

**SOCIO-ECONOMIC CONDITION OF
PEOPLE DISPLACED DUE TO
COASTAL EROSION IN
THIRUVANANTHAPURAM
DISTRICT**

MSW DISASTER MANAGEMENT

2024 - 2026

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ABSTRACT

Coastal erosion has become a serious environmental and social issue along the coast of Kerala, resulting in the displacement of several fishing communities and affecting their socio-economic well-being. While rehabilitation programmes have provided safer living environments, displacement has also created new challenges related to livelihoods, income, housing, access to services, and social relationships. Against this background, the present study examines the socio-economic impact of coastal erosion-induced displacement among rehabilitated households in Valiyathura, Thiruvananthapuram district.

The study adopted a quantitative research approach with a cross-sectional research design. A total of 71 displaced households were selected through purposive sampling. Primary data were collected using a structured interview schedule, while secondary data were obtained from books, journals, government reports, and other relevant sources. The collected data were analysed using the Statistical Package for the Social Sciences (SPSS) with the help of descriptive statistical techniques such as frequency, percentage, mean, and cross-tabulation. The findings reveal that displacement has significantly affected the livelihood and economic security of the respondents. Most households experienced a decline in income due to the disruption of traditional occupations such as fishing and fish vending. Increased distance from the sea, higher transportation costs, inadequate transport facilities, and limited livelihood opportunities made it difficult for many families to continue their occupation. Women engaged in fish vending were particularly affected after relocation. Although the rehabilitation programme provided safer housing and improved access to basic amenities such as electricity, drinking water, healthcare, and education, many respondents expressed dissatisfaction with apartment-style housing, stating that it was unsuitable for their traditional lifestyle and lacked adequate space for storing fishing equipment. The study also identified financial insecurity, indebtedness, weakened social networks, psychological stress, and the absence of livelihood assistance or compensation as major challenges faced by the displaced households. The study concludes that rehabilitation should extend beyond the provision of housing and adopt a comprehensive approach that includes livelihood restoration, employment opportunities, improved transportation, quality infrastructure, psychosocial support, and active community participation. Such measures are essential

for ensuring the long-term socio-economic well-being and resilience of communities displaced due to coastal erosion.

Keywords: *Coastal erosion, displacement, socio-economic impact, rehabilitation, fishing communities*

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CHAPTER I: INTRODUCTION

1.1 Introduction

Climate change has now become one of the most serious issues in the world. It is affecting every country and impacting national economies. Due to climate change, sea levels are rising, weather is becoming unpredictable, and temperatures are increasing, which cause severe environmental imbalances. These changes mainly affect the poorest and most vulnerable populations (Department of Environment and Climate Change,n.d). Climate change leads to rising sea levels and stronger storms, which increase the risk of coastal flooding and erosion in coastal areas. The increase in sea level submerges low-lying land and erodes beaches. If the intensity of erosion increases, it affects coastal communities by damaging homes, roads, and infrastructure, making them more vulnerable to flooding and other damages (United States Environmental Protection Agency, 2016).Coasts are experiencing the adverse consequences of hazards related to climate change and sea level rises. Coasts are highly vulnerable to extreme events , such as storms, and tropical cyclones. Global rise in sea of level contributed to increase in coastal erosion and ecosystem losses (Nicholls et al., 2010). Coastal erosion has become a major issue affecting vulnerable communities living along shorelines. Rising sea levels, stronger wave action, and continuous erosion are forcing thousands of families worldwide to leave their homes. Displacement has become one of the serious issues of global concern due to climate change and other events such as disasters, both natural like cyclones, tsunamis, floods, landslides, and coastal erosion, and human-made, like accidents, war, and nuclear events, which have caused huge displacement among people. In the report of UNHCR, around 123.3 million people were forcibly displaced at the end of 2024. The rate of displacement has doubled in the past decades. Displacement can happen in forced or non-forced ways. In the past decades, the number of displacements has been increasing, mainly due to environmental factors. Displacement mainly affects vulnerable communities due to the loss of land, housing, and livelihood, which leads them to a severe socio-economic crisis, including the loss of livelihoods, limited access to healthcare and education, inadequate housing, and a decline in overall community well-being.

1.1.1 Coastal Erosion in the Indian Context

Some stretches of India's shoreline are subject to varying degrees of erosion due to natural causes or anthropogenic activities. The coastal erosion does impact coastal communities residing in the erosion prone areas including fishermen communities. "Government of India has monitored the shoreline changes for entire Indian coastline using multi-spectral satellite images along with field-surveyed data for the period 1990-2018. It is observed that 33.6% of the Indian coastline was vulnerable to erosion, 26.9% was under accretion (growing) and 39.6% was in stable state" (Press Information Bureau, 2023).

