

A significant focus of the TN-SHORE project is the restoration of degraded seagrass areas in the Gulf of Mannar, covering a total of 15 acres. This sub-project, titled "GREENSEA: Growing Resilient Ecosystems through Enhancing Seagrass and Blue Carbon," aims to enhance seagrass carbon storage and other ecological services through low-tech and low-cost transplantation protocols. The initiative addresses the critical issue of seagrass degradation due to anthropogenic activities and seeks to restore these vital ecosystems that are pivotal for marine biodiversity and carbon sequestration.

The Environmental and Social Management Plan (ESMP) for this sub-project is developed based on the findings of the Environmental and Social Due Diligence (ESDD). The ESMP outlines the strategies and measures to mitigate and manage the environmental and social impacts identified during the ESDD process. It specifies the implementation stages, roles and responsibilities, reporting, and monitoring requirements to ensure the sustainable execution of the project activities. Key interventions include the manual transplantation of seagrass sprigs, identification of appropriate restoration and donor sites, and periodic monitoring and maintenance of the restored areas. The ESMP also emphasizes the importance of stakeholder engagement, labor management, and biodiversity conservation to address potential risks and impacts.

The PCCF, Chief Wildlife Warden, as the implementing agency, is responsible for ensuring the effective implementation of the ESMP, with the support of a dedicated consultant. The ESMP budget and reporting mechanisms are established to facilitate transparent and accountable project execution. This is a comprehensive document that outlines the environmental and social management measures required to achieve the project's objectives sustainably. It serves as a guideline for the implementing agency and stakeholders to ensure that the restoration activities are conducted responsibly, with minimal impact on the environment and local communities.

1.0 PROJECT OVERVIEW AND FINDINGS OF ESDD

1.1 Project Overview

The TN-SHORE project, initiated by the Government of Tamil Nadu and supported by the World Bank, is designed to enhance the resilience and sustainable utilization of coastal resources through a comprehensive, multi-sectoral approach. The project aims to foster a resilient and circular blue economy, empower local livelihoods, and build capacities for a sustainable future. To achieve these objectives, TN-SHORE has identified five thematic areas for prioritized investment, encompassing a holistic integration of various sectors to address the multifaceted challenges facing coastal areas. The project components are as follows:

Component 1: Strengthening Institutions for Integrated Coastal Management:

This component focuses on enhancing the institutional capabilities for comprehensive coastal zone management and governance, ensuring effective coordination and implementation of coastal policies and programs.

Component 2: Shoreline Management and Coastal Protection: Aimed at promoting coastal resilience, this component invests in two key areas: Erosion Control and Management, and Marine Biodiversity and Ecology Conservation, to safeguard and restore coastal ecosystems and habitats.

Component 3: Improving Livelihoods for Natural Resource Dependent Communities: This component supports initiatives that substitute alternative and sustainable livelihoods for coastal communities, enhancing their economic resilience and well-being.

Component 4: Reducing Plastic Waste and Pollution through Enhanced Circularity: Focusing on managing and reducing plastic waste in coastal and marine environments, this component promotes plastic circularity through ecosystem-centred approaches and innovative solutions.

Component 5: Project Management: This component covers the operational expenses of the project, including procurement, staffing, and other administrative costs, ensuring efficient project execution and management.

Component 6: Contingency Emergency Response Component: This component provides a mechanism for rapid response to natural disasters or emergencies, ensuring the project's resilience and adaptability to unforeseen challenges.

Overall, the TN-SHORE project represents a significant investment in the sustainable development and conservation of Tamil Nadu's coastal regions. Through its multi-faceted approach, the project aims to achieve a harmonious balance between environmental conservation, economic development, and social well-being.

1.2. Objective and Context of ESMP

The Environmental and Social Management Framework (ESMF) for the TN-SHORE project has provided a comprehensive approach to addressing environmental and social considerations. In parallel, the ESDD has been conducted using established risk screening formats to identify potential environmental and social impacts associated with the project.

The outcomes of the ESDD serve as the foundation for the development of a standard ESMP, which will guide the implementing agency in addressing and managing the identified impacts effectively. The ESMP outlines the management strategies and actions required to mitigate adverse impacts and enhance positive outcomes, ensuring the project's alignment with environmental and social sustainability principles.

