

Report of the Janakeeya Padana Samithi (JPS)

OUR BEACHES, OUR SEA:

**HERITAGE OF FISHING COMMUNITIES,
USUFRUCT OF ALL CITIZENS**



**Impact of the
Vizhinjam International Seaport
on the Beaches, Coastal Sea, Biodiversity, and the Livelihoods
of Fishing Communities in Thiruvananthapuram District**

November 2023

PREFACE

The report titled "Our Beaches, Our Sea: Heritage of Fishing Communities, Usufruct of All Citizens" underscores the pivotal role of beaches and the adjacent sea in the historical, occupational, social, and cultural context of fishing communities. These coastal areas are not only crucial to their livelihoods but also represent a shared resource for all citizens.

The report centers on the controversy surrounding the establishment of the Vizhinjam International Seaport in Kerala, India. It raises concerns about the potential impact of the port's construction on the livelihoods, safety, and overall well-being of the fishing community, as well as on the stability of beaches, shorelines, and local biodiversity. The report also highlights that cultural heritage, aesthetics, and natural beauty received inadequate consideration during the project's planning phase.

The fishing community's apprehensions about the Vizhinjam Port are deeply rooted in past experiences of severe coastal erosion and the loss of homes in the region. Despite their efforts to convey their concerns to authorities, the project received environmental clearance without adequate consideration of their legitimate worries.

The report asserts that the Vizhinjam International Seaport Limited allegedly misrepresented and manipulated data related to shoreline changes, livelihoods, and biodiversity in the project's reports, which led to political pressure. As construction progresses, these claims are proving to be false, with increasing erosion, disruptions to fishing activities, and safety concerns for fishermen.

Efforts to seek government intervention were largely unsuccessful, prompting protests and assurances from the government that were not fully met. Although an Expert Committee was established, it failed to address all the concerns of the fishing community.

In response to these challenges, the Janakeeya Samara Samithi formed a Janakeeya Padana Samithi (JPS) consisting of experts to comprehensively address issues related to the port's construction and operation. They conducted studies, consultations, and site visits and reviewed reports from various sources, including the Comptroller and Auditor General of India's assessment of the Concession Agreement.

The report concludes that, considering the unique characteristics of the region, Vizhinjam is an unsuitable location for a port of this magnitude. It documents the loss of beaches and homes, erosion, biodiversity depletion, and adverse effects on the livelihoods of coastal communities. The report also criticizes the execution of the Concession Agreement and financial concessions granted to the concessionaire, AVPPL.

We acknowledge the community members, committee members and experts who contributed to the report and hope that it will raise awareness and support for the concerns of the fishing community.

Dr. K V Thomas

Chairman, Janakeeya Padana Samithi (JPS)

(Former Dean, Kerala University of Fisheries & Ocean Studies, Kochi & Former Scientist G, National Centre for Earth Science Studies, Thiruvananthapuram)

AN APPEAL

The Janakiya Padana Samithi wishes to draw your attention to a matter of utmost significance pertaining to the utilization of our beaches and coastal seas.

At present, marked by the imminent threat of climate change, there exists an imperative need to ensure the balanced and judicious management of these natural assets. We need to encompass both the socio-cultural priorities of fishing communities; the vital role of beaches and the adjoining coastal sea as spaces of leisure and rejuvenation for the larger citizenry; and the lucrative economic benefits from decentralised, community-oriented, beach tourism and sea-related sports activities.

Our beaches serve as conduits for the transmission of cultural heritage, particularly for fishing communities whose traditions and livelihoods are deeply intertwined with the sea. The historical and intergenerational practices of fishing are not solely economic in nature, but represent an embodiment of communal identity and shared values.

Amidst the escalating challenges posed by climate change, the preservation of this natural coastal environment is of paramount importance. Beaches in their unspoiled form are landscapes which function as primary buffers against the encroaching sea, shielding human settlements from the advancing tides and intensifying storms. A conversion to mindless commercialized developments could severely undermine this natural barrier, exposing our communities to increased vulnerability.

We advocate for a comprehensive approach that accommodates the needs of both fishing communities and the wider public, while preserving the ecological integrity of these natural ecosystems. We believe that development plans, undertaken with the fullest participation of coastal communities and larger civil society, can be carefully calibrated to strike a harmonious balance between economic interests, cultural preservation, and natural protection. Sustainable tourism practices and environmentally conscious designs can coalesce to ensure responsible utilization, minimizing the deleterious impact on beaches and coastal ecosystems.

In conclusion, we seek your esteemed attention to this pressing concern. By adopting a conscientious stance that prioritizes cultural heritage, community well-being, and ecological sustainability, we can collectively safeguard our coastal beaches for present and future generations. Let us endeavor to forge a path that respects our historical legacies, while nurturing the shared spaces that facilitate our societal harmony.

There is a need to bring science of coastal dynamics into coastal protection and to deal with the entire coast affected or likely to be affected by any intervention.

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A broad conclusion of these Guidelines is that

“the beach is the best form of coastal protection”

**Reference Manual on Climate Change Adaptation Guidelines for
Coastal Protection and Management in India. March 2019**

“Both everyday experience and scientific research show that the gravest effects of all attacks on the environment are suffered by the poorest. For example, the depletion of fishing reserves especially hurts small fishing communities without the means to replace those resources and rises in the sea level mainly affect impoverished coastal populations who have nowhere else to go

It needs to be said that, generally speaking, there is little in the way of clear awareness of problems which especially affect the excluded

But one often has the impression that their problems are brought up as an after-thought, a question which gets added almost out of duty or in a tangential way

Today, however, we must realize that a true ecological approach *always* becomes a social approach; it must integrate questions of justice in debates on the environment, so as to hear *both the cry of the earth and the cry of the poor.*”

Pope Francis 2015: Laudato Si: On Care for Our Common Home (Paras 48,49)

PREAMBLE

This report indeed highlights a critical issue that is increasingly relevant in today's world, where concerns about investments that jeopardize the environment and society are growing. It focuses on a distressing situation in Kerala, where a massive port project has been causing extensive environmental and social harm, including coastal erosion, home displacement, and the destruction of fishing livelihoods.

The response from those in power, who often attribute these issues to global climate change or employ solutions that worsen the problems, is certainly troubling. The impacts extend far beyond the immediate communities, affecting biodiversity and tourism, which have been essential to the region's economy and cultural identity.

The report is not an attempt to obstruct development that benefits the state but is a heartfelt plea for development that is both environmentally and socially sustainable. It underscores the importance of striking a balance between economic interests and the preservation of fragile ecosystems and traditional occupations.

The financial aspect of the project is indeed concerning, with a significant financial burden being placed on the government and financial institutions. This has come at the expense of fishing communities and the broader population, putting their collective well-being at risk.

In essence, this report serves as a wake-up call for more sustainable development, one that safeguards the environment, values and protects communities, and ensures a brighter future for generations to come. It underscores the need for a responsible and considerate approach to development in Kerala, one that serves the best interests of the environment and its people.

1. INTRODUCTION

Our sandy beaches, a realm where the sea and waves embrace, serve as the very playground of the ocean itself. Perhaps it is wisest to entrust them to the waves and tides that shape them.

The synergy between beaches and the coastal sea is profound and ecological. These stretches of shoreline, along with the encompassing sea, stand as the cherished legacy and ancestral rights of our fishing communities, deeply woven into their livelihoods and cultural tapestry.

It is crucial to recognize that the protection of these ecosystems is not only a matter of environmental conservation but also a fundamental human rights issue, as articulated by the United Nations in the Universal Declaration of Human Rights (UNDHR), especially Article 3, which relates the right to life, liberty, and security of the person to the protection of these coastal habitats.

The United Nations Convention on the Law of the Sea (UNCLOS) is another international agreement recognizing the significance of marine and coastal ecosystems. Furthermore, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) emphasizes the rights of indigenous fishing communities in safeguarding these areas.

Beaches play a critical role within the coastal ecosystem, including habitat and biodiversity support, protection from coastal hazards, nutrient cycling, sediment transport, coastal protection, cultural significance, and their contribution to climate change resilience.

As we celebrate the United Nations-declared 'Decade on Ecosystem Restoration' from 2021 to 2030, and the 'Decade of Ocean Science for Sustainable Development,' it is evident that the health of our planet, both land and oceans, depends on the well-being of ecosystems and their associated geomorphology. Restoring and preserving our ecosystems is a global imperative, and India, as a party to these declarations, is duty-bound to protect and restore its degraded ecosystems.

The right to participation, as outlined in the UN Declaration on the Right to Development (UNDRD), highlights the importance of involving fishing communities in decisions that impact their way of life.

Accounting for these relevant rights and duties, the construction of the Vizhinjam International Seaport, undertaken by Adani Vizhinjam Port Private Limited (AVPPL), raises significant concerns. Such development has the potential to harm the sensitive coastal and marine ecosystem, affecting marine biodiversity and the livelihoods and cultural spaces of marginalized fisher communities.

This report, produced by the Janakiya Padana Samithi (JPS), was constituted to holistically examine the geomorphological, ecological, and livelihood impacts of the construction activities related to the Vizhinjam International Seaport, conducted by Vizhinjam International Seaport Limited (VISL) and AVPPL from 2015 to the present. The report aims to provide a comprehensive analysis of the construction's impact, the disruption of livelihoods, financial loss incurred by coastal communities, and potential future impacts once the seaport becomes operational.

The Janakiya Padana Samithi comprises distinguished members with expertise in various relevant fields, including fisheries, coastal ecology, and disaster management. The chair and members of the Janakiya Padana Samithi were:

Dr. K.V. Thomas (Chairperson) - Former Dean, Kerala University of Fisheries and Ocean Studies, Kochi and Former Scientist G and Group Head, NCESS, Thiruvananthapuram.

Members:

Mr. Probir Banerjee - President, Ponds CAN, - Pondicherry (Involved in Restoration of Coast and Coastal Wetlands).

Ms. Sarita Fernandez - Managing Trustee, Ocean Coastal and Ecological Alliance Network (OCEAN), Goa.

Dr. John Kurien - Retired Professor, Centre for Development Studies, Thiruvananthapuram.

Dr. Terry Machado - Former Scientist, NCESS, Thiruvananthapuram.

Dr. K.G. Thara - Former Member Disaster Management Authority, Govt. of Kerala and Former Head, Disaster Management Centre, Revenue Dept. Govt. of Kerala.