The state-wise analysis shows that coastal erosion exceeds 50 percent in two states, West Bengal and Puducherry, followed by Kerala and Tamil Nadu. Odisha is the only coastal state with accretion more than 50% followed by Andhra Pradesh. The west coast of India, except Kerala, is generally in stable condition (NDMA, 2021).

1.1.2 Coastal Erosion in Kerala

When it comes to Kerala the coastal erosion has been a major problem across the coastal area. It became a major concern to the people. In Kerala the coastal area where spread to 9 districts. Among them, the Thiruvananthapuram district is the most prone to erosion in Kerala. The Department of Irrigation has identified coastal erosion-prone zones, they being: Poovar-Vizhinjam, Kovalam-Valiathura, Perunnathuruthu to Neendakara, Kayamkulam, Ambalappuzha, Thumboli, Chellanam, Cochin Harbour, Azikkode, Kozhipram, Chavakkad, Ponnani, Kadalundi, Elathur, Tikkodi, Murad, Puthiyappa Angadi, Neelaswaram, and Manjeswaram, spread along the nine coastal districts of Kerala (KSDMA, 2014).

According to the KSDMA report among the 9 districts Thiruvananthapuram is the most prone to coastal erosion so that studying the socio economic impact which people had due to moving their home to new area because of the coastal erosion is important. And also this study mainly focuses on the socio-economic conditions of people who are displaced due to coastal erosion.

According to the report of KSDMA, Thiruvananthapuram district is most prone to coastal erosion, due to the huge amount of infrastructure near the coast/ beach where washed out. These continuous erosions lead coastal communities to move to safer

places, so this create a displacement that can be forced or non-forced displacement among the community. This displacement to new places affect the coastal communities' livelihood because they mainly depend on the resources from the sea. Also, it can affect their social support and availability to the four basic services.

According to government rehabilitation initiatives in the state of Kerala, displaced fisherman families living within 50 meters of the high-tide line are being relocated to safer inland housing under the Punargeham resettlement scheme. The project aims to protect coastal communities from sea erosion, rising tides, and repeated disaster risks. Mainly, these people displaced from the coastal area near the Thiruvananthapuram district were relocated to various places like Prethiksha flat, Prethyaksha flat, Ettuveedu, and Golden residential. Also for some people, govermnet provide cash for resettlement people who didn't want hosing support, where provided by compensation of around 10 lakhs Indian rupees.

1.1.3 Demographic Profile of the Study Area

Valiyathura is a coastal village in Thiruvananthapuram district, Kerala, next to the Arabian Sea. It is part of the Thiruvananthapuram Municipal Corporation and is close to the Thiruvananthapuram International Airport, about 15 km north of the Vizhinjam International Seaport. Historically, Valiyathura was one of the main ports of the former Travancore Kingdom. It played a key role in maritime trade during the colonial era. The historic Valiyathura Pier, built in 1825 and renovated in 1956, is an important landmark that reflects the area's maritime history (Kerala Maritime Board, n.d.; Department of Town and Country Planning, Government of Kerala, 2019).

The area is mainly home to traditional fishing communities whose livelihoods depend on fishing and related activities. This community has strong social and cultural ties, with fishing being the primary job for many families. Although residents have access to basic services, Valiyathura is very vulnerable to coastal erosion, storm surges, and rising sea levels. These issues have led to the displacement of several fishing families. These factors make Valiyathura a suitable place to study the socio-economic effects of displacement caused by coastal erosion (Kerala Coastal Zone Management Authority, 2019; Kerala State Disaster Management Authority, 2016).

1.2 Significance of the Study

Coastal erosion is not only an environmental problem but also a severe socio-economic concern, as it forces people to relocate and face challenges in multiple aspects of life, including livelihood, housing, education, and healthcare. This forced or voluntary displacement impacts vulnerable populations most deeply, making it an important issue to study and address. Recent studies show that nearly 23% of Thiruvananthapuram's coastal area has been severely affected by coastal erosion, a situation that continues to worsen over time and poses serious threats to the livelihood and social fabric of coastal communities (KSDMA,2014).

Studies by the National Disaster Management Authority highlighted that coastal erosion causes loss of land, property, and infrastructure such as houses and roads, increases the vulnerability of coastal populations, and creates a need for long-term rehabilitation measures. Similarly, studies from the Kerala State Disaster Management Authority state that the coast of Kerala is highly vulnerable to erosion, which leads to displacement and creates challenges related to housing, employment, livelihoods, and access to basic services. Furthermore, such displacement makes poor and vulnerable populations even more vulnerable to socio-economic risks (NDMA,2021).

This situation highlights the need for a detailed study on the socio-economic impacts of displacement mainly caused by coastal erosion in coastal communities. Therefore, this study is significant because it aims to examine the socio-economic conditions of people displaced due to coastal erosion and to identify the challenges they face after displacement. The findings of this study will support policymakers and disaster management authorities in developing effective rehabilitation measures and livelihood support programs for affected communities.