Key elements of the ESMP include:

Implementation Stage: The ESMP specifies the stages of project implementation at which various management actions should be applied, ensuring timely and effective mitigation of impacts.

Roles and Responsibilities: The ESMP clearly delineates the roles and responsibilities of different stakeholders, including the implementing agency, contractors, and oversight bodies, in managing environmental and social aspects of the project.

Reporting and Monitoring Requirements: The ESMP establishes the reporting protocols and monitoring mechanisms to track the implementation of management measures and the effectiveness of impact mitigation.

Adaptive Management: Recognizing the dynamic nature of environmental and social contexts, the ESMP is designed as a living document that can be updated to incorporate stakeholder feedback and adapt to new conditions that may emerge during project implementation.

The implementation of the ESMP is the primary responsibility of the implementing institution, which will ensure that the project's environmental and social performance meets the standards set forth in the ESMF and the ESMP. By integrating environmental and social considerations into project planning and execution, the TN-SHORE project aims to achieve sustainable development outcomes that benefit both the environment and the communities in Tamil Nadu's coastal regions.

1.3. Sub-Project Description

Seagrass meadows play a crucial role in the marine ecosystem, contributing significantly to global oceanic organic carbon storage, accounting for approximately 10-15% of the total. These underwater meadows provide vital habitats for a diverse range of marine organisms, serving as a critical feeding ground for species such as the sea cow (dugong) and the green turtle. However, these valuable ecosystems are under threat, primarily due to human activities such as boat traffic in shallow waters, which lead to the degradation and loss of seagrass beds over time.

The sub-project under the TN-SHORE initiative focuses on the restoration of degraded/new plantations of seagrass areas in the Gulf of Mannar. The objective is to rehabilitate these vital ecosystems by implementing seagrass plantations using shoots collected from nearby healthy seagrass beds. By restoring the seagrass meadows, the project aims to enhance their capacity for carbon storage and provide improved habitats for marine life, thereby contributing to the overall resilience and sustainability of the coastal and marine environment in Tamil Nadu.

Table.1.1 Key Attributes of the Seagrass Restoration Project

Salient Features of the Project	
State	Tamil Nadu
Location of the Project Sites	• Coast of Gulf of Mannar Extends from Rameswaram Island in the north to Kanyakumari in the south. Restoration Sites i. Tuticorin region: 05 acres ii. Keelakarai region: 05 acres iii. Mandapam region: 05 acres
Total Area for Restoration	15 acres
Latitude- Longitude	08° 47' to 09° 15' N Latitude and 78° 12' to 79° 14' E Longitude
Coastal Regulation Zone	As per the CRZ 2011/ 2019 Notification, the intervention area, being the seabed, falls within CRZ IV A.

1.4. Proposed Activities and Intended Outcomes

The TN-SHORE project's seagrass restoration initiative is structured around a series of carefully planned interventions and activities, aimed at rejuvenating degraded seagrass meadows and enhancing their ecological services. The proposed actions and their anticipated outcomes are outlined as follows:

1.4.1 Restoration of Degraded Seagrass Areas:

Objective: To restore 15 acres of degraded seagrass and some new seagrass meadows along the coast of the Gulf of Mannar, thereby augmenting their capacity for carbon storage and bolstering other ecological functions.

Locations in the Gulf of Mannar:

- Tuticorin region: 05 acres
- Keelakarai region: 05 acres
- Mandapam region: 05 acres

Key Activities:

- i. Identification of restoration and donor sites based on assessments of seagrass cover, shoot density, macrofauna density, and fish density.

- ii. Manual transplantation of seagrass sprigs using PVC pipes, which involves the construction of PVC frames, collection of seagrass shoots from donor sites, tying of seagrass shoots to PVC frames using jute ropes, transporting the frames to restoration sites, and securing them on the seafloor.
- iii. Ongoing monitoring and maintenance, including periodic habitat mapping and removal of debris such as solid wastes, torn nets, and seaweed.

1.4.2 Analysis of Blue Carbon Stock Variability:

Objective: To investigate the variation in blue carbon stock according to the percentage cover of seagrasses at selected sites within the Gulf of Mannar

Key Activities:

- Collection of data on annual blue carbon stock in seagrass beds based on varying seagrass percentage cover.

1.4.3 Measurement of Annual Carbon Storage Capacity:

Objective: To determine the annual carbon storage capacity of restored seagrass beds by comparing pre- and post-transplantation measurements.