Co-opted Member

Dr. Johnson Jament, Research Fellow, School of Global Studies, Faculty of Anthropology, University of Sussex, United Kingdom

Their report represents an effort to shed light on the multifaceted implications of the Vizhinjam International Seaport project and offers recommendations for immediate and long-term remedial measures to protect the coastal space and communities from the impacts of global climate change and local coastal structures.

2. ON VIZHINJAM

Vizhinjam, a picturesque coastal village in Thiruvananthapuram District, boasts a stunning natural landscape with idyllic beaches, rocky cliffs, rolling hills, and coconut palms set against the backdrop of the Arabian Sea. Its rich history dates to the Ay Dynasty and Chera rule, featuring an ancient fort and a fair-weather port, pivotal for maritime trade.

At the heart of Vizhinjam lies its fishing community, comprising Christian Mukkuvars, Muslim, and Hindu fishermen, who play a vital role in preserving the local ecosystem and marine biodiversity.

In Vizhinjam, fishing communities with distinct socio-cultural backgrounds were once seen as anomalies in Kerala society. They were often marginalized and suffered a process of "othering" by mainstream civil society and political actors. However, over the years, these communities, have become more aware of their rights as citizens, thanks to collective struggles and social development initiatives in the 1980s. They are no longer easily manipulated during elections and are asserting their social, cultural, and political relevance. Vizhinjam exemplifies this newfound awareness and empowerment among these once-marginalized communities.

Tourism also finds its footing in Vizhinjam and its neighboring Kovalam village. The region's headlands, promontories, lateritic cliffs, pocket beaches and plunging breakers have magnetized foreign tourists for over half a century, with water-related tourism thriving. The expertise of local fishers facilitates activities like snorkeling, fostering economic opportunities for the area's residents.

Against this backdrop, Vizhinjam has recently seen a shift towards becoming a 'deep-water port', sparking controversies over displacement due to land acquisition and threats to traditional occupations. This chapter delves into the reasons behind this transformation while emphasizing the importance of preserving fishing communities and the area's natural beauty.

Amid these changes, Vizhinjam stands as a dynamic blend of age-old fishing traditions and modern aspirations. Traditional fishers maintain their way of life, while educated youth embrace innovative fishing techniques. The chapter underscores the need for a harmonious balance between corporate interests and the community's heritage and access to the sea.

In essence, Vizhinjam embodies the coexistence of historical fishing traditions and contemporary aspirations, emphasizing the importance of preserving heritage and public access to the sea.

3. HOW VISL CONTRACTED ADANI PORTS LTD

The history of the Vizhinjam port project spans several decades and underwent multiple phases of development. It initially surfaced in the 1990s as a proposal to construct an international seaport in Vizhinjam. However, local opposition and concerns from the tourism industry led to the shelving of these plans.

Between 2003 and 2004, under the United Democratic Front (UDF) Government, a Rapid Environment Impact Assessment (REIA) for the development of Vizhinjam Port was initiated. This

assessment, conducted by L&T-Ramboll Consulting Engineers, was completed in February 2004. As a result of this study, the Vizhinjam International Seaport Limited (VISL) was established as a Special Purpose Company in December 2004, with the primary goal of creating a new port near Trivandrum, the capital of Kerala.

Between 2005 and 2006, the UDF Government conducted two rounds of bids for the Vizhinjam project. The first round saw the selection of a consortium called Zoom Developers, but their bid was canceled due to security clearance issues related to Chinese investment. The second round faced legal challenges, leading the winning bidder to withdraw. Notably, most bidders in the second round were consortia led by construction firms.

In November 2009, the Left Democratic Front (LDF) Government, which had come to power, sought assistance from the International Finance Corporation (IFC) to ensure a transparent bidding process. The IFC's assessment pointed out that Vizhinjam's potential lay in attracting container transshipment traffic. However, the competition from ports like Colombo and Vallarpadam meant that Vizhinjam would have to offer competitive pricing to attract this traffic.

The LDF Government accepted the IFC's recommendations in 2010 and adopted a Public-Private Partnership (PPP) model to create a transshipment port, with government backing. This initiated the formation of an Empowered Committee chaired by the Chief Secretary to oversee the tendering process.

Notably, the IFC Report highlighted concerns raised by local fishing communities about potential impacts on their livelihoods. Community consultations revealed their apprehensions about how the port development might negatively affect their traditional fishing practices, including potential compensation for the loss of land and livelihoods.

Despite the challenges and complications, the UDF Government and VISL continued with their plans. In June 2011, they managed to secure the final Terms of Reference (ToR) clearance from the Expert Appraisal Committee (EAC). The project was planned as a Public-Private Partnership (PPP) with a Model Concession Agreement (MCA). Under this model, the Kerala State Government (GoK) and the Government of India (GoI) shared 40% of the total project cost, and Viability Gap Funding (VGF) was arranged with GoK covering 20% of the VGF share. The MCA included provisions for additional costs like land, external infrastructure, and the breakwater, designated as "funded works," to be borne by GoK.

Between June 2011 and May 2013, VISL undertook the required Environmental Impact Assessment (EIA) and obtained environmental clearance. An EIA report was produced in May 2013, and the environmental clearance was granted in January 2014, allowing international tenders to be floated.

In March 2014, a Government Order (GO) was issued to make the project a PPP and Engineering, Procurement, and Construction (EPC) composite project. However, legal challenges were filed against the project's procedures at the National Green Tribunal (NGT) by civil society and fisher

representatives, raising questions about the approval process by the Expert Appraisal Committee (EAC).

In May 2014, the national elections brought the BJP to power, leading to changes in perspectives on infrastructure investments. The UDF Government in Kerala, in collaboration with VISL, continued with their plans despite public concerns. This period saw legal suits, amendments to the draft concession agreement, and significant changes to project costs, including the revision of the Total Project Cost (TPC) and the introduction of a mortgage clause in the MCA. Despite Viability Gap Funding approval, no bids were received for the port project by the deadline of February 2015.

Adani Ports SEZ was subsequently persuaded by the UDF Chief Minister of Kerala to consider submitting a bid, and an agreement was reached, with Adani becoming the sole concessionaire for the project. The port was planned to be completed within four years, with Adani operating it for 36 years. Agreements outlining revenue sharing and development were included in the MCA, with an agreement signed between Adani Vizhinjam Port Pvt. Ltd. (AVPPL) and GoK on 17th August 2015.

Despite the legal validity of these agreements, questions remained regarding the transparency of the process and whether the government had followed the proper course of action. Concerns persisted over land acquisition, displacement, and the impact of the project on local communities, introducing uncertainty about its implementation. The project's future remains uncertain due to the complex interplay of economic, environmental, and social factors.

While the entire procedure for the final award of the contract to AVPPL remains contentious, the more serious lapse in this convoluted process has been the questionable way the Environment Impact Assessment was formulated to obtain project clearance.

The process of obtaining Environmental Clearance (EC) for the Vizhinjam port project has been fraught with numerous issues, casting doubt on the integrity of the Environmental Impact Assessment (EIA) and the transparency of the approval process. The EIA report, a crucial document for securing EC, has come under scrutiny for its manipulation of data and misrepresentation of essential facts.

One glaring issue lies in the misrepresentation of the stability and vulnerability of the coast adjacent to the port site. Contrary to scientific studies reporting substantial erosion in the region, the EIA falsely claimed that this coastal area was stable and least susceptible to erosion. This distortion obscures the true environmental risks associated with the project, potentially placing the coastal ecosystem and communities in harm's way.

Similarly, the EIA downplayed the impact on biodiversity, despite the Kerala State Biodiversity Board recognizing the area as a high biodiversity zone. The region's unique rocky reefs are vital for traditional fishers and the local ecosystem, but the EIA's portrayal of the impact minimized the ecological consequences of the port's construction.

The EIA also disregarded the "Area of Outstanding Natural Beauty" (AONB) designation for Vizhinjam's coastal cliffs and pocket beaches, meant to protect the region's distinctive cliff ecosystem and aesthetics. This omission raised concerns about the preservation of the area's natural beauty and its role in maintaining the ecological balance.

Furthermore, the EIA inaccurately claimed that the existing fishing harbor would remain unaffected by the port's construction. Yet, post-construction accidents and fatalities involving fishermen have increased, undermining the credibility of these assertions.

The discrepancy between the EC's statement of zero maintenance dredging and the Detailed Project Report's indication of a significant need for dredging further underscores issues in the assessment process. The claim of no capital dredging required was misleading, as a substantial amount of capital dredging was indeed necessary, raising questions about the project's financial feasibility.

The project's strategic importance was misrepresented in the EC approval process, with information later being abandoned, leading to doubts about the decision-making process.

The Social Impact Assessment (SIA) inadequately addressed the substantial impact on the livelihoods of traditional fishers, who heavily rely on coastal waters for sustenance. This oversight underscores the inadequacy of evaluating the project's far-reaching consequences on local communities.

Critical environmental factors, like remotely forced long period swells and inner-shelf dynamics, were not adequately considered, contributing to an incomplete assessment of the project's environmental impact.

Finally, concerns were raised about the site selection process and the evaluation of alternative sites. It is suggested that a more thorough consideration of facts and alternatives may have resulted in a different decision by the Environmental Appraisal Committee (EAC). The overall discrepancy and manipulation of data in the EC approval process call for a more transparent, comprehensive, and accountable approach to environmental assessments for projects of Vizhinjam port's magnitude and significance.

4. WORRIES OF VISL

The Vizhinjam International Seaport project has undergone a complex journey marked by shifting political power, legal challenges, and contentious decisions.

In 2015, when the Vizhinjam port agreement was signed, the LDF (Left Democratic Front) was in opposition and expressed concerns about the project's handling and accused the UDF (United Democratic Front) of corruption in awarding the tender to the Adani Group.

After the UDF lost the elections in May 2016, the LDF, now in power, had to take a decision regarding the project. They chose to continue with it, emphasizing the potential economic benefits for Kerala. They maintained that VISL (Vizhinjam International Seaport Limited) was a

government company, and Adani was merely the project implementor, a decision imposed by the UDF. The LDF also retained their allegations of corruption related to the deal.

In September 2016, the National Green Tribunal rejected the contentions of appellants who had filed petitions against the project in 2014. However, the tribunal also established an Expert Committee to closely monitor the project's impacts on the beaches and the coastal ecosystem and produce biannual reports. Adani Ports would cover the costs of this monitoring.

