

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL  
PRINCIPAL BENCH, NEW DELHI**

ORIGINAL APPLICATION NO. 270/2025

News Item titled "Containers from sunken ship likely to drift towards Alapuzha, Kollam coast in 48 Hours" appearing in the Hindu dt.25.05.2025

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**Date: 24.07.2025**

**Through**

  
**Gigi C George Advocate**

**Standing counsel (UOI)**

**Ch. No. 457, Lawyers Block, DHC**

**Gigicgeorge.adv42@yahoo.in**

**M.9810625315**

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL  
BENCH, NEW DELHI

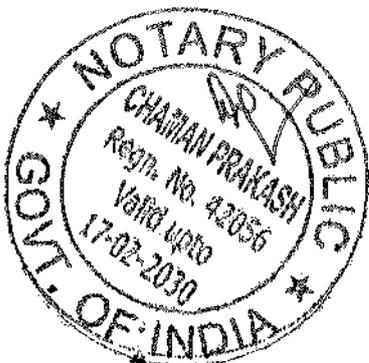
ORIGINAL APPLICATION NO.270/2025

News Item titled "Containers from sunken ship likely to drift towards Alapuzha, Kollam coast in 48 Hours" appearing in the Hindu dt.25.05.25

REPLY AFFIDAVIT ON BEHALF OF RESPONDENT NO.2 MEMBER  
SECRETARY LAKSHADWEEP POLLUTION CONTROL COMMITTEE

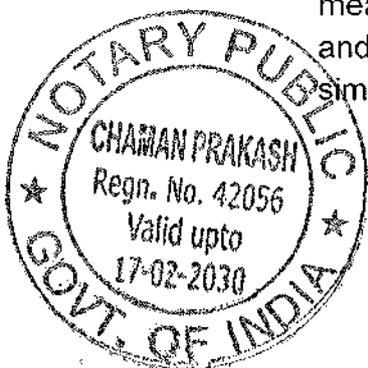
I, Rajthilak S, IFS S/o. Shri. Selvaraj G, Aged 38 Years working as Member Secretary, Lakshadweep Pollution Control Committee (herein after to be referred as LPCC) having its office in the Department of Science & Technology, Administration of the Union Territory of Lakshadweep, Kavaratti – 682555 do hereby solemnly affirm and declare as under:-

1. That I am authorized and competent to file the present reply affidavit and well versed with the issue in the present original application.
2. That the present original application is registered Suo motu on the basis of the news item titled "Containers from sunken ship likely to drift towards Allapuzha, Kollam coast in 48 hrs. INCOIS" appearing in Hindu dated 25.05.2025.
3. That Based on the news published in The Hindu daily on 25.05.2025 regarding the sinking of a Liberian-flagged container ship off the coast of Kerala, this Hon'ble Tribunal has taken Suo motu cognizance of the matter and issued notices to the Kerala State Pollution Control Board (KSPCB), Lakshadweep Pollution Control Committee (LPCC), and other concerned parties, directing them to file their responses one week prior to next date of hearing.



4. That in view of the ecological sensitivity of the Lakshadweep archipelago and the potential risk of transboundary marine pollution, the Lakshadweep PCC proactively approached the National Centre for Sustainable Coastal Management (NCSCM), Chennai - a nationally recognized institution with domain expertise - to undertake a detailed scientific assessment of the coastal and marine environment of Lakshadweep. The aim is to evaluate any pollution impacts by comparing current conditions with the existing baseline data of the region's coastal ecosystem. Upon receiving the request, NCSCM, Chennai, agreed to conduct the study with the following objectives vide their letter dated 08.07.2025. The copy of the said letter dt.08.07.25 and the proposal is annexed herewith as **Annexure-A**.

- i) Comprehensive Assessment of Hazardous Cargo Beaching: To conduct a thorough evaluation of hazardous cargo, including plastic nurdles, beached along the coasts of Andrott and Kalpeni two of the closest Lakshadweep islands to the Kerala coast.
- ii) Evaluation of Environmental Impact from MSC *Elsa III*: To investigate the potential impact of the MSC *Elsa III* wreck, if any, on the ecologically sensitive marine and coastal environments of the Lakshadweep waters.
- iii) Socioeconomic Impact Assessment: To identify and analyze the socioeconomic impacts on coastal communities, including those dependent on fisheries and tourism, due to environmental degradation and pollution caused by the incident.
- iv) Development of Response and Mitigation Strategies: To develop recommendations for future incident response and mitigation measures, including regulatory reforms, monitoring frameworks, and community engagement strategies to minimize risks from similar maritime accidents.