Key Activities:

- Collection of data on seasonal blue carbon stock in restored seagrass beds.

Intended Outcomes:

- Restoration of 16 ha of degraded seagrass areas, within the Gulf of Mannar.
- Enhanced understanding of seagrass cover, shoot density, macrofauna, and fish populations in restoration sites.
- Establishment of a comprehensive baseline dataset on the total blue carbon stock and accumulation rate in the seagrass ecosystem.
- Insights into the variation of blue carbon stock based on seagrass percentage cover.
- Detailed assessment of blue carbon sequestration by restored seagrass areas.

Through these concerted efforts, the project aims to revitalize critical marine habitats, contribute to climate change mitigation, and provide a model for sustainable coastal resource management.

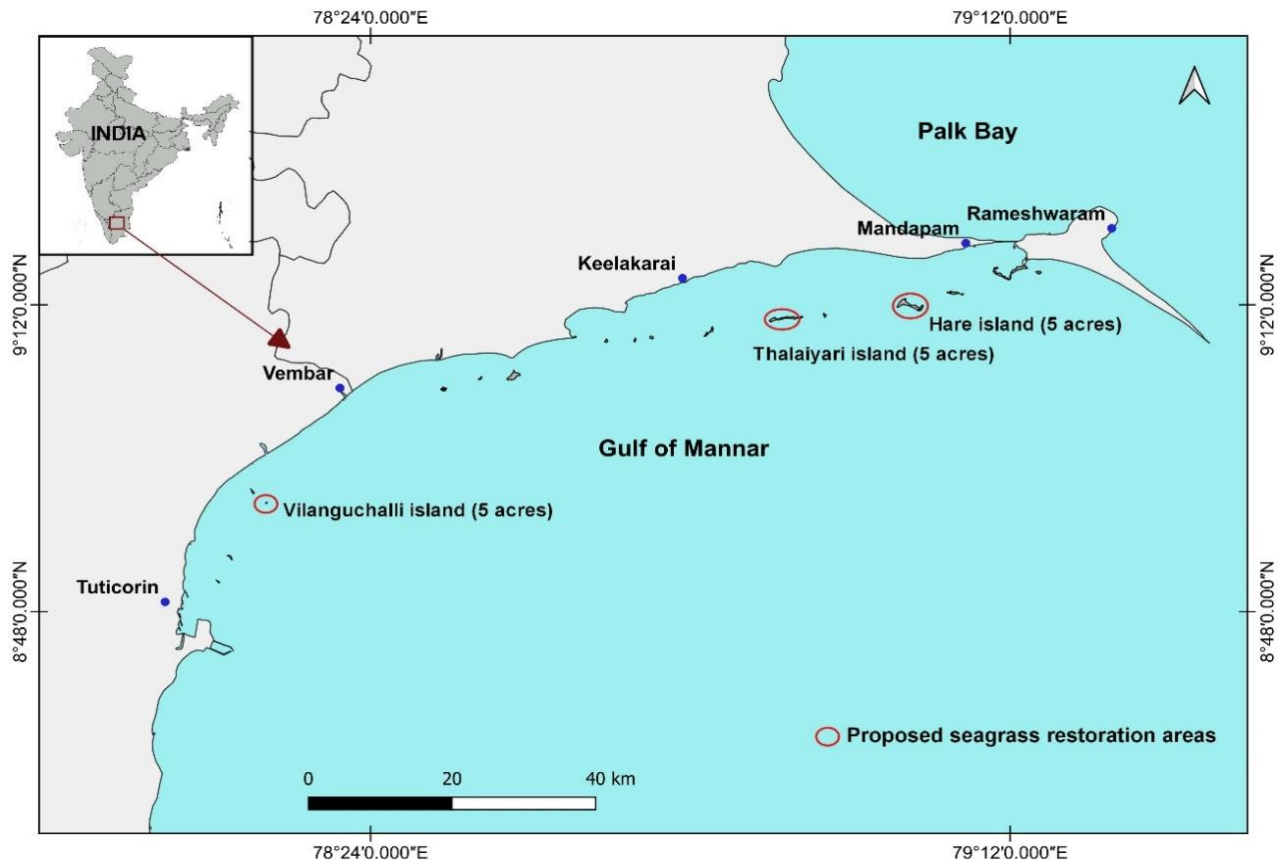


Fig.1.1: Map Showing Proposed Restoration Sites in Gulf of Mannar

1.5 ESDD Findings and Key Impacts to be Addressed

The ESDD process for the seagrass restoration sub-project has identified potential risks and impacts associated with the activities. These impacts are primarily related to seawater quality, waste generation, pollution hazards, ecology, biodiversity, and the use of land for PVC frame construction. The project activities are confined to marine environments, eliminating concerns related to land acquisition or displacement.