Over time, activities related to the VISL port became increasingly contentious among fishers, civil society, and within government circles.

The Comptroller and Auditor General (CAG) audit report in 2016 scrutinized the tendering process and the concession agreement (CA). The report raised questions about modifications to the project structure that favored prospective bidders, increases in funded costs, the permission to mortgage assets, and other unusual clauses in the agreement that disadvantaged the government's interests. These provisions have raised questions about the fairness and legality of the agreement, as they appear to favor Adani Ports. Key issues include:

- a) **Post-bid Project Structure Modification:** Major changes were made to the project structure after the bidding process to make it more attractive to bidders, including an extended concession period, increased project costs, and more land for commercial purposes.
- b) **Enhancement of Funded Costs:** The funded costs, borne by the government, were increased after the pre-bid process, but this did not result in a reduction in the grant requested by bidders. Adani Ports still received the maximum grant despite the cost increase.
- c) **Permission to Mortgage Assets:** Allowing the concessionaire to mortgage the land assigned for the port estate made the project more attractive for reasons beyond secure lending, possibly favoring Adani Ports.
- d) **Sub-Lease Clause Period:** The sub-lease period can go beyond the main project concession period, which is seen as an undue favor to Adani Ports and against government interests.
- e) **Termination Payment at End of Concession:** The agreement includes a substantial termination payment at the end of the concession period, which is considered unusual and an undue favor to Adani Ports.
- f) **Adjustment of Concession Period According to Traffic:** The trigger for adjusting the concession period based on traffic (2 percent shortfall or excess) was not altered, despite recommendations for a higher threshold, possibly favoring Adani Ports regardless of the port's success.
- g) **Additional Concession in Case of New Ports:** If a government port sets up within 100 km, the concessionaire can receive additional concessions, subject to specific conditions. This could benefit Adani Ports, especially with the Sagar Mala scheme's potential for new ports.

h) **Appointment of Safety Consultant:** The agreement required the appointment of a safety consultant for the port within 90 days of commencement, but this had not happened as of 2019, raising concerns.

The Justice Ramachandran Commission (JRC) appointed by the LDF Government to inquire into possible misdeeds committed by the VISL started function from October 2017. The commission concurred with several observations from the CAG report and criticized the lack of competitive bidding.

Throughout the project's journey, it faced opposition from the fishing community and civil society, who pointed out adverse environmental consequences, particularly coastal erosion. The fishing community became increasingly vocal about the project's negative impact on erosion and displacement.

In 2022, a 140-day protest demanded a halt to construction, emphasizing severe coastal erosion, loss of houses, disturbances in fishing activities, and accusations of favoritism toward Adani Ports. The movement attracted national attention and scrutiny.

Despite public outcry, the government conceded to most demands of the fishing community, but construction did not stop. Giving in to the demands of the fishing communities, an Expert Committee was formed in October 2022 to study if coastal erosion was indeed caused by the construction. The Committee is yet to submit its report.

The project's trajectory highlighted concerns about due diligence, environmental consequences, and the balance between economic development and community well-being. It serves as a case study illustrating the complexities of infrastructure development, governance, and the balance between economic growth, livelihood concerns of affected communities, and environmental protection.

5. BEACH AND COASTAL EROSION

This chapter paints a vivid picture of the complex issues surrounding the construction of the Vizhinjam International Seaport and its impact on the beaches and coastal ecosystem of Thiruvananthapuram District. It highlights several key environmental, social, and economic concerns:

Erosion and Accretion: The construction of the Vizhinjam port has disrupted the natural sediment flow, leading to erosion in some areas and potential accretion in others. This interference with the sediment budget has far-reaching consequences on the stability of the coastline, threatening properties, and livelihoods.

The chapter provides a detailed account of the historical coastal dynamics along the Thiruvananthapuram coast and its vulnerability to seasonal erosion during the southwest monsoon. This cyclical process involved erosion during the monsoon season and recovery during the post-monsoon or fair season.

Human interventions along the coast, including the construction of fishing harbors, seawalls, groynes, and promenades, have significantly altered the natural geomorphology of the coastline. These interventions have exacerbated coastal erosion during monsoons, affecting approximately 35 kilometers of the Thiruvananthapuram coast in different sectors.

The construction of the Vizhinjam International Seaport (VISL) is one of the most substantial interventions on this coast. The project includes a 3.18-kilometer-long breakwater, extensive dredging, and the reclamation of around 66 hectares of coastal waters in the first phase. This level of reclamation is unprecedented along this coast and carries potential repercussions for sediment dynamics, hydrodynamics, waves, and the sediment budget.

The expected impacts of the VISL port construction, based on experiences from similar projects, include coastal erosion and flooding in areas down-drift from the port. This leads to damage to coastal properties, while up-drift areas may experience accretion and flooding. These activities also negatively affect coastal biodiversity and habitats, disrupt traditional fishing activities, and result in a loss of jobs and income for fishermen, ultimately affecting coastal community life and aesthetics.

A particular concern is the removal of sand from the inner shelf during dredging, which may significantly reduce the available sand supply naturally transported along the Thiruvananthapuram coast at rates of 70,000 to 100,000 cubic meters per year toward the north. This reduction in sediment supply is expected to cause enhanced erosion along the Kovalam-Vettukad sector. Exchange of sediment between the inner shelf of the south and north side of Kovalam-Vizhinjam headland bypassing is happening since the depth close to the headland is only about 10 meters, which is less than the closure depth.

The chapter also discusses the impact of the breakwater's design, which extends over 1 kilometer offshore. This design will obstruct sediment transport toward the north, leading to beach instability and increased vulnerability. It will also alter the coast's width and impact the natural swash-backwash phenomenon that maintains beach health.

The ongoing construction activities, such as sediment removal from the inner shelf and coastal reclamation with dredged sediment, are expected to significantly impact the natural dynamics of beaches and the inner shelf. This could lead to substantial erosion and heightened susceptibility to monsoon waves and overtopping.

The chapter emphasizes the importance of comprehensive assessments of potential environmental consequences when planning large-scale development projects like the Vizhinjam port construction. It suggests that project proponents should be responsible for addressing the losses due to beach erosion and damage to the coastal community's assets.

The chapter further highlights several studies and reports that show an increase in coastal erosion and shoreline changes, especially after the initiation of the port construction. It underscores that while natural calamities like the Ockhi cyclone, high wave activities and climate change have

contributed to erosion but suggests that the impact on the coast's vulnerability has been greater than usual after the commencement of port construction.

Overall, the chapter underscores the need for recognizing and mitigating the impact of large-scale development projects on coastal erosion and coastal communities.

Overtopping Waves and Coastal Flooding: The chapter delves into the issue of overtopping waves, coastal flooding, and damage to coastal protection structures along the Thiruvananthapuram coast. The areas where beaches have eroded and sediment supply has reduced are experiencing a significant concern regarding overtopping waves, which can lead to flooding and damage to coastal properties.

Along the coastline from Kovalam to Shangumukham and Kollankode-Pozhiyur, several coastal protection measures, including seawalls, groins, and diaphragm walls, have been implemented. However, due to substantial beach loss and narrowing, these structures are increasingly facing damage and becoming less effective in protecting the coast.

The chapter points out a contrast between the JPS study and public consultations, which highlight the damage and dysfunctionality of these coastal protection structures, and the monitoring reports directed by the National Green Tribunal (NGT), which do not fully reflect these impacts. The damage caused by overtopping waves has intensified since 2015, as evidenced by the JPS study. However, the impacts have been less severe during weak monsoon periods in 2022 and 2023.

The construction activities related to the Vizhinjam port have exacerbated this issue by reducing sediment supply to these coastal sections and disrupting the sediment budget. This has led to increased scouring around the protection structures. The decreased sediment availability has prevented beach restoration, and the increasing nearshore depth near the protection structures has resulted in high waves breaking close to them. This phenomenon has caused overtopping even during fair weather, heightening the vulnerability of the coast, particularly in areas where beaches have disappeared and sediment supply has been compromised due to ongoing port construction.

Wrong interpretation of the status of shoreline: The chapter addresses the potential misinterpretation of shoreline and coastal erosion status when analyzing satellite images and remote sensing data in areas protected by seawalls or rock walls. The presence of seawalls can lead to incorrect conclusions about the stability or erosion of the coast. While many areas along the Thiruvananthapuram coast have seawalls for protection, these structures do not necessarily guarantee stability.

Seawalls, despite their presence, are vulnerable to issues like slumping, wave overtopping, coastal flooding, and property damage during the southwest monsoon. They require regular maintenance due to sinking and damage, and the depth of water near these structures increases due to scouring, allowing higher waves to break close to or on the seawalls.

Satellite image analysis can mistakenly interpret coastlines with seawalls as stable or moderately eroding. However, this analysis often fails to account for the loss of beaches on the seaward side of seawalls, wave overtopping, and the sinking of these structures. Beach profiling, which is part of monitoring studies, also has limitations, and may not accurately measure depths close to seawalls, thus missing information about scouring and wave overtopping.

The monitoring reports directed by the NGT exhibit this shortcoming by reporting seawall coasts as stable. However, the loss of beaches, which is essential for the local community's traditional, cultural, and livelihood purposes, is not adequately assessed in such studies. The JPS study highlights that coastal stretches with seawalls experience increased overtopping of waves, amplified beach loss, damage to coastal protection structures, and exacerbated erosion during the southwest monsoon since the start of port construction. The reduction in sand supply from the southern sectors due to port construction has intensified scouring and hindered any chance of beach reformation in these seawall-protected areas, representing a permanent loss for the community and the public.

In summary, the chapter emphasizes the need to consider the inconsistency in the selection of stable shoreline from satellite imagery and monitoring studies to accurately capture the erosion and vulnerability of seawall-protected coastlines, which may lead to misleading interpretations of coastal conditions. The JPS study provides a more comprehensive perspective on the impacts of seawalls and port construction on these vulnerable coastal stretches.

Modification in wave and current dynamics close to fishing harbour: The chapter also discusses modifications in wave and current dynamics near the fishing harbor in Vizhinjam due to the ongoing port construction. Initially, the project's Detailed Project Report (DPR) indicated that the fishing harbor would become safer with the port's construction. However, these models proved inaccurate, causing accidents and loss of life and fishing crafts after the port construction activities began. Changes in wave and sea bed features due to the construction of surface structures, like breakwaters and dredging, are significantly altering wave transformation.