1.3 Statement of the Problem

Coastal erosion has become one of the most serious environmental and socio-economic challenges affecting the coastal communities of Kerala. The districts along the Arabian Sea, particularly areas such as Beemapally, Valiyathura, Poonthura, and Chirayinkeezhu in Thiruvananthapuram, experience severe sea erosion and tidal wave attacks, especially during the monsoon season, resulting in the continuous loss of land,

houses, public infrastructure, and livelihoods (Mathew, 2016). According to the Kerala State Disaster Management Authority (KSDMA, 2014), nearly 45% of the coastline in Thiruvananthapuram district is affected by coastal erosion, making it the most erosion-prone district in the state.

Despite the construction of seawalls and other coastal protection measures, coastal erosion continues to threaten the safety and well-being of residents. Recurrent erosion has compelled many families to relocate from their ancestral coastal settlements to safer inland locations. Under the Government of Kerala's Punargeham rehabilitation scheme, (Government of Kerala, 2019), fishing families residing within 50 metres of the High Tide Line (HTL) have been resettled in housing projects such as Prethiksha Flats, Ettuveedu, and Golden Residential. In addition, some affected families who opted not to receive housing assistance were provided financial compensation of approximately ₹10 lakh for resettlement.

Although these rehabilitation initiatives have reduced immediate disaster risk, displacement has created several socio-economic challenges for affected households. Relocation has disrupted traditional fishing-based livelihoods, reduced household income, increased travel costs to fishing locations, weakened social networks, and altered access to healthcare, education, and other essential services. Many displaced families also face difficulties adapting to new housing environments and maintaining their traditional way of life, affecting their overall quality of life and community well-being.

While considerable attention has been given to coastal protection and rehabilitation programmes, limited research has examined the long-term socio-economic consequences of displacement among rehabilitated coastal communities. Understanding these impacts is essential for evaluating the effectiveness of rehabilitation policies and identifying the challenges that continue to affect displaced households.

Therefore, this study seeks to examine the socio-economic impact of displacement due to coastal erosion among rehabilitated households in Thiruvananthapuram district. It focuses on changes in livelihood, income, housing conditions, access to basic services, and the overall well-being of displaced families, with the aim of contributing evidence

for more sustainable and people-centred coastal rehabilitation and disaster management policies.

1.4 Chapter Scheme

Chapter One: Introduction

In this chapter discuss the overview of the research topic, background of coastal erosion and displacement. It explains the research problem. Significance of the study and objectives of the research.

Chapter Two: Review of Literature

This chapter discusses the previous studies and research related to coastal erosion, displacement, and the socioeconomic condition of affected communities. Through the literature review, a research gap and a theoretical foundation of the existing study.

Chapter Three: Research Methodology

This chapter describes the research design, study area, sampling method, data collection tool, and data analysis technique used in the study.

Chapter Four: Data Analysis and Interpretation

This chapter present the data collected from the field and analyzes the socioeconomic conditions of displaced people. This chapter includes tables and charts and an explanation of findings related to the income, employment, housing, livelihood and living conditions of displaced households.

Chapter Five: Findings and Conclusion

This fifth chapter summarizes the major findings of the study, provides a conclusion based on the research objectives and suggestions for improving the living conditions and support systems for displaced communities affected by the coastal erosion.

CHAPTER II:

REVIEW OF LITERATURE

2.1 Introduction

The second chapter of the study presents a review of the literature related to the socio-economic impact of people displaced due to coastal erosion. The chapter reviews previous national and international studies to understand the existing knowledge on the research problem, identify key findings, and highlight the research gap. The reviewed literature focuses on various aspects of coastal erosion, displacement, livelihood, rehabilitation and resettlement, and the socio-economic challenges faced by displaced communities. For the purpose of systematic presentation, the chapter has been organised into three major themes: (1) Socio-economic Impact, (2) Coastal Erosion, and (3) Displacement. The studies reviewed under these themes provide a theoretical and empirical foundation for the present research and help in understanding the multidimensional impacts of coastal erosion-induced displacement. The final part of the chapter identifies the research gap that forms the basis for the present study.

2.2 Review of Literature

2.2.1 Socio-economic Impact

This article named “Integrated strategies to minimize the socio-economic impacts on climate change refugees” by Rizwana Yusuf (2010) examines the complex socio-economic challenges faced by climate change refugees and advocates for integrated strategies to mitigate these impacts. It highlights that climate-induced phenomena such as flooding, deforestation, erosion, and rising sea levels are primary drivers of displacement, especially in vulnerable regions like Bangladesh. The author point out the importance of the affected communities' adaptability, resource utilization, and resilience in rebuilding their lives post-displacement.