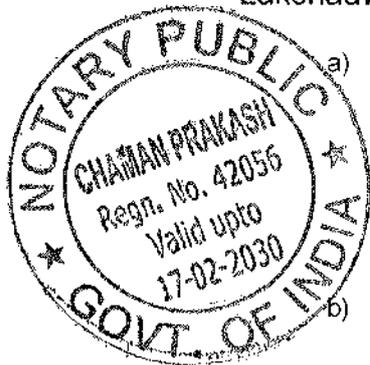
5. The various tasks to be carried out under the objective is provided below.

**Objective 1:** Comprehensive Assessment of Hazardous Cargo Beaching: To conduct a thorough evaluation of hazardous cargo, including plastic nurdles, beached along the coasts of Andrott and Kalpeni two of the closest Lakshadweep islands to the Kerala coast.

- a) Task 1: Shoreline Survey and Mapping  
Conduct systematic field surveys and geospatial mapping of the Andrott and Kalpeni coastlines to identify and document the extent of plastic nurdles and other cargo deposition.
- b) Task 2: Sample Collection and Characterization  
Collect samples of beached materials (nurdles and other residues) and analyze their physical and chemical characteristics to determine source, composition, and potential toxicity.
- c) Task 3: Temporal and Spatial Monitoring  
Set-up a short-term monitoring program to assess the temporal variation and spread of nurdles along different beach segments using standard transect.
- d) Task 4: Risk Zonation and Impact Profiling  
Prepare impact maps indicating high-risk zones and ecological sensitivity based on proximity to coral reefs, seagrass beds, and community use areas.

**Objective 2:** Evaluation of Environmental Impact from MSC Elsa III: To investigate the potential impact of the MSC Elsa III wreck, if any, on the ecologically sensitive marine and coastal environments of the Lakshadweep waters.

- a) Task 1: Baseline and Post-Incident Water Quality Assessment  
Collect and analyze seawater samples around affected sites for parameters such as hydrocarbons, heavy metals, microplastics, and other pollutants to detect potential contamination due to the wreck.
- b) Task 2: Benthic and Coral Reef Health Assessment



Conduct underwater surveys to assess physical damage and ecological stress on coral reefs, seagrass beds, and associated benthic habitats near potential impact zones.

- c) **Task 3: Plankton and Fish Community Monitoring**  
Analyze plankton and fish diversity and abundance to detect ecological shifts or toxicological impacts resulting from spilled materials.
- d) **Task 4: Sediment Sampling and Contaminant Analysis**  
Collect seabed sediment samples to examine accumulation of toxic residues or plastic fragments and assess risks to benthic organisms.
- e) **Task 5: GIS-based Impact Mapping and Risk Profiling**  
Use geospatial tools to integrate field data and develop marine impact maps identifying zones of ecological sensitivity and levels of exposure.

**Objective 3:** Socioeconomic Impact Assessment: To identify and analyze the socioeconomic impacts on coastal communities, including those dependent on fisheries and tourism, due to environmental degradation and pollution caused by the incident.

- a) **Task 1: Stakeholder Consultation and Community Surveys**  
Conduct structured interviews and focus group discussions with fishermen, tourism operators, local residents, and community leaders to gather firsthand insights on livelihood disruptions and perceived impacts.
- b) **Task 2: Fisheries Livelihood Impact Analysis**  
Assess changes in fish catch, fishing effort, income levels, and access to fishing zones before and after the incident through data collection and trend analysis.
- c) **Task 3: Tourism Sector Assessment**  
Evaluate the impact on local tourism activities, including changes in tourist footfall, beach usability, and visitor perception due to plastic nurdle pollution or environmental damage.
- d) **Task 4: Socioeconomic Vulnerability Mapping** Identify and map vulnerable groups or households most affected by environmental degradation, using indicators like income dependence, access to alternative livelihoods, and social support mechanisms.