Sedimentation near the fishing harbor mouth and between the harbor mouth and the port's under-construction breakwater is causing a decrease in depth, resulting in wave shoaling and, in some cases, wave breaking at the harbor mouth. These changes have led to an increased number of boat accidents and fatalities. Additionally, sand accumulation between the new Vizhinjam port breakwater and the south breakwater of the Vizhinjam fishing harbor is affecting the safety of fishers and the harbor's functionality.

In summary, the chapter highlights how construction activities related to the Vizhinjam port are impacting wave and current dynamics, posing hazards for fishers and the fishing harbor's safety.

Climate Change and Coastal Erosion: There is a need to underscore the importance of distinguishing between the impacts of natural climatic events and human interventions. It suggests that while climatic events play a role in coastal erosion, human interventions like port

construction can have a more significant immediate impact on coastal stability which will be sustained over a long period.

Climate change and coastal erosion are significant concerns in the Thiruvananthapuram coastal region. Changes in the sediment budget, primarily due to the trapping of sediments by the port breakwater and dredging, have led to adverse effects on the Kovalam-Vettukad sector. This area has experienced substantial erosion, resulting in the significant reduction of the once-wide beach.

The coastal sectors in Thiruvananthapuram with sufficiently wide beaches have not experienced the severity of the impacts of coastal erosion even though the climate change factors are the same in all these sectors. Increase in the severity of erosion is confined to the impact zone of VSL. Several factors contribute to coastal erosion, including the presence of human-made structures like seawalls, groynes and harbour and port breakwaters which are compounded by climate change.

It is essential to note that even with the presence of protective structures, the coast remains vulnerable. It is important to note that hard protection structures cannot survive under climate change triggered sea level rise. These structures have been damaged over time, and overtopping waves during monsoon seasons have caused flooding and property damage, with these impacts intensifying since 2015.

The chapter highlights that the upcoming Vizhinjam port will bring various detrimental impacts, including coastal erosion and flooding on the down-drift side, property damage, accretion, and flooding on the up-drift side. The negative consequences extend to biodiversity, habitats, traditional fishing activities, and the socio-economic fabric of coastal communities. The loss of sand due to dredging and the presence of the breakwater also contribute to heightened vulnerability in the region.

The chapter underscores that the observed erosion and its impacts are closely linked to human interventions and constructions along the coast. It emphasizes that the port's construction has not only increased vulnerability but also disrupted the natural balance of shoreline dynamics, leading to irreversible losses of beach resources. These findings highlight the importance of considering climate change and human interventions in managing and preserving coastal areas.

Coastal Accretion: Coastal accretion is occurring in the coastal area immediately south of the Vizhinjam port. This process is expected to intensify with the construction of the port's breakwaters along the Adimalathura-Pulluvila coastal stretch. While coastal accretion may seem like a positive phenomenon, it has already led to challenges, such as the obstruction of the *Karichal thodu* (stream) mouth. This obstruction has contributed to increased coastal flooding during monsoons and other flood events, necessitating regular dredging to maintain proper drainage. However, ongoing accretion is likely to make this dredging process more challenging and time-consuming.

The construction of the port's breakwater will further encourage the accumulation of sand south of the breakwater.

Sand deposition south of the breakwater and in dredged channels will primarily come from the south, driven by prevailing longshore sediment transport. However, the presence of the breakwater and ongoing maintenance dredging will disrupt the natural redistribution of sediment. As a result, sediment availability for southern sectors such as Kochuthura, Poovar, and Pozhiyur will gradually decrease, impacting the beach reformation process after the monsoon season. These sectors, which are already experiencing erosion, will likely face even more severe erosion trends due to these changes.

In summary, while coastal accretion is observed in some areas, the construction of the port's breakwaters, ongoing dredging, and proposed maintenance activities are expected to disturb natural sediment dynamics. This disruption will likely lead to increased erosion and the loss of beaches in certain vulnerable sectors along the coastline.

Aesthetics and Environmental Sensitivity: The construction of the Vizhinjam International Seaport has significantly altered the aesthetics and natural beauty of the region. The Coastal Regulation Zone (CRZ) designation classified the coastal zone and adjacent coastal waters as "Areas of Outstanding Natural Beauty" (AONB) under CRZ I, highlighting the area's geomorphic importance and environmental sensitivity. This classification aimed to protect the unique aesthetics of the region, including the cliff and headland ecosystems and extensive rocky outcrops near the shore. These natural features contributed to the beauty of the area and played a crucial role in maintaining ecological balance.

However, the Detailed Project Report (DPR) and Environmental Impact Assessment (EIA) for the Vizhinjam port project failed to acknowledge or accurately represent the rich coastal biodiversity and environmental sensitivity in their planning. This oversight has the potential to compromise the aesthetics and ecological value of the area, as the construction of the port and its associated activities have disrupted the natural beauty and environmental balance of the region.

In conclusion, the decision to build the Vizhinjam International Seaport, with its lengthy breakwater and associated construction, has set off a chain of catastrophic consequences. It has fundamentally altered the coastal region, disrupting the equilibrium of wave patterns, longshore currents, and sediment budgets. The result has been uncontrolled erosion that has eroded the once-pristine coastal landscape, serving as a stark testament to the folly of the endeavor and a somber reminder of the impacts of ill-considered human interventions on nature.

Furthermore, the consequences of this undertaking have extended to the local community, devastating the once-thriving tourism industry. The charm of pristine beaches and captivating scenery has been overshadowed by the presence of industrial structures, pollution, and the destruction of the region's scenic allure including that of the Kovalam beach. This has driven away tourists and had a severe economic impact on the region, highlighting how heedless pursuit of

commercial interests can devastate not only nature but also a community's identity and prosperity.

6. BIODIVERSITY AND ECOSYSTEM SERVICES

This chapter highlights the ecological and socio-economic significance of the Vizhinjam coastal zone and the adverse impact that the construction of the Vizhinjam International Seaport is having on the biodiversity and ecosystem services of the region. Here are some key points:

Ecological Importance: The Vizhinjam coastal zone is ecologically important due to its unique location where the Indian Ocean, Arabian Sea, and Bay of Bengal meet. The rocky reefs, diverse marine life, and the presence of corals, fish, and algae contribute to its biodiversity. The area's ecological health is closely linked to sustainable fishing practices.

Biodiversity: Vizhinjam Bay is identified as a key marine biodiversity area, with more than 20 percent of Kerala's coastal sea biodiversity located in this region. Rocky reefs and other habitats support a wide range of marine species, including edible and ornamental fish.

Community Engagement: The Kerala State Biodiversity Board, along with local communities, has documented and recognized the importance of the region's marine biodiversity. They have created a People's Marine Biodiversity Register and emphasize the need for careful management and even the potential designation of a Marine Protected Area.

Environmental Impact: The construction of the Vizhinjam International Seaport has had a severe environmental impact. Sand dredging and disposal have damaged rocky reefs. Reclamation of coastal waters and the construction of breakwaters have disrupted marine ecosystems, which are now under threat of extinction.

Traditional Fishers: Traditional fisher communities have relied on these ecosystems for their livelihoods. The destruction of these habitats threatens their customary areas of practice, and they have not been adequately compensated.

Ecosystem Services: The coastal ecosystems provide various ecosystem services, including aesthetics, recreation, tourism, cultural heritage, and food sources. The cost of the services lost due to port construction is challenging to assess but is indeed very significant

Ecosystem services in coastal areas can be categorized into four types: direct-use value, indirect use value, option value, and non-use value. These services encompass activities like fishing, coastal protection, tourism, water quality improvement, scientific research, cultural and aesthetic values.

The value of ecosystem services provided by rocky reefs, although challenging to estimate precisely, includes support for fisheries, coastal protection, tourism, clean water, scientific research, cultural significance, and aesthetics. The estimated annual value of these services in Vizhinjam is approximately Rs. 222 crores. Additionally, there are significant value losses from stoppage of reef fishing (Rs. 12 crores per annum), inability to conduct shore-seine fishing (Rs. 27

crores per annum), and beach-based sports and recreation (Rs. 23 crores per annum) due to the project's impact on these activities. The loss from curtailment of tourism in the area is Rs 78 crores. The use value and option and existence value of the sandy beaches is Rs 1665 crores. In summary, the total annual value of ecosystem services lost due to the Vizhinjam port project is estimated to be a substantial Rs. 2027 crores, underscoring the importance of comprehensive environmental assessments in the context of environmental sustainability and economic development.

In summary, the chapter highlights the importance of preserving the ecological and socio-economic value of the Vizhinjam coastal zone and raises concerns about the adverse impacts of port construction. It advocates for a more comprehensive and responsible approach to development that considers the long-term sustainability of the region and the livelihoods of its traditional fisher communities.

7. FISHERS PERCEPTIONS

The chapter outlines the significant and negative impacts of the Vizhinjam International Seaport construction on the local fishing communities and the coastal environment as perceived by the fishers themselves. These views were collected through public consultations held by the JPS. Here are some key points summarizing the content:

Loss of Livelihood: The ongoing port construction has had detrimental effects on the livelihoods of traditional fishermen. Fishermen reported that their fishing problems have worsened due to the construction. The port's construction began without proper analysis of the costs and benefits, leading to disruptions in traditional fishing practices, a reduction in available fishing areas, damage to fishing equipment, and substantial financial losses.

Accidents in the existing fishing harbour: Vizhinjam fishing harbour, which has never experienced any accidents since its construction has turned into an accident zone with loss of life and damages to fishing boats after the construction of the port was initiated.

Environmental Damage: The dredging and disposal of dredged material have covered many reefs with sand, negatively impacting both the livelihoods of the fishermen and the local coastal environment and biodiversity. Barges transporting construction materials have damaged fishing nets, which further compounds the economic losses.

Employment Impact: Many traditional fishermen and mussel collectors have lost their jobs due to the loss of fishing areas and habitats. Fish abundance and mussel health have also been affected. As a result, many women from coastal fishing villages have been forced to seek alternative employment, such as working as housemaids and domestic helpers, due to the decrease in fishing-related income.

Community Impact: Coastal erosion has led to the destruction of houses and community facilities in several areas, including schools, dispensaries, and community halls. The relocation of families

to relief camps has resulted in inadequate living conditions, including a lack of privacy and basic facilities.