The paper underscores that migration is a critical response to environmental stressors, serving as both a survival mechanism and a consequence of inadequate political and economic stability. Recognizing the multifaceted

nature of climate migration, Yusuf advocates for a comprehensive legal and institutional framework to address these challenges, ensuring that displaced populations receive adequate support without infringing on their rights. Also the article discusses the necessity of preventive measures, including installing efficient irrigation, creating wildlife corridors, and amending urban planning laws, as well as the importance of legal protections for climate refugees based on international human rights standards. It also addresses the environmental repercussions of migration and the need for international cooperation to tackle the root causes of climate-induced displacement.

The study titled “Socio-economic consequences of post-disaster reconstruction in hazard-exposed areas, examines the long-term socio-economic consequences of reconstruction policies implemented after the 2004 Indian Ocean tsunami in Banda Aceh, Indonesia. the disaster destroyed and washed out half of the city and killed around 1,60,000 people. after the disaster the humanitarian sector supported the rebuilding in place, means rebuild or construct houses in the same location where they lived. This approach was based on the belief that people prefer to return home and that relocation causes social disruption. Even though the policy assumed people would want to return to their pre-tsunami locations, the study found many survivors preferred safer inland areas, mainly due to fear of another tsunami, trauma, and safety concerns. However, because aid houses were built mostly in hazard-prone coastal areas and survivors were not given real relocation choices, many beneficiaries ended up living in places they did not prefer. this relocation made the people more vulnerable and increased their socio-economic impact more, for this study the authors conducted the household survey around 576 households in tsunami-affected coastal villages. also 180 survivors who moved inland voluntarily. through this study the authors found out that, Many tsunami survivors did not prefer to return to high-risk coastal areas. only few percentage were prefer going back to their homes, large number of people voluntarily moved to inland because of the fear and trauma. Survivors with higher education and stable government jobs were more likely to move inland. Poorer households lacked the financial capacity to leave hazard-exposed areas (McCaughey et al., 2018).

The effect of coastal changes to local community's socioeconomic by Muhammad Imzan Hassan and Nurul Hanira Rahmat focused on how coastal changes affect the socio-economic condition of local communities in Batu Pahat, Johor, Malaysia. Malaysia has a Long coastline, which is about 4800km, with many people depending on coastal resources for their livelihood. This study was conducted in mainly four phases: identifying coastline changes by using topographic maps, assessing socio-economic impacts by interviewing around 50 locals in the area, use the Vulnerability index based on geomorphology, tidal range, and erosion rate to determine the risk zone, and finally using mapping to show the high-risk areas. According to Hassan and Rahmat (2020), shifts in the coastline not only alter natural landscapes but also disrupt the socio-economic structures of local communities. The study highlights that environmental degradation due to coastline changes affects livelihoods, settlements, and traditional economic activities that depend on coastal resources. Communities that have long depended on fishing and small-scale farming are particularly vulnerable. As shoreline erosion and sediment deposition modify the shape and accessibility of beaches, fishing activities are hindered especially when shallow beaches make it difficult for fishermen to land their boats. Similarly, the loss of fertile coastal lands due to seawater intrusion reduces agricultural productivity, pushing people to seek alternative sources of income such as wage labour or migration. coastline changes have a multidimensional impact affecting environmental stability, economic sustainability, and social well-being simultaneously.

The study named "Development & standardization of a scale to measure socio-economic status in urban & rural communities in India" by Tiwari et al. (2005) This literature review highlights the development of a comprehensive and culturally adaptable socio-economic status (SES) scale in India. The scale is designed to measure SES accurately across urban and rural communities by considering various indicators such as housing, material possessions, education, occupation, land, and social participation. It emphasizes the importance of reliable and valid measurement tools in social science research, especially for assessing large, diverse populations. The scale has been tested and validated through expert opinions, field trials, and

statistical methods, ensuring its applicability across different regions and social backgrounds. Overall, this research provides a useful framework for assessing socio-economic conditions, which can be particularly valuable for studying populations displaced by environmental factors like coastal erosion.

2.2.2 Coastal Erosion

According to Nicholls and Cazenave (2010), rising sea levels result primarily from thermal expansion of ocean water and the melting of glaciers and ice sheets. These processes contribute significantly to the long-term submergence of low-lying coastal areas. The study highlights that the physical impacts of sea-level rise include the submergence of coastal lands, increased flooding, and saltwater intrusion into freshwater systems and agricultural lands. Such changes disrupt natural habitats and accelerate coastal erosion, leading to the permanent loss of land and ecosystem functions. Beyond environmental changes, these physical effects have far-reaching socio-economic implications. Communities dependent on coastal resources face declining livelihoods due to reduced agricultural productivity, loss of fisheries, and the degradation of freshwater resources. Additionally, infrastructure such as housing, roads, and ports becomes highly vulnerable to frequent flooding and storm surges, leading to high economic losses and displacement of populations. Nicholls and Cazenave (2010) emphasize that the indirect effects including, migration, loss of cultural heritage, and social instability are often more damaging than the direct physical impacts. These cascading consequences threaten sustainable development and exacerbate inequalities, especially in developing regions where adaptive capacity is limited.