**Objective 4:** Development of Response and Mitigation Strategies:

To develop recommendations for future incident response and mitigation measures, including regulatory reforms, monitoring frameworks, and community engagement strategies to minimize risks from similar maritime accidents.

a) Task 1: Policy and Regulatory Gap Analysis

Review existing maritime safety, pollution control, and disaster response regulations relevant to the Lakshadweep region to identify gaps and recommend improvements.

b) Task 2: Design of Environmental Monitoring Framework

Develop a long-term monitoring plan with defined indicators, sampling protocols, and institutional responsibilities for tracking marine pollution and ecological health.

c) Task 3: Community-Based Response Planning

Formulate localized response protocols involving local communities, fisherfolk, and tourism stakeholders in reporting, containment, and clean-up operations.

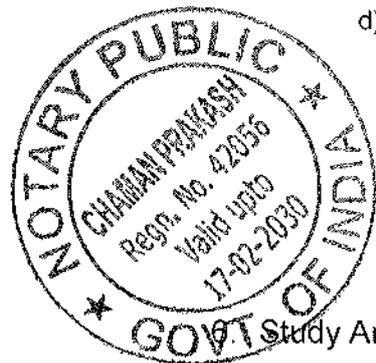
d) Task 4: Preparation of Mitigation Toolkit and Action Plan

Develop an actionable toolkit and standard operating procedures (SOPs) for rapid response to future incidents, including material recovery, hazard communication, and ecological restoration measures

Study Area Description:

That the study area comprises Andrott and Kalpeni Islands, two of the easternmost inhabited islands in the Lakshadweep archipelago, located in close proximity to the Kerala coast in the southeastern Arabian Sea. Both islands are ecologically significant and socioeconomically vulnerable, making them priority locations for assessing the presence, distribution, and impact of beached hazardous materials. The study will involve shoreline mapping, sample collection, and risk zonation to support mitigation planning and response strategies.

7. That the NCSCM has initiated the study and the report of the study



will be submitted within 2 months.

- 8. That it is humbly submitted that after the study report only the answering respondent will be able to assess the impact due to the sunken container ship MSC Elsa 3.
- 9. That the answering respondent shall file a comprehensive reply after NCSM submits its report.

*S. Y. L.*  
Deponent

Verification

12.3 JUL 2025

Verified at New Delhi on 23<sup>rd</sup> July 2025 that the contents of above reply affidavit is true and correct to the best of my knowledge and belief and nothing material has been concealed therefrom.

12.3 JUL 2025

*S. Y. L.*  
Deponent



ATTESTED

*Ch*  
CHAMAN PRAKASH  
NOTARY DELHI, R-42055  
GOVERNMENT OF INDIA  
SUPREME COURT OF INDIA  
COMPOUND NEW DELHI  
M-15 \* 000425473

NOTARIAL REGISTER

Vol. No. 1 Page No. 74  
Sl. No. 1871 Date 23/7/25

*Ch*  
I identified the documents executed who has signed by the deponent

# Assessing the potential risk and environmental concerns on Lakshadweep Islands associated with the spill of hazardous chemicals due to the sinking of MSC ELSA 3

Proposal Submitted to the



Lakshadweep Pollution Control Committee

Prepared by



National Centre for Sustainable Coastal Management  
Ministry of Environment, Forest and Climate Change  
Government of India

July 2025



## Profile

Title	<a href="#">Assessing the potential risk and environmental concerns on Lakshadweep Islands associated with the spill of hazardous chemicals due to the sinking of MSC ELSA 3</a>
Overall Coordinator	Director, NCSCM
Address of the Implementing Organization	National Centre for Sustainable Coastal Management (NCSCM) Ministry of Environment, Forest & Climate Change Anna University Campus, Chennai 600 025, INDIA Phone +91-44-2200-0600; Fax : +91-44-2220-0700
E-mail	<a href="mailto:director@ncscm.res.in">director@ncscm.res.in</a> ; <a href="mailto:purvaja@ncscm.res.in">purvaja@ncscm.res.in</a>
Duration of the project	50 office days
Budget Estimate	Rs.14,57,595.00/- (Rupees Fourteen Lakhs fifty-seven thousand five hundred and ninety-five only inclusive of 18% GST).

## About NCSCM

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The National Centre for Sustainable Coastal Management (NCSCM) is established under the Ministry of Environment, Forest and Climate Change aids in better protection, conservation, rehabilitation, management and policy design of the coast. It would promote integrated and sustainable management of coastal and marine areas in India and advise the Union and States/ Union Territory Governments and other associated stakeholders on policy, and scientific matters relating to Integrated Coastal Management (ICZM). NCSCM is an ISO 9001:2015, ISO 45001:2018 and ISO/IEC 17025:2017 (NABL) and National Accreditation Board for Education and Training (NABET) certified organization. The institute also functions with an aim to support integrated management of coastal and marine environment for livelihood security, sustainable development and hazard risk management by enhancing Knowledge, undertake research and advisory support, develops partnerships and network including coastal community interface.