Social and Cultural Impact: The long breakwater constructed for the port have significantly disrupted the coastal communities' access to the sea. The loss of beaches has affected leisure and community activities, including recreational activities for children.

Lack of Consultation: The fishing communities' views and concerns, both to the north and south of the Vizhinjam International Seaport Limited, have not been adequately considered in environmental or socio-economic assessments. This suggests a lack of free, prior, and informed consent, which is both a right of affected communities and a duty of the government and investors.

International Investigation: The Compliance Advisor Ombudsman (CAO) of the International Finance Corporation (IFC) conducted a compliance investigation that supported the fishers' concerns about inadequate consultation and the failure to address issues related to the negative impacts of the port construction.

In summary, the chapter underscores the severe consequences that the Vizhinjam Seaport construction has had on the local fishing communities, their livelihoods, the environment, and the social fabric of the affected areas. It also highlights the need for better consultation, assessment, and mitigation efforts to address these issues and uphold the rights and well-being of the affected communities.

8. VISL AND HOMES LOST TO EROSION

The chapter discusses the issue of coastal erosion along the Indian coastline, particularly in Thiruvananthapuram District, with a focus on the impact of human-induced activities and the construction of the Vizhinjam port. Here are the key points:

Causes of Coastal Erosion: The Ministry of Earth Sciences' report attributes coastal erosion to human-induced activities such as urbanization, port construction, and sand mining. These activities have been identified as significant drivers of erosion along the Indian coastline.

Impact of Vizhinjam Port Construction: The construction of the Vizhinjam port in 2015 is highlighted as a major factor exacerbating coastal erosion. The text suggests that the port's construction has had a distressing impact on homes belonging to fishing communities in the area.

Village Volunteer Study: The chapter discusses a study conducted by village volunteers to assess the consequences of port construction on coastal erosion, flooding, and wave impact. The study involved interviews with 289 individuals who lost their homes to the sea after 2015 in villages located north of the Vizhinjam International Seaport.

Graphical Data Presentation: The study's findings are presented through seven graphs, illustrating the relationships between port construction, erosion, and its consequences on coastal residences.

Geographic Impact: The data shows that erosion had previously affected villages like Panathura and Poonthura before the construction of the port. However, the erosion and home loss expanded to villages around Valiyathura as the Vizhinjam port construction progressed, leading to the loss of 289 homes in seven villages.

Role of Monsoon Waves: Surprisingly, the study found that high and short-period monsoon waves, rather than cyclones like Ockhi, were the primary drivers of erosion and house loss during the monsoon months. This suggests that high wave conditions, potentially exacerbated by port structures like the breakwater, are significant contributors to coastal erosion.

Change in Erosion Location: The study notes a shift in the location of erosion. Pre-2015, presence of seawalls indicated erosion in that villages, while post-2015, sandy beaches, which were erosion-free earlier, experienced significant erosion. This shift is indicative of the severity of erosion in the area.

Need for Mitigation: In conclusion, the findings underscore the detrimental impact of coastal erosion exacerbated by port construction. The text emphasizes the urgent need for effective mitigation measures and sustainable development practices to protect vulnerable coastal communities from the loss of their homes.

The chapter highlights the environmental and societal consequences of coastal erosion and underscores the importance of addressing these issues through appropriate measures and responsible development practices.

9. HUMAN RIGHTS AND REMEDIAL MEASURES

Human Rights and Remedial Measures The chapter begins by addressing the ethical and human rights concerns related to the displacement of fishing communities due to the development of the Vizhinjam container port. The absence of adequate consultation with affected communities leads to severe adverse consequences, such as beach erosion, the destruction of homes, and threats to cultural and livelihood practices. The fundamental question raised is whether these actions constitute a violation of the basic human rights of these fishing communities, particularly given their limited social and political power when confronted with the influence of neoliberal policies adopted by the government.

There are diverse challenges faced by fishing communities in different zones around the Vizhinjam container port. These challenges include erosion, damage to homes and equipment, loss of employment, loss of cultural spaces, and the potential for restrictions on fishing activities. The chapter emphasizes the importance of addressing these issues in a fair and rights-based manner to safeguard the well-being and cultural heritage of these communities.

Villages in the North of the Port:

1. **Erosion and Loss of Homes:** These villages have experienced severe beach erosion, leading to the destruction of homes. The estimated cost for replacement of land and homes destroyed due to erosion is Rs. 92 crores.
2. **Erosion and Livelihoods:** Shrinking beach space due to erosion has significantly impacted the cost of fishing activities due to additional travel time. A fund for livelihood restoration and rehabilitation assistance is needed to address this issue.

Villages within the Port Jurisdiction:

1. **Damage to Homes:** Tremors during the port's construction have damaged houses. The estimated compensation cost for 243 houses is Rs. 24.3 crores.
2. **Damage to Fishing Equipment and Loss of Life:** Fishers have experienced frequent loss of fishing gear and even loss of life due to construction activities in the near shore waters caused by shifting sediment dynamics and the unpredictable altered behaviour of waves as the construction of the breakwater proceeds. The chapter suggests creating a corpus for immediate payments of Rs 50 lakhs if any fisher dies in the vicinity of the fishing harbour.
3. **Loss of Employment:** Fishers within the port's zone have experienced varying degrees of loss of employment, and some have not been adequately compensated. There is a need for reassessment and fair compensation to these fishers.
4. **Loss of Cultural and Religious Spaces:** The port's jurisdiction has led to the loss of playgrounds and the St. Antony's shrine. The need for immediate attention and fair compensation is emphasized.
5. **Environmental Damage:** The construction of the port has caused environmental damage, leading to health problems and flooding. An Environmental Management Fund is proposed to address these issues.

Villages in the South of the Port:

1. **The Mirage of Accretion:** Villages to the south of the port have experienced beach accretion, providing new space for fishing activities and cultural practices. However, these communities are the innocent victims of erroneous and blatantly false Environmental Impact Assessments undertaken for the Port.
2. **Economic Investment in Fishing:** These communities have invested significantly in various fishing assets, amounting to Rs. 69 crores. Fishing is their cultural heritage and primary source of income.

- 3. Assessing Earnings:** The estimated revenue generated from fishing in these villages is significant, amounting to at least Rs 250 crores. Any restrictions on fishing would jeopardize their rights to access to food, work, and the preservation of their cultural heritage.

Human Rights and Imminent Threat to Occupational Heritage: The section discusses the human rights implications of potential restrictions on fishing activities in specific areas due to the port's operations. It stresses that these rights are crucial for access to food, work, and the preservation of cultural heritage and highlights the connection between fishing and the identity of these communities.

Spatial Injustice: The chapter underlines the spatial injustice that often results from large-scale projects, where marginalized coastal communities are disproportionately affected by the decisions of the privileged elites. It highlights the unequal power dynamics and the overshadowing of the rights of these communities.

Implications of ISPS for Fishing Communities: The text discusses the International Ship and Port Facility Security (ISPS) certification and its implications for fishing communities. It details how ISPS can enhance security but also lead to access restrictions and compliance costs, potentially affecting fishing operations. The need for communication and collaboration between port authorities and fishing communities to mitigate these challenges is emphasized.

In summary, this Chapter extensively examines the human rights and ethical concerns related to the displacement of fishing communities in the context of the Vizhinjam container port development. It provides a comprehensive view of the challenges faced by these communities and underscores the need for fair compensation and a rights-based approach to development planning.

10. REMEDIAL MEASURES – LONG TERM

The marine fishing communities in Kerala, despite their significant contributions to society, are often viewed as socially backward, marginalized, and vulnerable. This is mainly because people from the larger society rarely interact with them, leading to an "out of sight, out of mind" mentality. It is crucial to change this unfair attitude.

These communities are vital to Kerala's economy, as they safeguard sandy beaches, maintain access to clean coastal seas, and employ sustainable fishing practices that protect marine resources. They also enrich Kerala's culture and contribute to the tourism industry. Moreover, they demonstrated their selflessness during the 2018 floods, saving numerous lives from the floods.

To continue benefiting from their contributions, it is essential to end their marginalization and uphold their rights to coastal areas. Embracing fishing communities and supporting their coastal

rights is not only a matter of social justice but also a pragmatic decision, as their well-being is closely tied to the well-being of the entire state.

The citizens of Kerala must realize that preserving sandy beaches and clean coastal waters is crucial for the survival of these communities, and it is also in the self-interest of all Kerala residents. This is especially evident in Thiruvananthapuram District, where the threat to beaches and coastal seas is most pronounced.

This chapter outlines a comprehensive approach to addressing the challenges posed by coastal erosion and the construction of seawalls in the Thiruvananthapuram District, with a focus on long-term planning, sustainable coastal management, and the well-being of fishing communities. It includes the following key points:

Seawall Construction and its Negative Effects: The chapter highlights the extensive use of seawalls along Kerala's coastline, which has resulted in detrimental effects on small-scale fisheries, beach tourism, and coastal ecosystems. It emphasizes the urgent need to revitalize sandy beaches for the benefit of fishing communities, tourism, and humanity's connection to the sea. At the current cost of Rs 50 crore/kilometer, it will require Rs 3666 crores to seawall the whole of Thiruvananthapuram's coastline.

Managed Coastal Retreat: The chapter proposes a shift from seawalls to a more sustainable strategy known as strategic managed coastal retreat. This approach involves the gradual relocation of communities away from vulnerable coasts, allowing nature to restore the beaches. This includes resettling fisher families currently living within 50 meters of the High Tide Line (HTL) and creating a 'no-development zone' along the coast to safeguard coastal ecosystems. The estimated cost for rehabilitating 100 households is about Rs 30 crores, less than the cost of constructing 1 kilometre of seawall. The cost to relocate the most vulnerable 3340 fisher families near the HTL is approximately Rs 835 crores, and for 10,000 more houses within 200 metres of HTL, the estimated cost is only Rs 1300 crores. The managed retreat therefore costs less than the construction of the seawall. The choice between seawall construction and managed retreat should however consider factors like coastal erosion, sea-level rise, community preferences, and available resources. Nature-based solutions are also recommended.

Sustaining the beaches: Beach being the best protection of the coast all the efforts should be retained to the existing beaches. All activities that may cause coastal erosion have to be strictly prohibited. If any beach is lost due to a construction/intervention, it should be the mandatory responsibility of the project proponent to rebuild the beach through beach nourishment or other appropriate measures as directed in the CRZ notification.