Key activities such as the manual transplantation of seagrass sprigs using PVC pipes, construction of PVC frames, collection of seagrass shoots from donor sites, and fixing

of PVC frames on the seafloor, involve skilled labor and divers. These activities pose low to moderate risks that are localized, short-term, and manageable with a standard ESMP. Based on the ESDD findings, the sub-project has been categorized as having a **moderate** overall risk level. The applicability of World Bank Environmental and Social Standards (WB-ESS) and recommended management measures have been outlined in Table 1.2.

Table 1.2: ESS Applicability Analysis and Recommended Management Measures/Plans

ESS Applicability Analysis and Recommended Management measures/plans		
ESS	Applicability with Triggers	Recommended Management Plan
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	Applicable Interventions are within fragile ecosystems (marine protected areas) and CRZ IVA, involving the transplantation of foreign material (PVC frames) and potential disturbance to existing seagrass habitat.	Comprehensive Environmental and Social Impact Assessment and Management Plan (ESIA-MP).
ESS2: Labour and Working Conditions	Applicable Activities require skilled labor and divers for PVC frame construction and manual seagrass transplantation.	Labour Management Procedure (LMP) including OHS management plan.
ESS3: Resource Efficiency, Pollution Prevention and Management	Applicable Use of PVC frames may result in plastic pollution in the sea.	Pollution Prevention, Monitoring and Management Plan
ESS 4: Community Health and Safety	Not Applicable Activities are confined to seawater.	N/A
ESS 5: Land Acquisition, Restrictions on Land use and Involuntary Resettlement	Not Applicable The project is within the sea water	N/A
ESS 6: Biodiversity conservation and Sustainable Management of Living Natural resources	Applicable: Interventions are within CRZ IV A fragile ecosystem. Improper collection of seagrass sprigs may create stress on donor sites.	Biodiversity Conservation Plan focusing on avoiding impacts on biodiversity within the protected area during the activity.

ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Tradition Local Communities	Not Applicable	N/A
ESS 8: Cultural Heritage	Not Applicable	N/A
ESS 9: Financial Intermediaries	Not Applicable	N/A
ESS 10: Stakeholder Engagement and Information Disclosure	Applicable	Stakeholder Engagement Plan (SEP).

2.0: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The Environmental and Social Management Plans required for the mitigation or management of risks and impacts identified in ESDD have been discussed in brief hereunder.

2.1 Comprehensive Environmental and Social Impact Assessment and Management Plan (CESIA-MP) - ESS1

The Comprehensive Environmental and Social Impact Assessment and Management Plan (CESIA-MP) is a critical component of the seagrass restoration project. It encompasses a thorough assessment of baseline environmental and social conditions, identifying and evaluating potential impacts arising from project activities, and the development of mitigation strategies to address these impacts.

Key aspects of the CESIA-MP include:

- a) Baseline Data Collection:** Systematic gathering of data on existing environmental and social conditions, including the status of seagrass habitats, biodiversity, water quality, and socio-economic factors in the project area.
- b) Impact Assessment:** Analysis of potential impacts on marine ecosystems, particularly seagrass meadows and benthic biodiversity, and on local communities, including the assessment of risks associated with the construction and deployment of PVC frames for seagrass transplantation.
- c) Mitigation Measures:** Development of strategies to minimize negative impacts, such as the careful selection of donor sites to avoid stress on existing seagrass habitats, benthic organisms and the use of environmentally friendly materials for frame construction.
- d) Monitoring and Adaptive Management:** Establishment of a monitoring program to track the effectiveness of mitigation measures and make adjustments as needed to ensure the protection of environmental and social values.