Coastal erosion and sea-level rise have become major threats to densely populated coastal regions, particularly in South Asia, where climate change intensifies their impact. According to Barua, Rahman, Mitra, and Zaman (2021), climate change-induced phenomena such as cyclones, storm surges, and sea-level rise have caused extensive land loss and the displacement of millions of coastal inhabitants. The

study emphasizes that these environmental changes not only destroy homes and infrastructure but also lead to severe socio-economic and cultural hardships for affected communities. Displaced populations often experience the loss of social networks, traditional occupations, and cultural identity, leading to long-term instability and poverty. The authors note that the effects of displacement are not equally distributed vulnerable groups such as women, children, the elderly, and persons with disabilities face the greatest challenges in adapting to new environments and rebuilding their livelihoods. Barua et al. (2021) also discuss the inadequacy of current resettlement and adaptation strategies in South Asian countries, calling for more community-based, inclusive, and sustainable approaches to address both the environmental and human dimensions of coastal vulnerability

The study titled “Coastal management and sea-level rise” by John Pethick(200) discusses how global warming induced sea-level rise fundamentally alters the behaviour of coastal geomorphological systems. The study highlights that coastal landforms such as beaches, estuaries, tidal deltas, and marshes respond not only through temporal changes like increasing erosion frequency, but also through spatial migration along shifting coastal energy gradients. The main objective of the paper is to predict the rates at which different coastal landforms will migrate in response to rising sea levels and to evaluate the implications of such changes for coastal management.

2.2.3 Displacement

According to Benny “ Navigating Climate-Induced Migration in Kerala: Challenges, Responses, and Adaptation Strategies” (2023), stated that climate-induced migration in Kerala is closely linked to coastal erosion, floods, and sea-level rise, which drive displacement. The paper aims to analyze the causes and patterns of climate-induced migration in Kerala, assess existing policy responses, identify vulnerabilities of affected populations, and recommend strategies for better disaster preparedness, resilience, and sustainable migration management. The methodology used in the study was The study reviews existing literature,

government data, and case studies on climate impacts and migration trends in Kerala..The study finds that migration often shifts from temporary to permanent, with vulnerable populations most affected. It highlights that current policies are reactive, leaving significant gaps in managing displacement and protecting livelihoods. The study concludes by emphasizing the need for comprehensive and proactive policies that explicitly recognize climate-induced displacement.

According to the World Bank report, This report examines Sub-Saharan Africa, South Asia, and Latin America, projecting that over 143 million people about 2.8% of the population in these regions could be forced to migrate within their countries by 2050 due to slow-onset climate impacts. Migration will primarily come from areas with declining water availability, reduced crop productivity, rising sea levels, and storm surges, disproportionately affecting the poorest and most vulnerable communities. Without strong climate action and development efforts, internal climate migration is expected to increase steadily and accelerate after 2050, posing challenges for infrastructure and social support systems.

The study titled "Climate Change Impacts on Rural Poverty in Low-Elevation Coastal Zones (LECZ)" by Edward B. Barbier (2015), state that how the climate change and related events affect the rural poor community in LECZ (Low-Elevation Coastal Zones - areas that lie less than 10 meters above sea level) of developing countries. these communities heavily rely on the natural resources such as agriculture, fisheries, wetlands, and they face lack of financial or infrastructure to cope with the climate change related hazards. the main objective of the study is to map global LECZ populations and identify developing regions with large rural coastal populations, to examine how climate hazards sea-level rise, storm surges, erosion—impact rural communities and to assess future risks of flooding and inundation under sea-level rise scenarios, assess poverty levels among rural LECZ populations using spatial data on infant mortality and child malnutrition. the key findings of the study is that poverty is significantly concentrated in coastal areas. Using infant mortality and child malnutrition as indicators of poverty, the study

shows that millions of rural people in LECZ face severe deprivation. about 64 million rural people in LECZ lived in areas with high infant mortality, and 62 million in areas with high malnutrition. These two indicators clearly show that basic health, nutrition, and living conditions are extremely poor in many coastal rural regions. Poverty is especially high in low-income economies such as Bangladesh, Myanmar, Cambodia, Mozambique, and Nigeria. The study also finds that climate change will worsen the vulnerability of rural coastal communities. Rising sea levels, stronger storm surges, flooding, saltwater intrusion, and coastal erosion will increasingly threaten the livelihoods of people who depend on agriculture, fishing, and coastal ecosystems. A related finding is that coastal ecosystems that support rural livelihoods are rapidly degrading. Mangroves, wetlands, coral reefs, seagrass beds, and barrier islands are disappearing due to human pressure and climate impacts. the sudden decrease in the ecosystem also affect the community from protecting itself from hazards such as storms etc.