Enhanced Tourism Potential: Coastal erosion has impacted beach tourism in the region. The chapter suggests enhancing natural beach aesthetics to maximize economic benefits from tourism. It emphasizes the importance of responsible tourism practices and awareness campaigns. Participation of coastal communities must be ensured through pesca tourism

initiatives to ensure benefit sharing with the coastal communities. Our estimate is that beach tourism in Kerala results in as much as **Rs. 300 crores** of potential revenue generation per annum.

Community Engagement and Well-being: The passage recognizes the cultural and spiritual significance of beaches to the local population. It proposes granting citizens access rights (usufruct) to the beach and sea, contributing to the socio-cultural and spiritual well-being of the community.

Economic Benefits of Sustainable Beach Tourism: Sustainable beach tourism can generate significant revenue for the region. By fostering appreciation for preserving coastal environments and encouraging responsible tourism, it aims to restore sandy coasts and contribute to the local economy.

Beaches as Healing Retreats: The passage highlights the significance of beaches as healing spaces, especially in the context of the COVID-19 pandemic. It underlines the importance of ensuring unhindered access to beaches, considering religious and cultural practices and public gatherings. If we continue to build seawalls, we cannot ensure the access to safe, sandy beaches for religious events like the Vaavu Beli. Then there will be a potential revenue loss of at least **Rs 200 crores** per annum.

In conclusion, the chapter advocates for a holistic approach that includes a moratorium on seawalls, a shift toward strategically managed retreat, the restoration of beaches, and thoughtful relocation of fishing communities. It emphasizes the need to balance financial considerations, ecological preservation, and the well-being of the community in addressing the challenges posed by coastal erosion and seawall construction in the region.

11. PRESENT STATUS AND REALISTIC FUTURE OF VISL

This chapter provides a critical evaluation of the Vizhinjam International Seaport, highlighting several key factors that are critical for the success and viability of such a commercial transshipment port. It goes beyond the common perception that the port's strategic location and deep-water harbor alone guarantee success, and instead, it sheds light on the comprehensive framework required for a thriving port. Some of the essential components and considerations for a commercial port's viability discussed in the chapter include:

Infrastructure: This encompasses aspects like berths, navigational aids, anchorage zones, cargo handling facilities, storage spaces, customs and inspection capabilities, and IT infrastructure.

Security Measures: The port should have robust security measures in place to protect against various risks, including those related to cargo and personnel.

Logistics: Efficient logistics and transportation links are crucial for the smooth operation of the port and its connectivity to hinterland economies.

Environmental Considerations: Environmental sustainability and adherence to regulations are vital for a modern port.

Emergency Response Preparedness: Ports need to be prepared for emergencies and have response plans in place.

Skilled Workforce: A port requires a skilled workforce to handle various operations efficiently.

The analysis of the Vizhinjam port project's status reveals delays attributed to factors such as natural disasters (e.g., Cyclone Ockhi), supply shortages of granite, the COVID-19 pandemic, and protests. The completion timeline has been pushed to December 2024, with only about two-thirds portion of the breakwater and dredging works completed as of October 2023.

Additionally, the chapter raises concerns about the traffic projections for the port and competition within the industry. Previous estimates of container traffic in India have proven to be overly optimistic, and regional transshipment ports like Vallarpadam and Colombo face underutilization and financial viability challenges. The chapter also highlights the importance of strong linkage to hinterland economies, which is an area where Vizhinjam struggles.

There is also a financial strain on Kerala, with a substantial amount exceeding Rs 2000 crores required for the port to achieve full operational status. This includes expenses like land acquisition, railway construction, and viability gap funding. The government is exploring loans from institutions like HUDCO and KFC to meet these financial needs.

The Adani Group, as the largest port operator in India, controls 13 domestic ports and seven airports, consolidating significant influence over trade and passenger traffic. This concentration of power raises concerns about national security, as it may lead to economic inefficiencies, strategic manipulation of trade routes, and a central vulnerability for security threats. Exclusive rights to manage key ports and airports should be evaluated for broader implications on national security.

The complex interplay of interests and challenges involves stakeholders like Adani Ports and the Government of Kerala, with each having its gains and losses. Adani Ports can potentially benefit from utilizing land for commercial purposes, while the government of Kerala faces mounting financial and environmental pressures as the project unfolds.

In summary, the chapter offers a comprehensive and realistic assessment of the Vizhinjam International Seaport, emphasizing that the success of such a complex venture does not depend on the depth and location alone. It underscores the multifaceted aspects and considerations that are pivotal in determining the destiny and viability of a commercial transshipment port.

12. WAY FORWARD

The clash between coastal communities and private investment-driven port infrastructure projects, such as the Vizhinjam port, is indicative of a broader trend of conflicts arising due to initiatives like Sagar Mala and other development projects. As this comprehensive assessment of the Vizhinjam port construction demonstrates, it is crucial to address the fundamental issue of

differing perspectives and values concerning coastal areas and introduce a concept that can guide future port developments.

The conflict at Vizhinjam and similar situations is rooted in varying viewpoints on the beach and coastal sea, often pitting investment proponents against active fishing communities. This struggle unfolds within the context of the emerging Blue Economy discourse, which seeks economic expansion through ocean-based industries. Four distinct perspectives on beaches and coastal seas emerge:

Nature's Gift: This perspective emphasizes the conservation and economic benefits of protecting coastal areas, highlighting eco-tourism and the provision of ecosystem services.

Livelihood and Heritage: It addresses the importance of employment, food security, and cultural heritage, focusing on activities like small-scale fisheries and sustainable tourism.

Business Opportunity: This perspective concentrates on the economic contributions of ocean-based industries, including port infrastructure, shipping, and industrial fishing.

Innovation Hub: It promotes beaches and seas as sources of new discoveries, particularly in sectors such as renewable energy, mariculture, and biotechnology.

Balancing these perspectives requires acknowledging the economic and social power inequalities among stakeholders.

The concept of **Social Licence to Operate (SLO)** is introduced as a means of ensuring continuous community acceptance and endorsement of operations, in alignment with stakeholder expectations. Communities increasingly demand participation in decisions that go beyond simply benefiting from projects. SLO reflects the declining trust in government mechanisms and the growing faith in community-led environmental oversight.

Applying SLO to the Vizhinjam conflict highlights potential areas of focus:

Legitimacy and Trust: Acknowledging and addressing the concerns of fishing communities to establish trust, especially when perspectives on beach use differ.

Engagement and Communication: Transparently communicating the benefits and impacts of projects and involving communities in the decision-making process.

Mutual Benefits: Finding ways to contribute positively to the well-being of fishing communities through job creation, infrastructure support, and economic opportunities.

Cultural Considerations: Respecting local cultures and values to safeguard the cultural identity of fishing communities.

Fairness and Justice: Addressing concerns related to fairness and justice to ensure a balanced approach that benefits both parties.

While SLO may come into play belatedly in the context of Vizhinjam, it is crucial to recognize that future port projects and similar initiatives must navigate these diverse perspectives on coastal resources. The government's focus on sustainable development and equitable engagement with coastal communities can pave the way for successful projects that respect both economic interests and cultural heritage, ensuring that all stakeholders benefit and are heard throughout the process.

13. CONCLUSIONS AND RECOMMENDATIONS

1. "The Interconnectedness of Beaches, Coastal Seas, and Human Rights"

The synergy between beaches and the coastal sea is profound and ecological. These stretches of shoreline, along with the encompassing sea, stand as the cherished legacy of our fishing communities, deeply woven into their livelihoods and cultural tapestry. It is crucial to recognize that the protection of these ecosystems is not only a matter of environmental conservation but also a fundamental human rights issue, as articulated by the United Nations.

It is recommended that the Kerala State Human Right Commission (KSHRC) suo motto investigate if the VISL and AVPPL have adhered to the foundational principles of the UN Guiding Principles on Business and Human Rights. They must both uphold the foundational principle A11 which states: "Business enterprises should respect human rights. This means that they should avoid infringing on the human rights of others and should address adverse human rights impacts with which they are involved." Government, investors, and civil society must recognise the non-negotiable nature of this linkage between environmental conservation and human rights and incorporate measures to ensure that it is explicitly recognised in the preparation of project reports and environment and social impact analyses for so-called development projects.

2. "Balancing Vizhinjam's Heritage, Fishing Communities, and Development"

Vizhinjam is historically significant, dating back to the Ay Dynasty, and once served as a state capital and maritime trade hub. Vizhinjam and its closely adjacent villages host the largest number of traditional fishing communities in the State for whom fishing is the main source of income, employment, and food security. They have well-defined rights and shared responsibilities over coastal ecosystems. Vizhinjam and nearby Kovalam, due to its outstanding natural beauty and rocky reefs are popular tourist destinations, fostering water and beach related tourism. In Vizhinjam and Kovalam, the beach and coastal sea, represent a balance between the heritage of fishing communities and the shared resource of all citizens. Today there is the tension between the push for port development and the preservation of

Vizhinjam's historical and natural heritage, particularly in the context of the fishing communities. Balancing these interests is crucial.

It is recommended that any further development in the Vizhinjam area should consider sustainable practices that allow the fishing communities to continue their traditional livelihoods while ensuring the protection of the region's historical and ecological assets. The consent of Local Self-Governing institutions (LSG) and grama sabhas must be obtained before any new plans for any infrastructure development are implemented. Sincere collaborative efforts between local stakeholders, government agencies, and environmental and civil society organizations will also help find a balanced solution that benefits both economic development and cultural preservation.

3. "Challenges and Imperatives for Transparent Infrastructure Projects"

The process leading to the grant of the Vizhinjam port contract to AVPPPL raises significant concerns. Transparency was lacking throughout the process, with multiple changes to project details and conditions, raising questions about fairness. The influence of political considerations, as well as environmental concerns related to the project's location in a sensitive area, added to the complexity. Furthermore, the absence of competitive bidding, a lack of recognition of the rights and claims of affected communities, and frequent changes in project details all contributed to a process that may not have been in the best interest of the public. This highlights the complexity of large-scale infrastructure projects and the need for transparent decision-making, thorough environmental assessment, and community engagement from the very start.