The Institute is well positioned to undertake various studies and advise sectoral programs and projects. It houses capacities and skills to interface with stakeholders like State Government, International agencies, National monitoring agencies in studying, monitoring and demonstrating ideas and solutions with scientific technological support. A team of highly qualified young scientists and professionals with expertise in inter-disciplinary sciences related to coastal management serves as the backbone of the Centre.

## 1. Background

On the afternoon of May 24, 2025, a maritime incident occurred involving the Liberian-flagged cargo vessel Mediterranean Shipping Company (MSC) Elsa III (IMO No. 9123221), a feeder vessel operating in the southwestern Arabian Sea. The vessel sank approximately 38 nautical miles southwest off the Cochin coast, at a depth of 51 meters below sea level. At the time of the incident, MSC Elsa III was enroute from Vizhinjam International Sea Port, Thiruvananthapuram, to Cochin Port. Following this scheduled stop, the vessel was expected to continue its journey to Thoothukudi Port in Tamil Nadu. The feeder vessel, used primarily for short-sea container transfers between major ports, was carrying multiple containers when the accident occurred. This prompted immediate attention due to its proximity to ecologically sensitive zones and busy shipping lanes, raising concerns regarding potential marine pollution, disruption of coastal shipping operations, and impacts on regional maritime logistics. An investigation into the cause and consequences of the wreck is currently underway by relevant maritime authorities.

The recent plastic nurdle spill, resulting from the unfortunate sinking of the cargo vessel MSC Elsa-3 on May 25, 2025, off the Kerala coast, poses a significant environmental and socioeconomic threat to the delicate ecosystems of Lakshadweep Islands. The vessel, carrying 627 containers of plastic pellets (nurdles) among other materials, led to the widespread dispersion of these microplastics. This rapid and extensive spread highlights the urgent need for a comprehensive and sustained scientific response. The small size and vast numbers of nurdles make them particularly insidious pollutants, capable of infiltrating intricate ecosystems and remaining in the environment for decades, if not centuries. Their resemblance to fish eggs or plankton makes them easily ingested by marine fauna, introducing toxic chemicals into the food web and potentially impacting human health. Furthermore, these nurdles can physically alter the substrate of critical habitats, such as smothering delicate benthic organisms in seagrass beds or creating physical barriers for burrowing species in sand dunes. The long-term implications for ecosystem function and services, including primary productivity and nutrient cycling, are profound and require dedicated investigation.

This proposal presents a comprehensive investigation aimed at thoroughly assessing the complex impacts of plastic nurdle contamination. The study will explore the effects on marine ecosystems, evaluate the socioeconomic consequences for coastal communities, and examine how nurdles interact with shoreline processes along the vital stretch of the Lakshadweep Islands. More than just an assessment, the project seeks to generate scientifically robust knowledge to inform policy decisions, strengthen pollution control measures, and build the resilience and adaptive capacity of vulnerable coastal populations. Ultimately, this initiative aspires to serve as a foundational effort in developing proactive and effective strategies for plastic pollution management in Lakshadweep Islands while offering a replicable model for other coastal regions grappling with similar environmental challenges.