2.2 Labor Management Plan (LMP) Including Occupational Health and Safety (OHS) Management Plan (ESS1 & ESS2)

The Labor Management Plan (LMP) and Occupational Health and Safety (OHS) Management Plan are integral to ensuring the well-being and safety of workers involved in the seagrass restoration activities. The LMP addresses various aspects of labor management, including:

- a) **Worker Profile:** Detailed documentation of the workforce, including the number of workers, their characteristics, age, and skills.
- b) **Employment Practices:** Clear guidelines on working hours, contract types, wages, and adherence to applicable labor policies and regulations.
- c) **Occupational Health and Safety:** Comprehensive OHS measures to protect workers from potential hazards associated with underwater activities, construction of PVC frames, and handling of seagrass shoots. This includes the provision of appropriate personal protective equipment (PPE), safety training, and emergency response protocols.
- d) **Gender-Based Violence (GBV) Prevention:** Measures to prevent and address GBV, including the establishment of a safe and respectful work environment, training on GBV awareness, and mechanisms for reporting and addressing incidents.
- e) **Grievance Redress Mechanism:** A transparent and accessible system for workers to raise concerns and grievances related to labor and OHS issues, with clear procedures for resolution.

The implementation of these plans will ensure that the seagrass restoration project is carried out in a socially responsible and safe manner, with due consideration for the well-being of workers and the surrounding environment.

2.3 Pollution Prevention, Monitoring, and Management Plan (ESS 3)

The Pollution Prevention, Monitoring, and Management Plan is designed to mitigate the environmental impacts associated with the construction, transportation, and deployment of PVC frames for seagrass transplantation and restoration. Key elements of this plan include:

- a) **Environmental Quality Monitoring:** Implementing a comprehensive monitoring program to assess the impacts of project activities on water quality,

sediment composition, and marine biodiversity. This includes periodic sampling and analysis to detect changes in environmental parameters.

- b) Pollution Prevention Measures:** Adopting best practices to minimize pollution, such as using eco-friendly materials like bamboo for frame construction, ensuring proper handling and disposal of waste materials, and avoiding activities that could disrupt the natural ecosystem processes on the sea floor. Plastic material can be removed after successful transplantation of the seagrass. Even, the PVC frames can be recycled. Thus, the pollution will be managed with best practices.
- c) Habitat Maintenance:** Conducting regular inspections and maintenance activities to ensure the integrity of the restored seagrass and associated benthic habitats. This includes removing debris, monitoring the growth and health of transplanted seagrass, and addressing any issues that arise from the use of PVC frames.

2.4 Biodiversity Conservation Plan (ESS 6)

The Biodiversity Conservation Plan focuses on preserving the marine biodiversity within the project area, particularly the seagrass ecosystems. The plan includes the following strategies:

- a) Donor Site Selection:** Careful selection of donor sites for seagrass shoots to ensure that the collection does not stress the existing healthy habitats. Criteria for selection will include the abundance of seagrass, similarity in environmental conditions to the restoration sites, and minimal impact on the donor site's ecosystem.
- b) Sensitization and Training:** Educating project authorities, consultants, and workers about the importance of marine biodiversity and the need to protect seagrass habitats. This includes training on sustainable collection practices, habitat restoration techniques, and the significance of biodiversity conservation.
- c) Impact Assessment and Mitigation:** Conducting assessments to identify potential impacts on marine flora and fauna from project activities. The plan will outline measures to avoid or minimize these impacts, such as avoiding areas with high biodiversity value and implementing restoration techniques that promote the recovery of disturbed habitats.

2.5 Stakeholder Engagement Plan (SEP) (ESS 10)

The Stakeholder Engagement Plan aims to ensure effective communication and participation of all stakeholders throughout the project lifecycle. Key components of the SEP include:

- a) **Stakeholder Identification and Analysis:** Mapping out all relevant stakeholders, including local communities, government agencies, environmental groups, and others who may be affected by or have an interest in the project.
- b) **Consultation and Participation:** Organizing regular consultations and meetings with stakeholders to provide project updates, gather feedback, and address concerns. This includes ensuring that stakeholders have access to relevant information and opportunities to participate in decision-making processes.
- c) **Information Disclosure:** Developing a communication strategy to disseminate project information, including the publication of key documents (ESMF, ESDD, ESMP, ESIA, etc.) on the project website and ensuring that they are available in local languages for accessibility.
- d) **Feedback and Grievance Mechanisms:** Establishing channels for stakeholders to provide feedback or raise grievances related to the project, with clear procedures for response and resolution.