It is recommended that for further phased development of this project, it is vital to prioritize transparency, competitive bidding, and reliable, technically, and socially sound environmental assessments. It is also crucial to ensure community engagement and address compensation concerns for affected individuals to ensure responsible project development. The Janakeeya Samara Samithi should appoint a person of high repute as "People's Ombudsman" who can investigate complaints from individuals and groups who have been treated unfairly. Maintaining political neutrality in decision-making is essential to uphold the integrity of the process. Reducing frequent changes to project terms and conditions is necessary to offer stability and certainty to all stakeholders. Accountability mechanisms and adherence to best practices in project management and contract award processes should be fundamental in future infrastructure development. This approach ultimately serves the public's best interests while avoiding the issues observed in the Vizhinjam port contract grant process.

4. "Environmental Impact Assessment Deficiencies in Vizhinjam Port Project"

The Environmental Impact Assessment (EIA) conducted for the Vizhinjam port project, highlights numerous instances of data manipulation and omission that cast doubt on the

assessment's accuracy and transparency. Key issues include misrepresentations related to coastal stability, biodiversity, ecological sensitivity, impact on the existing fishing harbor, capital dredging, and the project's strategic importance. There have been inadequacies in considering critical environmental factors and the site selection process, which indicates a flawed assessment overall. It calls for a more comprehensive, honest, and transparent approach to environmental assessments for projects like the Vizhinjam port. The EIA notification must be amended to bring in accountability for those who prepare the EIA. There is also pressing need for improved oversight and accountability in the environmental assessment process for large-scale projects.

It is recommended that the Government take steps to address the deficiencies identified in the Vizhinjam port project's Environmental Impact Assessment (EIA), and prevent a repeat of such happenings in the future, the following steps should be considered:

1. *It is recommended to establish independent oversight to ensure unbiased assessments of environmental impacts. This oversight would help maintain the integrity of the assessment process.*
2. *Full disclosure of all EIA data, methodologies, and sources is deemed crucial for transparency. This transparency would enable stakeholders and the public to scrutinize the assessment thoroughly.*
3. *Meaningful community consultation is highlighted as paramount, especially concerning concerns related to livelihoods and the environment. Engaging with the local community helps ensure that their perspectives and needs are considered in the assessment.*
4. *To deter unethical practices and misrepresentation, strict penalties should be enforced as a deterrent.*
5. *There is need for establishment of expert review panels consisting of environmental and social impact assessment experts. These panels would offer an independent evaluation of the EIA reports, enhancing their credibility.*
6. *Make audits of the EIA process. Such audits would verify that the assessment adheres to best practices and relevant regulations.*
7. *To protect individuals who report data manipulation, legal safeguards for whistleblowers should be instituted.*
8. *The importance of comprehensive public reporting of EIA findings and methodologies is paramount. This public reporting ensures transparency and allows stakeholders to assess the accuracy and reliability of the assessment.*
9. *If significant irregularities are identified post-approval, the possibility for reconsideration and potential revocation of Environmental Clearance should be a viable option. This ensures that the project remains in compliance with environmental standards.*
10. *There is need for separate guidelines for coastal projects like ports and harbors. These guidelines should give due consideration to coastal and nearshore*

morphological changes, processes, coastal and marine biodiversity, and the unique livelihood requirements of the fishing community.

Collectively, these recommendations aim to improve the accuracy, integrity, and public accountability in future EIA processes for large-scale projects, particularly emphasizing the significance of coastal developments like ports and harbors.

5. "Addressing Irregularities and Ensuring Fairness in Vizhinjam Port Project"

The CAG's findings and subsequent developments reveal a series of irregularities and concerns regarding the Vizhinjam port project, ranging from changes in project structure to financial matters and coastal erosion issues. We conclude that the project's implementation and decision-making process need to be thoroughly reviewed to ensure transparency, fairness, and accountability.

***It is recommended that** the facts mentioned in the CAG report about the unfair advantage to the Concessionaire and potential loss to public revenues be reviewed by a government constituted Finance Standards Committee. Also, future projects should undergo rigorous evaluation, adhere to established financial and environmental standards, and involve stakeholders to mitigate adverse impacts, as seen with coastal erosion.*

6. "Environmental Consequences of Vizhinjam International Seaport Construction"

The construction of the Vizhinjam International Seaport (VIS) on the coast has raised significant environmental concerns. Factors such as headland bypassing, closure depth larger than the depth at the headland, step ladder nature of inner shelf sediment transport, and remotely forced long period swells have significant role in sustaining the sediment budget of the region. The introduction of an offshore breakwater at VIS has disrupted natural coastal dynamics, and upset the sediment budget, leading to severe erosion to the north of Kovalam and in the Pozhiyur sector to the south. Research directed by MoEFCC and the National Green Tribunal (NGT) shows that the erosion is primarily caused by human-made structures like the breakwater and inner shelf sand dredging rather than solely by climate change. South of the breakwater, beach accretion has occurred, blocking local streams, and causing coastal flooding during specific events. The breakwater has hindered the natural sand redistribution, exacerbating sand scarcity and erosion in southern sectors like Karumkulam, Poovar, Pozhiyur, Kollamcode, and Neerodi. The dredging for port maintenance has further disrupted sediment transport, affecting the ecosystem. Under Coastal Regulation Zone (CRZ) 2019, beach loss due to coastal projects should be compensated through interventions like beach nourishment, making VISL and AVPPL legally and socially responsible for addressing increased erosion and restoring the lost beach.

***It is recommended that** Governments should prioritize comprehensive environmental assessments for large coastal development projects, such as the Vizhinjam International*

Seaport, adhering to coastal regulations. Given the dynamic nature of the marine ecosystem, and its crucial economic, social and cultural importance to Kerala society, the Government should constitute a special Task Force for Review of Coastal Development Projects, with members consisting of appropriate independent experts to consider a long-term plan to balance economic development with environmental sustainability. Ongoing monitoring and research are crucial to understand environmental impacts, including sediment dynamics and erosion. Mitigation measures should be implemented, with a focus on beach nourishment and sediment management, giving back the beaches to the fishing communities and citizens. Local community and expert involvement in decision-making and monitoring are essential. Exploring eco-friendly construction methods is recommended. Strategies to combat erosion and support affected residents must be developed, while public awareness and education for coastal preservation are needed. Regular policy reviews and long-term planning are vital for sustainable development and climate change resilience.

7. "Protecting Biodiversity and Ecosystems in Vizhinjam Bay"

The Vizhinjam port poses a significant threat to the region's biodiversity and ecosystems, particularly in Vizhinjam Bay, a vital biodiversity hotspot. The bay is home to 1,200 species spanning various phyla, including 15 rocky reefs teeming with marine life. These ecosystems are essential for traditional fishing communities. However, activities like dredging and breakwater construction have already damaged the rocky reefs, jeopardizing marine life continuity. Over half of these ecosystems and their associated species are at risk of imminent extinction, even before the project's first phase completion. Traditional fishing communities, reliant on these resources for generations, face the loss of livelihood areas and fishing rights without adequate compensation. The project's Detailed Project Report and Environmental Impact Assessment have underestimated Vizhinjam Bay's ecological significance and potential harm to marine biodiversity and coastal ecosystems. Independent studies are recommended to address the loss of biodiversity and improve fish stocks. The destruction of marine biodiversity and rocky reef ecosystems, as well as their associated species and services, could have catastrophic consequences soon. Concerns about the project's long-term impact on biodiversity and local communities extend beyond the construction phase, emphasizing the need for a more comprehensive assessment.

It is recommended that the Government, in keeping with the guidelines of the UN Decade of Ecosystem Restoration, and the obligations under the Convention on Biodiversity (CBD), should commission the Kerala State Biodiversity Board (KSBB) to address the imminent threat to biodiversity from the Vizhinjam port project before further phased development of the port is initiated. Additionally, immediate measures for ensuring fair compensation for traditional fishing communities, who are gradually losing their customary livelihoods, is crucial.

8. "Economic and Ecological Value of Coastal Ecosystem Services"

The Vizhinjam region is characterized by significant coastal ecosystems that provide a wide range of valuable ecosystem services, including aesthetics, recreation, tourism, educational opportunities, coastal protection, and more. These services have a profound impact on human well-being, the environment, and the local economy. The loss of these valuable ecosystem services due to the construction of the Vizhinjam port is a very contentious issue and challenging to assess. Our preliminary and indicative assessment is that the loss of ecosystem services amount to about Rs 2027 crores per annum.

It is recommended that the Government request the appropriate Departments of the University of Kerala to undertake a comprehensive evaluation of the true economic, ecological, and cultural value of these services by an inter-disciplinary team with the full and informed participation of the fishing communities. Furthermore, there is need to highlight the importance of considering the long-term and multifaceted impacts of development projects on coastal ecosystems and local communities.

9. "Impact of Vizhinjam Port on Local Fishing Communities"

The ongoing Vizhinjam port construction project presents a complex array of challenges for the community. Local fishermen have suffered substantial income losses due to disruptions in their traditional fishing practices. The absence of a comprehensive cost-benefit analysis prior to project initiation resulted in the loss of over eight square kilometers of vital coastal fishing zones, adversely affecting their traditional livelihoods. Compensation for livelihood loss has been insufficient, particularly for those whose fishing zones cover the entire coastal waters. Construction activities have disrupted traditional fishing routines, reducing available fishing areas, damaging equipment, and causing financial setbacks. Women in the community have been compelled to seek alternative employment as domestic helpers due to decreased fishing income and a lack of fishery-related jobs, departing from their traditional roles.

Safety concerns have arisen at the Vizhinjam fishing harbor due to increased turbulence and congestion, resulting in accidents and hindered boat movements. The community believes that the loss of their fishing zones and living spaces is irreparable, impacting both the current and future generations. The project's impact extends to their cultural heritage and the environment, underscoring the importance of balancing development and environmental preservation in decision-making processes.