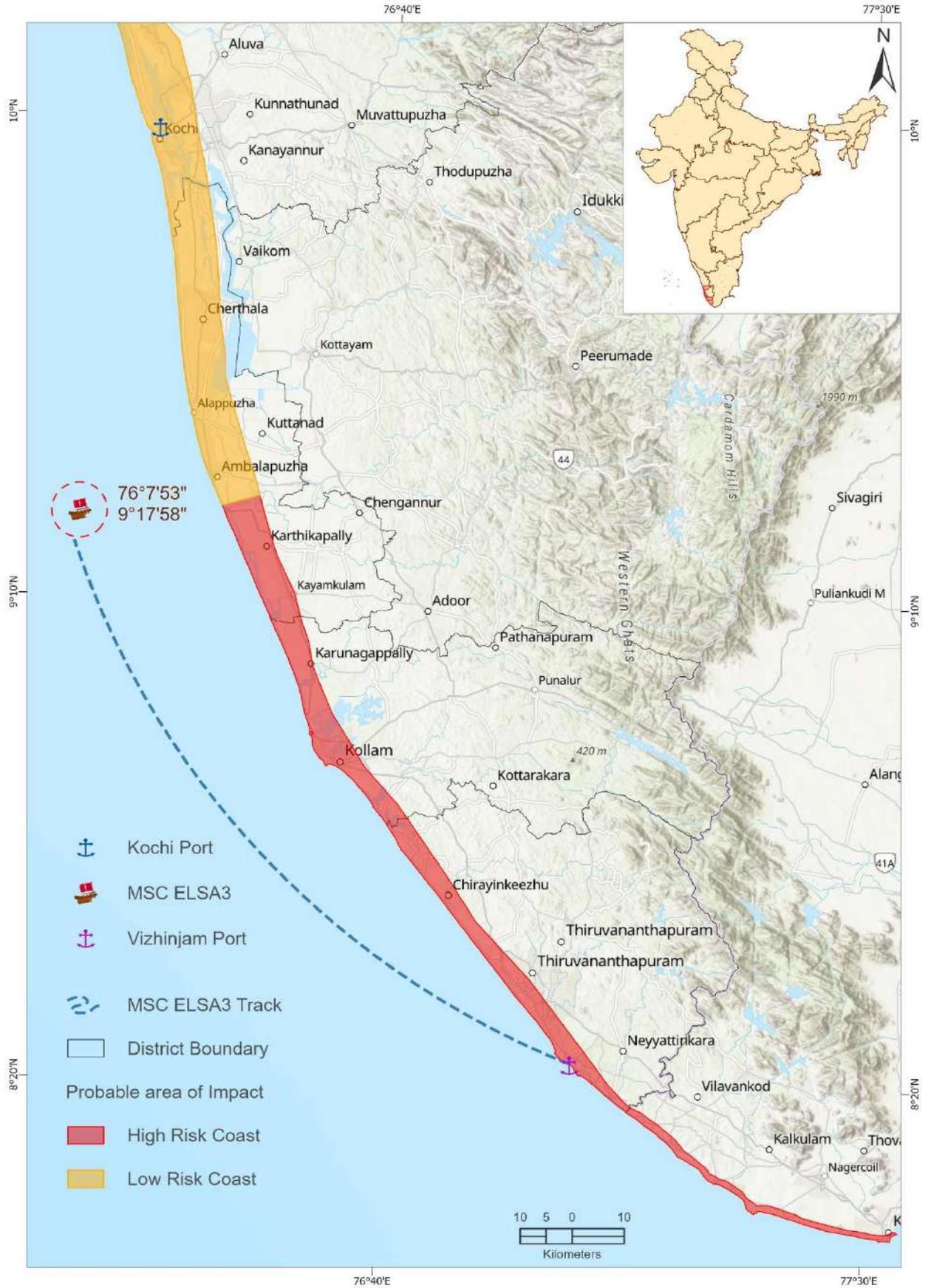


Figure 1: Location of the Liberian Flag Cargo Vessel, MSC Elsa III (IMO No. 9123221) wreck incident.

11.



Figure 2: Plastic nurdles that had accumulated along the shores.

## 2. Problem Statement and Rationale

The wreck of the MSC *Elsa III* (IMO No. 9123221) off the Kerala coast has raised serious concerns about its potential impact on the ecologically sensitive marine and coastal environments of the Lakshadweep waters. The incident may adversely affect biodiversity, including coral reefs, fish populations, and associated ecosystems, and could lead to water quality deterioration due to hydrocarbon leaks, heavy metals, and marine debris. Their small size, buoyant nature, and resistance to degradation allow them to travel vast distances, accumulating in marine gyres, washing ashore on remote beaches, and becoming ubiquitous in the marine environment. Considering Lakshadweep's fragile and unique marine biodiversity, an urgent and comprehensive scientific assessment is essential to evaluate the extent of environmental damage, changes in water quality, and potential ecological risks. The findings will inform mitigation and restoration measures. Therefore, LPCC is requested to submit a detailed proposal with a budget along with expert recommendations for preparing the affidavit to be filed before the Hon'ble NGT.