The study titled *Disasters and Displacement: Gaps in Protection*, by Roberta Cohen and Megan Bradley, which explains that natural disasters made worse by climate change are now major drivers of displacement. The authors show that millions of people are forced to move after floods, storms, earthquakes, and droughts, yet they lack clear legal protection. The article argues that current international laws, including the UN Guiding Principles, are not strong enough to protect disaster-displaced people. It highlights big gaps for those affected by slow-onset events like drought, desertification, and sea-level rise. The authors also point out that people who cross borders due to climate change do not qualify as refugees. The article shows that small island populations risk becoming stateless as sea levels continue to rise. The methodology is a qualitative literature review based on laws, UN reports, and case studies. The findings reveal that vulnerable groups such as women, children, and the elderly face discrimination and unequal access to aid. The article also reports frequent human rights violations, such as forced relocations and loss of property. It highlights that no single UN agency has a clear mandate for disaster displacement, leading to weak institutional responses. The authors argue that climate change is creating new challenges that existing systems cannot manage. The

review concludes that stronger laws, clearer responsibilities, and rights-based approaches are urgently needed to protect disaster-displaced people.

The study titled *Development Induced Displacement: A Review of Risks Faced by Communities in Developing Countries* by Caroline Aboda, Frank Mugagga, Patrick Byakagaba, Goretti Nabanoga , which states that large development projects often cause serious hardships for affected communities. The article explains that projects such as dams, highways, mines, and urban expansion frequently push people out of their homes. It highlights that displacement is not accidental but a predictable outcome of development policies. The authors state that the biggest threat is the loss of livelihood for poor and rural families. They emphasize that displaced people lose farmland, forests, fishing areas, and grazing zones. The article also discusses that compensation is usually delayed and insufficient. It notes that cultural and social losses are rarely recognized in compensation plans. The authors show that resettlement sites often lack basic facilities needed for survival. They state that inadequate housing, poor water supply, and lack of schools make life difficult after relocation. The methodology of the article is a literature review based on previous studies, reports, and case-based evidence. It uses secondary data to understand common patterns across developing countries. The findings reveal that displacement breaks family networks and weakens community leadership. They also show that emotional stress and loss of identity are common among relocated groups. Another finding is that environmental damage increases when communities are moved into fragile lands. The article argues that development mainly benefits governments and corporate groups instead of displaced people. It points out that community participation in decision-making is very low. The authors state that weak laws make people more vulnerable to displacement. The review concludes that development should protect people, not harm them. It suggests fair compensation, better planning, and stronger legal frameworks. Finally, the article stresses that development must be people-centred and sustainable to prevent long-term poverty and inequality.

Flood induced displacement is increase rapidly also this displacement affecting low income and geographically vulnerable community. The article titled, "Forced displacement: critical lessons in the protracted aftermath of a flood disaster" by Blessing Mucherera & Samuel Spiegel (2022), examine the 2014 Tokwe-Mukosi flood disaster in Zimbabwe, which displaced nearly 50,000 people. The authors analyze the hegemonic use of state power before, during, and after the disaster, arguing that state institutions, especially the Ministry of Finance and Economic Development, the Ministry of Local Government and Public Works, the police (ZRP), and the army (ZNA) played central roles in deepening vulnerabilities of displaced communities. The study highlights how the compensation failure, Destruction of Social, Cultural, and Economic Ties. The displaced people faced poor living conditions, such as overcrowding, inadequate food, poor sanitation and water scarcity in the Encampment at Chingwizi Transit Camp. The government's focus on capitalist development projects, including dam construction, irrigation schemes, sugarcane plantations, and tourism facilities, overshadowed the humanitarian needs of the displaced population. Overall The article shows that forced displacement is not just caused by disasters or humanitarian problems. It happens mainly because of politics. People are displaced due to government decisions, powerful groups, unfair systems, mistakes by institutions, and poor leadership, not only because of natural events.

The study titled "Development-Induced Displacement and Resettlement" by Jason Stanley discusses development-induced displacement and resettlement as frequent outcomes of modern development activities. The study highlights that large-scale projects such as urban renewal programmes, industrial parks, and infrastructure developments including dams, highways, bridges, and irrigation facilities are major causes of displacement. The author explains that DIDR differs from other forms of displacement such as migration caused by policy changes or employment opportunities, as it involves forced relocation. Furthermore, the article emphasizes that displacement is not limited to physical relocation but also includes the loss of livelihoods, cultural spaces, and social networks. The study provides a global overview of DIDR, examines various development projects responsible for displacement, analyses their socio-economic consequences, and reviews existing policies and ethical concerns related to resettlement. The article also notes the

absence of precise data on the total number of people displaced globally, although the World Bank estimates that nearly 10 million people are displaced annually due to development projects such as dams and urban infrastructure. The study concludes that development-induced displacement is a serious global issue, often resulting in poverty and marginalization due to poor planning, lack of participation, weak policy implementation, and inadequate compensation. It stresses the need for rights-based and inclusive resettlement approaches that prioritise livelihood restoration, social reconstruction, human dignity, and social justice through effective policies, strong legal frameworks, and active community participation.