Implementing these plans will help ensure that the seagrass restoration project is conducted in an environmentally responsible and socially inclusive manner, with due consideration for the conservation of marine biodiversity and the engagement of all stakeholders.

3.0 ENVIRONMENTAL AND SOCIAL MITIGATION AND MONITORING PLAN

3.1. Purpose of Environmental and Social Mitigation and Management

The primary objective of this section is to outline a comprehensive strategy for mitigating and managing the environmental and social risks and impacts identified during ESDD process of the project. This strategy encompasses specific management actions, monitoring requirements, and the assignment of responsibilities to ensure effective implementation.

Key Components of the Mitigation and Management Plan:

- a) **Identification and Assessment:** A thorough assessment of the potential environmental and social risks and impacts associated with the project activities, as identified in the ESDD process.
- b) **Mitigation Measures:** Development and implementation of targeted measures to mitigate identified risks and impacts, ensuring that they are effectively addressed and managed throughout the project lifecycle.
- c) **Monitoring Plan:** Establishment of a monitoring plan to track the effectiveness of mitigation measures, including the identification of indicators, frequency of monitoring activities, and responsible parties.
- d) **Institutional Arrangements:** Clear delineation of roles and responsibilities among project stakeholders, including the implementing agency, consultants, contractors, and community representatives, to ensure accountability and effective management of environmental and social aspects.
- e) **Reporting and Documentation:** Regular reporting on the implementation of mitigation measures and monitoring results, with documentation maintained for review and audit purposes.

The detailed Environmental and Social Mitigation and Monitoring Plan, including specific actions, monitoring requirements, and responsibilities, is presented in Table 3.1. This plan serves as a guide for the project team and stakeholders to ensure that environmental and social considerations are integrated into project planning, execution, and monitoring, contributing to the sustainable and responsible development of the project.

3.2. E&S Mitigation and Monitoring Plan – Action Responsibility Matrix

This section of the E&S Mitigation and Monitoring Plan provides a detailed Action Responsibility Matrix designed to guide the implementation of the seagrass restoration project. It outlines specific activities, identifies potential environmental and social impacts, and details the necessary mitigation measures and monitoring protocols. The matrix ensures that each phase of the project, from pre-transplantation planning to post-transplantation maintenance, is executed with utmost consideration for ecological balance and community well-being.

Table 3.1: Environment and Social Management Plan (ESMP) for Seagrass Restoration

Activity and Environmental aspects	Potential Environmental and Social impacts	Mitigation Measures	Monitoring requirements and Frequency	Responsibilities	
				Planning and Execution	Supervision/ Monitoring
Stage of Action: Pre-Transplantation					
Planning of Seagrass Restoration and Target Site Selection ESS 1 and ESS 6	● Impacts on seawater, existing seagrass habitats and other marine flora and fauna within the Island if the collection is not done carefully	● Assessment of Impacts for minimizing through precautionary measures ● The selected restoration sites shall be free from sources of physical stress such as erosion, deposition, etc.	Weekly	Wild Life Warden – Gulf of Mannar (WW-GoM)	Chief Wild Life Warden, Forest Dept, GoTN
Permits/ Clearances/ Approvals	Postponement in obtaining the permits/ clearances/ approvals will delay the work and thereby lead to the increase in the project cost	All the necessary approvals/ permissions/ clearances/ approvals should be obtained prior to the start of the construction		WW-GoM	Chief Wild Life Warden, Forest Dept, GoTN
Construction of PVC Quadrats ESS 3	● Temporary solid waste Pollution impacts on the surrounding area	● Use of eco-friendly materials like bamboo instead of PVC ● Disposal of solid waste at designated sites	Daily	WW-GoM	Chief Wild Life Warden, Forest Dept, GoTN
Stage of Action: Transportation and restoration					
Transport of PVC frames using barges ESS 2 and ESS 4	● Possibility of accidents at sea and likely disturbance to artisanal fishermen and damage to their nets	● Transportation needs to be planned during calm sea conditions to ensure the safety of personnel ● Avoiding the routes where fishermen do fishing	NA	WW-GoM	Chief Wild Life Warden, Forest Dept, GoTN
Collection of Seagrass	● May create stress if not	● Donor sites to be selected very close to the	Weekly	WW-GoM	Chief Wild