### 2.1 Ecological Threat

Nurdles act as sponges for persistent organic pollutants (POPs) and heavy metals present in seawater. Once ingested by marine fauna, these adsorbed toxins can desorb within the organism's digestive tract, leading to a range of physiological impairments, including reproductive failure, reduced growth rates, liver damage, and compromised immune systems. Their physical presence can also cause blockages in digestive tracts, leading to starvation and death. The impact extends across trophic levels, potentially affecting apex predators and ultimately human consumers of seafood.

### 2.2 Socioeconomic Impact

Coastal communities in the Lakshadweep Islands rely heavily on healthy marine ecosystems. Fisheries, a cornerstone of the state's economy, are directly threatened by contaminated fish stocks and damaged fishing grounds. Aquaculture activities, particularly shrimp and fish farming in coastal ponds, are also vulnerable to nurdle ingress. Furthermore, the aesthetic degradation of beaches due to nurdle accumulation negatively impacts tourism, a growing sector contributing significantly to local economies. Misinformation and fear regarding contaminated seafood can also lead to market disruptions and economic hardship for fisher folk.

### 2.3 Policy and Regulatory Gaps

Despite growing awareness, current environmental regulations often lack specific provisions for nurdle spill prevention, rapid response, and long-term remediation. There is a need for robust, evidence-based policies that address the entire lifecycle of nurdles, from production and transport to disposal and clean-up. Effective enforcement mechanisms and interagency coordination are also crucial.

### 3. Objectives

This study aims to address the potential environmental impacts and necessary actions related to plastic nurdle pollution along the Lakshadweep Islands' coast, particularly following the MSC *Elsa III* incident. The specific objectives are:

1. **Comprehensive Assessment of Hazardous Cargo Beaching:** To conduct a thorough evaluation of hazardous cargo, including plastic nurdles, beached along the coasts of Andrott and Kalpeni two of the closest Lakshadweep islands to the Kerala coast.
2. **Evaluation of Environmental Impact from MSC *Elsa III*:** To investigate the potential impact of the MSC *Elsa III* wreck, if any, on the ecologically sensitive marine and coastal environments of the Lakshadweep waters.
3. **Socioeconomic Impact Assessment:** To identify and analyze the socioeconomic impacts on coastal communities, including those dependent on fisheries and tourism, due to environmental degradation and pollution caused by the incident.
4. **Development of Response and Mitigation Strategies:** To develop recommendations for future incident response and mitigation measures, including regulatory reforms, monitoring frameworks, and community engagement strategies to minimize risks from similar maritime accidents.

The various tasks to be carried out under the objective is provided below.

**Objective 1:** Comprehensive Assessment of Hazardous Cargo Beaching: To conduct a thorough evaluation of hazardous cargo, including plastic nurdles, beached along the coasts of Andrott and Kalpeni two of the closest Lakshadweep islands to the Kerala coast.

#### Tasks:

a) **Task 1: Shoreline Survey and Mapping**

Conduct systematic field surveys and geospatial mapping of the Andrott and Kalpeni coastlines to identify and document the extent of plastic nurdles and other cargo deposition.

b) **Task 2: Sample Collection and Characterization**

Collect samples of beached materials (nurdles and other residues) and analyze their physical and chemical characteristics to determine source, composition, and potential toxicity.

c) **Task 3: Temporal and Spatial Monitoring**

Set-up a short-term monitoring program to assess the temporal variation and spread of nurdles along different beach segments using standard transects.

d) **Task 4: Risk Zonation and Impact Profiling**

Prepare impact maps indicating high-risk zones and ecological sensitivity based on proximity to coral reefs, seagrass beds, and community use areas.

**Objective 2:** Evaluation of Environmental Impact from MSC Elsa III: To investigate the potential impact of the MSC Elsa III wreck, if any, on the ecologically sensitive marine and coastal environments of the Lakshadweep waters.

**Tasks:**

a) **Task 1: Baseline and Post-Incident Water Quality Assessment**

Collect and analyze seawater samples around affected sites for parameters such as hydrocarbons, heavy metals, microplastics, and other pollutants to detect potential contamination due to the wreck.

b) **Task 2: Benthic and Coral Reef Health Assessment**

Conduct underwater surveys to assess physical damage and ecological stress on coral reefs, seagrass beds, and associated benthic habitats near potential impact zones.

c) **Task 3: Plankton and Fish Community Monitoring**

Analyze plankton and fish diversity and abundance to detect ecological shifts or toxicological impacts resulting from spilled materials.

d) **Task 4: Sediment Sampling and Contaminant Analysis**

Collect seabed sediment samples to examine accumulation of toxic residues or plastic fragments and assess risks to benthic organisms.

e) **Task 5: GIS-based Impact Mapping and Risk Profiling**

Use geospatial tools to integrate field data and develop marine impact maps identifying zones of ecological sensitivity and levels of exposure.