The study titled “Displacement: A Socio-Economic Rights Perspective” by Ratnakar Mishra (2014) mentioned how development projects, which help society, create serious issues in people’s lives. This creates severe socio-economic disruptions in their lives. The author emphasizes that displacement becomes more harmful when post-displacement rehabilitation and resettlement processes are poorly planned or inadequately implemented. The study is mainly based on the case of the Gopalpur Steel Project of Tata Steel in Odisha, where people were displaced for a proposed industrial project that ultimately did not materialize. The paper examines the pre- and post-displacement conditions of affected families to understand how displacement impacted their socio-economic rights and quality of life. The main objective of the study is to understand how displacement affected the lives of people who were forced to move because of a development project, especially changes in their work, income, daily life, and access to basic facilities, and to examine the support given by the government and the company. For the study, a total of 1,555 Resettlement and Rehabilitation families were surveyed to examine their socio-economic rights status. The findings showed that many people lost their traditional jobs such as farming and animal rearing and had to depend on daily wage work or became unemployed, which reduced their income and created financial problems. Although schools, health facilities, and housing improved after resettlement, many people felt insecure, disconnected from their community, and unsure about their future.

The study titled “Spatial, Social and Environmental Effects of Forced Displacement Due to Dam Construction: The Case of Hasankeyf” by Muzaffer Bimay (2021)

examines the consequences of forced migration caused by the Ilisu Dam and Hydroelectric Power Plant (HEPP) in Turkey. In this study conducted by using a quantitative analysis using 214 relocated families. The findings reveal that the displaced population experienced serious socio-economic losses, environmental degradation, and cultural disruption. Most residents opposed the dam, were not adequately informed or consulted, and suffered income losses due to the decline in tourism and agriculture. The study concludes that development-based public policies such as dam construction can reduce socio-economic resilience and create ecological damage when local participation is ignored.

2.3 Research Gap

- Most existing studies focus on coastal erosion, climate-induced migration, and displacement at a broader national or international level, with limited attention to the specific socio-economic experiences of people displaced due to coastal erosion in Kerala.
- There is a lack of empirical research examining the post-relocation socio-economic conditions of rehabilitated coastal communities in Thiruvananthapuram district, particularly regarding livelihood, income, housing, healthcare, education, and access to basic services.
- Therefore, the present study seeks to fill this gap by analyzing the socio-economic impacts of coastal erosion-induced displacement among rehabilitated households in Thiruvananthapuram.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

The third chapter of this research presents the research methodology adopted for the study. It describes the title of the study, objectives of the study, and the conceptual and operational definitions of the key concepts. The chapter also explains the pilot study conducted to assess the feasibility of the research and the suitability of the research instrument. Further, it outlines the research approach, research design, sources of data, sampling method, sample size, study area, and data collection procedure. In addition, the chapter discusses the methods of data analysis employed to interpret the collected data and the ethical considerations followed throughout the research process to ensure the confidentiality, voluntary participation, and informed consent of the respondents.

3.2 Title of the Study

Socio-economic condition of people displaced due to coastal erosion in Thiruvananthapuram District

3.3 Objectives

General Objective:

- To study the socio-economic impact on people displaced due to coastal erosion.

Specific Objectives:

- To know the socio-demographic profile of the displaced people.
- To study the livelihood and income challenges faced by the displaced community.
- The impact of displacement on accessing, housing, healthcare, education and basic services.

3.4 Definition of the Concept

a. Socio-economic Condition

- **Conceptual Definition:** Encompasses not only income but also educational attainment, occupational prestige, and subjective perceptions of social status and social class. SES encompasses quality-of-life attributes and opportunities afforded to people within society and is a consistent predictor of a vast array of psychological outcomes (AMERICAN PSYCHOLOGICAL ASSOCIATION, 2023).
- **Operational Definition:** In this study, socio-economic condition is assessed through indicators such as livelihood opportunities, income level, employment, access to education, healthcare, housing, and other basic services that affect the well-being of displaced people

b. Displacement

- **Conceptual Definition:** Displacement is the forced movement of people from their homes or habitual residence due to external pressures such as natural disasters, conflicts, or environmental changes, making it unsafe or unsustainable to remain. (UNHCR,2020)
- **Operational Definition:** Displacement refers to the forced or voluntary movement of individuals and families due to coastal erosion. It can be temporary displacement or permanent displacement

3.5 Pilot Study

A pilot study was conducted before the main data collection to assess the feasibility of the study and the suitability of the research instrument. The researcher identified the feasibility of the study through preliminary field visits to the rehabilitation settlements in Valiyathura, particularly Prethiksha Flats, Golden Residential Settlement, and Ettuveedu, where people displaced due to coastal erosion have been resettled. During these visits, the researcher interacted directly with community members to gain a better understanding of their socio-economic conditions and the issues faced after displacement. The researcher also sought permission and cooperation from local community representatives, residents' associations, and other concerned authorities to assess the willingness of the respondents to participate in the study.