Activity and Environmental aspects	Potential Environmental and Social impacts	Mitigation Measures	Monitoring requirements and Frequency	Responsibilities	
				Planning and Execution	Supervision/ Monitoring
Shoots from Donor Sites ESS 6	collected from appropriate donor sites and in a careful manner	restoration sites so that the sprigs can have similar environmental conditions. - Collection of seagrass shoots from healthy and abundant donor sites in such a way that it will minimize the stress on existing healthy habitats. - To reduce the stress on the donor sites and to allow their recovery, collection of sprigs will be restricted to less than 5% of the donor site. - Collectors need to be trained properly to take care of existing donor sites			Life Warden, Forest Dept, GoTN
Manual Transplantation of sprigs/ Deployment of PVC frames tied with Seagrass shoots and Transplantation of Seagrass at target sites ESS 6	- Limited and localized Impact on existing marine habitat - PVC pollution - Impact on the marine process due to the deployment of foreign materials (PVC frames) - Limited impacts on protected marine habitats en route if any during transportation of PVC frames to the site	- Suggested Actions based on impact assessment studies and similar experiences of prior activities. - Preferable use of eco-friendly materials like bamboo instead of PVC - Ensure that PVC waste is collected and segregated and disposed of as per the Plastic Waste Management Rules as amended from time to time. - The PVC waste should not be allowed to flow into the sea, but an arrangement be made with municipalities/ pickers to be sent to MCFs/MRFs.	NA	WW-GoM	Chief Wild Life Warden, Forest Dept, GoTN
Stage of Action: Post-Transplantation					
Restoration Process (Monitoring and Maintenance) ESS 3 and ESS 4	Solid wastes and disturbed PVC frames within seawater due to marine processes and fishing activities	- Removing solid wastes, torn pieces of nets and seaweed - Replacing disturbed PVC frames	Quarterly	WW-GoM	Chief Wild Life Warden, Forest Dept, GoTN

This table outlines the key environmental and social aspects associated with each stage of the seagrass restoration project, along with the potential impacts, proposed mitigation measures, monitoring requirements, and the responsibilities of various stakeholders. It serves as a comprehensive guide to ensure that the project is implemented in an environmentally and socially responsible manner, contributing to the sustainable management of coastal resources in Tamil Nadu.

4.0 IMPLEMENTATION ARRANGEMENTS AND ESMP BUDGET

4.1. Implementation, Supervision Arrangements and Recommendations

Planning and Execution will be done by Wildlife Warden, Ramanthapuram. PCCF, Chief Wildlife Warden is the Supervising and monitoring agency responsible for the implementation of the seagrass restoration project. In collaboration with the appointed consultant, Wildlife Warden, Ramanathapuram will ensure the proper execution of Labour Management Procedures, Grievance Redress Mechanism (GRM), and measures to minimize impacts on biodiversity in the restoration areas.

The project will adhere to the framework provisions outlined in the ESDD and the standard ESMP. The consultant, upon being awarded the contract, will be required to submit a C-ESIA and an updated ESMP, incorporating inputs from the ESDD, the draft ESMP, and the ESMF of the TN-SHORE project, which is nearing completion. The consultant's bid must include a budget for preparing the ESIA and implementing the ESMP provisions.

4.2. Reporting by Consultant and Monitoring by SPMU at TNGCC

Wildlife Warden, Ramanathapuram is obligated to prepare quarterly progress reports that align with the Environmental and Social (E&S) Mitigation and Management Plan outlined in Section 3.2 of this document. These reports should cover compliance with E&S measures, as well as any issues that arise during the construction phase. Additionally, the consultant, if engaged, must report any incidents of accidents, injuries, and Gender-Based Violence (GBV) and describe the actions taken to address and prevent such incidents.

4.3. Reporting by SPMU at TNGCC

The Wildlife Warden, Ramanathapuram as the implementing agency, will compile a report detailing the progress made during construction. This report should demonstrate adherence to the ESMP measures and include information on any accidents or GBV incidents that have occurred. The report will be submitted to the TN-SHORE project authorities for review and action.

This comprehensive approach to implementation, supervision, and reporting ensures that the seagrass restoration project is conducted in an environmentally and socially responsible manner, with a focus on transparency and accountability throughout the project lifecycle.