**Objective 3:** Socioeconomic Impact Assessment: To identify and analyze the socioeconomic impacts on coastal communities, including those dependent on fisheries and tourism, due to environmental degradation and pollution caused by the incident.

**Tasks:**

a) **Task 1: Stakeholder Consultation and Community Surveys**

Conduct structured interviews and focus group discussions with fishermen, tourism operators, local residents, and community leaders to gather firsthand insights on livelihood disruptions and perceived impacts.

b) **Task 2: Fisheries Livelihood Impact Analysis**

Assess changes in fish catch, fishing effort, income levels, and access to fishing zones before and after the incident through data collection and trend analysis.

c) **Task 3: Tourism Sector Assessment**

Evaluate the impact on local tourism activities, including changes in tourist footfall, beach usability, and visitor perception due to plastic nurdle pollution or environmental damage.

d) **Task 4: Socioeconomic Vulnerability Mapping**

Identify and map vulnerable groups or households most affected by environmental degradation, using indicators like income dependence, access to alternative livelihoods, and social support mechanisms.



Figure 3: Container beached at Sakthikulangara Beach, Kollam, and Plastic nurdles deposited near beach morning glory – *Ipomoea pescaprae*.

**Objective 4:** Development of Response and Mitigation Strategies: To develop recommendations for future incident response and mitigation measures, including regulatory reforms, monitoring frameworks, and community engagement strategies to minimize risks from similar maritime accidents.

**Tasks:**

a) **Task 1: Policy and Regulatory Gap Analysis**

Review existing maritime safety, pollution control, and disaster response regulations relevant to the Lakshadweep region to identify gaps and recommend improvements.

b) **Task 2: Design of Environmental Monitoring Framework**

Develop a long-term monitoring plan with defined indicators, sampling protocols, and institutional responsibilities for tracking marine pollution and ecological health.

c) **Task 3: Community-Based Response Planning**

Formulate localized response protocols involving local communities, fisherfolk, and tourism stakeholders in reporting, containment, and clean-up operations.

d) **Task 4: Preparation of Mitigation Toolkit and Action Plan**

Develop an actionable toolkit and standard operating procedures (SOPs) for rapid response to future incidents, including material recovery, hazard communication, and ecological restoration measures.

#### **4. Study Area Description**

The study area comprises Andrott and Kalpeni Islands, two of the easternmost inhabited islands in the Lakshadweep archipelago, located in close proximity to the Kerala coast in the southeastern Arabian Sea. These islands are strategically positioned along the potential dispersion path of plastic nurdles and other hazardous cargo from the MSC Elsa III (IMO No. 9123221) wreck incident. Given prevailing ocean currents and wind patterns, these islands are at elevated risk for the beaching of floating debris, particularly buoyant nurdles.

Andrott Island, the largest island in Lakshadweep by area, is located approximately 200 km west of Kochi. It is densely populated and features low-lying terrain with sandy beaches, fringing coral reefs, and seagrass beds. The island's economy depends heavily on fishing, with a growing concern for marine plastic pollution that may affect both ecological integrity and fisheries-based livelihoods.

Kalpeni Island, situated southeast of Andrott, consists of a main island and several small islets and sandbanks. Known for its scenic lagoon and coral ecosystems, Kalpeni is a significant tourist destination and supports a mixed economy of subsistence fishing, coconut cultivation, and eco-tourism. The island's lagoon and reef flats are particularly sensitive to microplastic accumulation and chemical contaminants.

Both islands are ecologically significant and socioeconomically vulnerable, making them priority locations for assessing the presence, distribution, and impact of beached hazardous materials. The study will involve shoreline mapping, sample collection, and risk zonation to support mitigation planning and response strategies. The study is proposed to be carried out at the following islands. It is anticipated that these islands can have potential risks due to their proximity to the incident site.