It is recommended that the Government constitute an inter-departmental committee to oversee the speedy and correct implementation of all resettlement and compensation matters promised by both the Government and the AVPPL to the affected fishing communities. Efforts should be made to ensure the following:

- ❖ *Equitable Compensation: Ensure that compensation for income losses and other adverse impacts is distributed fairly among all affected parties, particularly the traditional fishing community.*
- ❖ *Rehabilitation and Support: Provide proper accommodation and facilities for those who lost their houses and assets, allowing them to continue pursuing fishery-related livelihood activities.*
- ❖ *Community Spaces: Compensate of lost cultural, social, and religious spaces, with the same priority, manner, and spirit as AVPPL was given land for commercial use.*
- ❖ *Habitat Regeneration: Priority efforts to regenerate lost habitats, especially beaches, should be a priority*
- ❖ *Sustainable Development: Emphasize informed decision-making that balances economic development with the preservation of the environment and the cultural and socioeconomic heritage of vulnerable coastal communities.*
- ❖ *Safety Measures: Implement safety measures to address concerns related to the reduced depth and increased turbulence at the fishing harbor mouth, ensuring the safety of traditional fishermen.*
- ❖ *Modernize fishing harbour: Provide good landing facilities, hygiene and waste management, facilities for marketing and processing with active co-management giving women fishworkers proper representation in governance.*
- ❖ *Community Involvement: Engage the local community, particularly the women, in the decision-making process and consider their perspectives when planning and implementing the future phases of the project to minimize adverse impacts.*

10. "Coastal Erosion and Damage to Coastal Homes"

A collaborative study with local volunteers and experts assessed damage to houses in the affected coastal areas since the start of the Vizhinjam port construction. Erosion patterns revealed a troubling expansion of damage north of Vizhinjam, with intensifying erosion in already affected coastal sectors. Approximately 289 houses suffered partial or full damage since the project began. Overtopping waves along seawall coasts caused significant damage during construction. The research identified a seasonal pattern, with more losses during the southwest monsoon season than during cyclonic events like Ockhi. The study highlights that human-made structures, including the port, harbor breakwaters, seawalls, and groins, significantly contribute to coastal erosion, especially north of Vizhinjam. It underscores the need for balanced decision-making to protect vulnerable coastal communities, their homes, culture, and socioeconomic fabric through robust environmental and social safeguards.

It is recommended that there be an immediate, comprehensive, and transparent environmental impact assessment (EIA) rectifying the shortcomings of the earlier EIA by accounting for the characteristic physical, social, and occupational features of this coast to assess damage caused by the Vizhinjam port construction to the homes north of Vizhinjam. Mitigation measures, fair compensation, and rehabilitation for affected residents, particularly fishermen and those who lost their homes, are crucial. The capital

cost to rehabilitate land and houses will cost Rs 92 crores. Community involvement, safety regulations, and environmental safeguards must be enhanced. Seasonal impact mitigation, alternative livelihood development, cultural preservation, and long-term planning should be prioritized. Transparency, education, and investment in coastal erosion management are essential for a balanced and sustainable approach that benefits all stakeholders.

11. "Priority Rejuvenation of Lost Beaches"

Lost beaches in the port impact zone on the northern side have resulted in immediate loss of homes and landed property. It has also resulted in fishers having to cease many of their traditional fishing techniques like shore seines and created additional transportation costs to fish from other safer villages. The solution of seawalls should be avoided and creative measures to regenerate and renourish beaches giving special measures like those developed by NIOT (as in Pondicherry) be prioritized.

***It is recommended that** immediate measures be undertaken in Panathura, Poonthura, Beemapalli, Cheriathura, Valiyathura, Kochuthope and Shangumukham as a priority. VISL and AVPPL should take the responsibility for developing the beaches under an emergency programme with help of institutions with proven credible experience in designing and executing such projects. Sand which is available from maintenance dredging and dredging the Vizhinjam fishing harbour should be used for this compensatory nourishment in the northern villages. Continuous consultation and monitoring of the progress should be done with full, informed community participation.*

12. "Compensation and Remedial Measures for Fishing Communities"

Remedial measures for addressing the impact of erosion and loss of life and livelihood due to the construction of the port are a matter of priority and a human right of the fishers. The onus of funding falls squarely on the AVPPL. Housing for those affected by erosion till 2022 would cost approximately Rs 92 crores. Houses affected by the piling works require Rs 25 crores. Loss of life in the port vicinity because of unanticipated sedimentation and turbulence should be compensated at Rs 50 lakhs per person. Compensation for loss of employment of fishers has only been partially settled. A renewed audit of all other deserving persons should be conducted and adequate compensation should be provided without delay. Compensation for additional travel costs resulting from beach erosion consequences must also be factored in and appropriate mechanisms should be devised for disbursement of the expenses to fishers. Where the imminent threat of loss or reduction of fishing opportunities are likely with the port coming into operation, the investment levels and the earning potentials of the fishers and the implication of loss of livelihood needs to be properly assessed by independent agencies and mechanisms for compensation worked out. The ISPS certification needs to be

discussed with the fishing communities in an open and transparent manner to prevent to prevent it being used as an alibi for restricting the rights of the fishers to live and livelihood

It is recommended that: *The Government should engage an independent agency to re-assess the current and possible future disruptions which can be caused for fishing communities in the operational and expansion phases of the port. Pressure should be applied on AVPPL to take appropriate measures, in consultation with the communities, to raise the funds and ensure timely and effective implementation of all current and future remedial measures.*

13. Shifting from Seawalls to Strategically Managed Coastal Retreat"

We propose a strategic shift from seawall construction to a strategically managed coastal retreat for Kerala's coast. This is a less expensive and more sustainable alternative. The alternative approach is to establish a 200-meter setback line from the High Tide Line (HTL) as a 'total no-development zone,' for collective usufruct rights by registered fishers and enjoyment by citizens. Coastal Zone Management Plans (CZMP) guidelines are recommended to plan for long-term housing needs and basic infrastructure for fisher communities. The suggested solution involves gradual relocation from vulnerable coastal areas to safeguard ecosystems, resources, and livelihoods. 'Designed Villages' are proposed for planned resettlement, costing approximately Rs 30 crores for 100 households, which costs less than 1 kilometre of seawall construction which is Rs. 50 crores. To relocate 3340 vulnerable fisher families near the HTL, it would cost about Rs 835 crores, and for an additional 10,000 houses within 200 meters of the HTL, an estimated Rs 1300 crores. Recycling existing seawalls' granite for new community housing can reduce costs. The choice between seawalls and managed retreat should consider factors like coastal erosion, sea-level rise, community preferences, and available resources. Nature-based solutions are also recommended.

It is recommended that *government should choose social infrastructure (housing) over protective infrastructure (seawalls) and constitute a "Coastal Community Housing Fund" for Rs 2000 crore with participation of government, public and private sector housing finance agencies. The government should use special powers for acquisition of land for this purpose paying market prices. Designed villages should have all community amenities, socio-cultural facilities, waste management and be planned with community participation, with structured involvement of all relevant departments, and logistic and financial support of the Government.*

14. "Preserving Sandy Beaches and Their Tourism Potential"

It is very significant to note that sandy beaches are a source of substantial tourism potential which makes a major contribution to the State Domestic Product. Stone-walling the beaches results in huge loss of future revenues. By preserving sandy beaches, we are creating a balanced and sustainable approach to coastal tourism development; preserving the natural

beauty, cultural heritage, and the overall quality of life for coastal residents and ensuring the usufruct rights to the beaches and seas to all citizens. Our estimate is that beach tourism in Kerala results in as much as Rs. 300 crores of potential revenue generation per annum. Moreover, if we continue to build seawalls, we cannot ensure the access to safe, sandy beaches for religious events like the Vavu Beli. Then there will be a potential revenue loss of at least Rs 200 crores per annum.

***It is recommended that** efforts need to be made to recover the sandy beaches by placing a moratorium of the construction of seawalls and leaving the beach to the natural processes of the sea. The Janakeeya Samara Samithi (JSS) should initiate alliances between the fishing communities, stakeholders involved in coastal tourism, and those concerned with cultural and religious significance of beaches, to push for a new policy for “Revival and Sustenance of Sandy Beaches”. This must be parallelly combined by resettling the active coastal fishing communities close to their occupational beaches but away from harm. Also promoting pesca-tourism initiatives that involve community participation and profit sharing can empower the local community and ensure their participation in and benefit from the tourism industry in the region.*

15. "The Conflict Between Port Development and Fishing Community Futures"

Our report essentially points to the inherent conflict which exists regarding the perspectives and values about the beach and the coastal sea between those who wish to press for investments such as the transshipment port on the one hand, and the active fishworkers and fishing communities on the other. It is also necessary to set this conflict against the background of the new discourse on the Blue Economy which has found favour with our governments and industrial interests as the new frontier for economic expansion for materials and services to create more ‘economic growth.’ The Blue Economy's view of beaches and coastal waters encompasses four lenses: natural endowment, livelihood, business, and innovation. These lenses consider conservation, cultural heritage, economic impact, and technological advances. To succeed, it is vital to address power imbalances among stakeholders for a sustainable, inclusive, and gender-equitable Blue Economy.

***It is recommended that** the concept of **Social License to Operate (SLO)** offers a framework for resolving the conflict between the Vizhinjam port and fishing communities. The Janakeeya Samara Samiti, with the support of the local self-governing institutions and relevant community organisations, during the Public Hearing ordered by the MoEFCC's Expert Appraisal Committee (EAC) for the next phase of the port expansion, should demand that an SLO be constituted. The SLO focuses on building trust by aligning economic development with the cultural and livelihood importance of beaches and seas. The SLO emphasizes transparent communication, meaningful engagement, contributions to the well-being of communities, respect for local cultures, and fairness. It promotes a balanced and equitable approach, aiming to achieve social acceptance while minimizing conflicts*

and negative impacts. Though, the introduction of SLO in the Vizhinjam conflict may be belated, it is a measure which must be insisted upon by the Government if it is serious about an honest balance between live and livelihood of the fishing communities and the sustainable development of the port.

Our Beaches, Our Sea

"Our Beaches, Our Sea," a tale to unfold,
A heritage of fishing, a story of old,
Communities intertwined with the tide,
In the embrace of the sea, they've thrived.

Usufruct of citizens, a shared embrace,
A treasure of waves, an open space,
From fishermen's lore to families' play,
These shores unite us in a special way.

Generations past, their livelihoods cast,
Nets and tales woven, memories amassed,
With every sunrise and each ebbing wave,
A legacy cherished, a heritage brave.

From sandy shores to horizon's gleam,
A bond with the sea, a timeless dream,
Together we stand, hand in hand,
Preserving the beauty of our coastal land.

"Our Beaches, Our Sea," a heritage true,
For fishing communities and citizens too,
In unity we thrive, in nature's grand dance,
Honoring the past, with a future's chance.

A Passionate Supporter