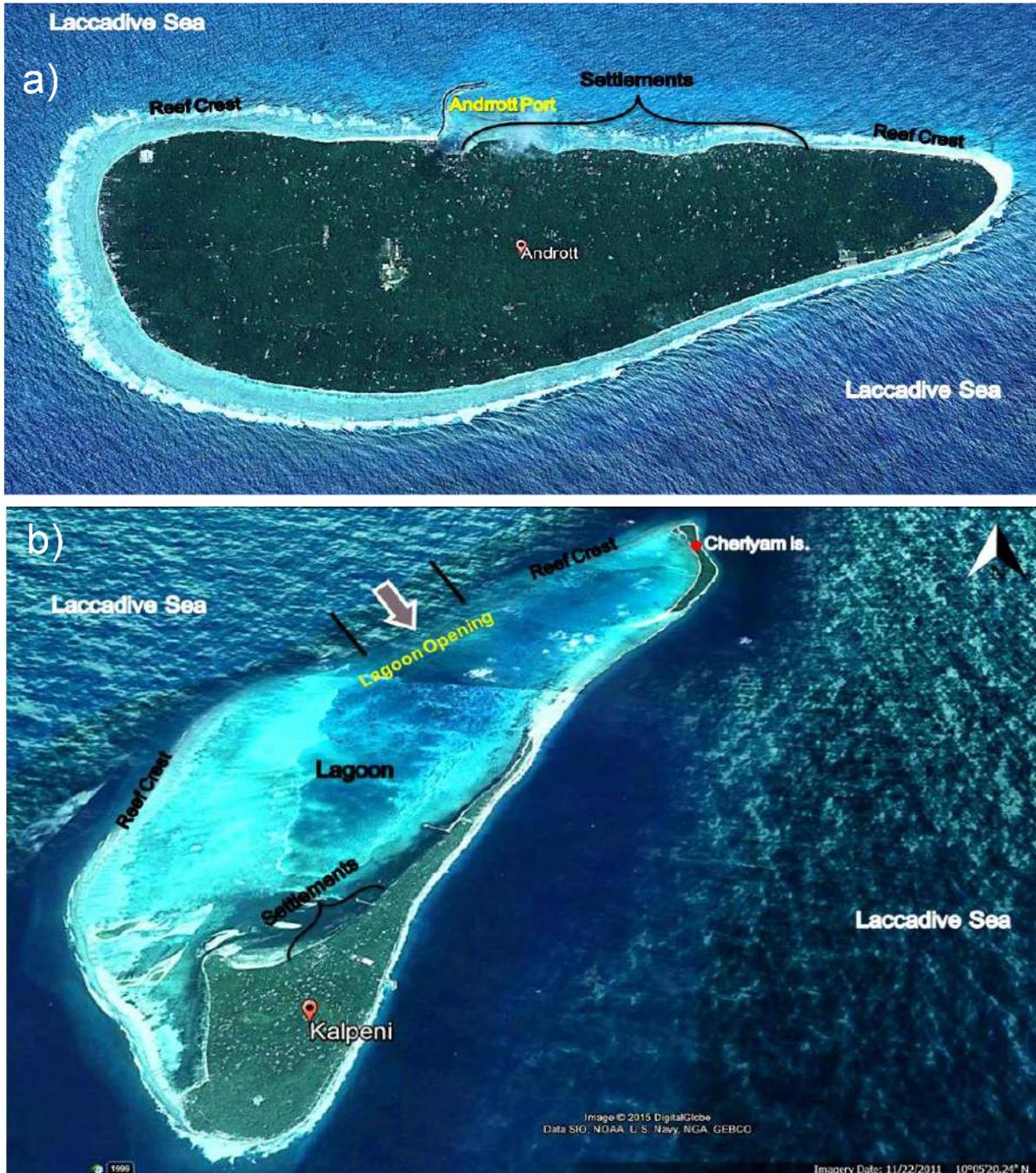


Figure 4: The proposed study locations a) Andrott Island; b) Kalpeni Island.

## 5. Cost /Budget

The cost for the REIA studies is Rs. 14,57,595.00/- (Rupees Fourteen Lakhs fifty-seven thousand five hundred and ninety-five only inclusive of 18% GST).

## 6. Payment Terms

- 1) 80% of the cost is to be paid in advance on the signing of the contract agreement.
- 2) 20% of the consultancy cost to be paid on submission of the final report.

## 7. Total duration of study

50 Office days

## 8. Commencement of work

The work will commence on receipt of the advance payment of 60% of the total cost including GST, as per the payment terms given in para 8 above.

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*Thalassia hemprichii* and *Cymodocea rotundata*.

Seagrass cover in Kalpeni