3.6 Research Approach

According to Bryman (2012), quantitative research focuses on collecting numerical data and analysing it using statistical methods. It helps researchers identify patterns, relationships, and trends in the data. Therefore, the present study adopts a quantitative research approach to examine the socio-economic impact of coastal erosion-induced displacement among affected households in Thiruvananthapuram district. A structured interview schedule with close-ended questions was used to collect data on respondents' socio-demographic profile, livelihood, income, housing conditions, access to education and healthcare, social relationships, and the challenges faced after displacement. The collected data were coded, tabulated, and analysed using statistical techniques.

3.7 Research Design:

The study employs a cross-sectional research design, in which data were collected from the selected respondents at a single point in time. This design is suitable for assessing the existing socio-economic conditions of households displaced due to coastal erosion without following them over an extended period. The cross-sectional design provides a snapshot of the current living conditions, livelihood status, access to basic services, and social and economic challenges faced by the displaced population. It also allows the researcher to compare different aspects of respondents' lives after displacement and describe the overall impact of coastal erosion on their well-being.

3.7 Source of Data

The study is based on both primary and secondary data. The primary data collected from the displaced households with the help of a structured questionnaire and personal interviews. These method help to gather information on demographic characteristics, livelihood status, changes in income , housing condition, satisfaction, and access to basic services after the displacement. The secondary data are collected from the existing literature, government reports, Disaster Management Authority reports and other

official publications. Through the secondary data can understand the study related to the topic.

3.8 Sampling Method

A purposive sampling technique was used to select the respondents for the study. This method enabled the researcher to intentionally select respondents who met the specific objectives and criteria of the study. Since the research focused on the socio-economic impact of coastal erosion-induced displacement, only households that had experienced displacement due to coastal erosion were included. The respondents were selected from rehabilitation settlements where families displaced due to coastal erosion had been resettled.

Inclusion Criteria :

- Households displaced due to coastal erosion.
- Households currently residing in the selected rehabilitation settlements.
- Respondents aged 18 years and above.
- Respondents who were willing to participate in the study and provide informed consent.

Exclusion Criteria:

- Households not displaced due to coastal erosion.
- Individuals below 18 years of age.
- Respondents unwilling to participate in the study.

3.9 Sample Size

The study consisted of 71 displaced households affected by coastal erosion. One adult respondent representing each household participated in the survey. The selected sample was considered adequate to describe the socio-economic conditions, livelihood

changes, and post-displacement challenges experienced by the affected families in the study area.

3.10 Study Area

The study was conducted in Valiyathura, a coastal region in Thiruvananthapuram district, Kerala, which has experienced severe coastal erosion over the past several years. The primary data were collected from rehabilitation settlements, including Prethiksha Flats, Golden Residential Settlement, and Ettuveedu, where families displaced due to coastal erosion have been permanently resettled under government rehabilitation programmes. Although the respondents currently reside in these rehabilitation settlements, they were originally displaced from several vulnerable coastal localities, including Beemapally, Valiyathura, Thoppu, Poonthura, Shangumugham, and Veli. These communities traditionally depended on fishing and other coastal livelihoods, making them highly vulnerable to the impacts of shoreline erosion. The study area was selected because it represents one of the most severely affected coastal regions in the district and provides an appropriate setting for examining the socio-economic consequences of displacement caused by coastal erosion.

3.11 Data Analysis

The data collected through the structured interview schedule were checked for completeness, coded, and entered into IBM Statistical Package for the Social Sciences (SPSS) for analysis. The data were analysed using descriptive statistical techniques. Frequency tables were used to summarize and present the distribution of respondents according to different variables. Cross-tabulation was employed to examine the relationship between selected variables and to compare responses across different categories of respondents. Pie charts were used to present the findings graphically, making the distribution of responses easier to understand and interpret. The analysed data were presented in the form of tables and charts, and the findings were interpreted in relation to the objectives of the study.

3.12 Ethical Consideration

Ethical considerations are maintained throughout the study. Informed consent is obtained from all respondents, and their personal information is kept confidential. Participation in this study is voluntary, and respondents are informed about the purpose of the research.

3.13 Assumption, Limitation and Scope

Assumption: The researcher assumes that the respondents provided accurate and honest information regarding their experiences of displacement and socio-economic conditions.

Limitation: The study is limited to the selected rehabilitation settlements in Valiyathura, Thiruvananthapuram district; the findings cannot be generalized to all coastal erosion-affected communities. The responses may be biased due to personal perceptions, recall errors, or social desirability.

Scope: The scope of the study is limited to assessing the socio-economic impact of coastal erosion-induced displacement among rehabilitated households in Valiyathura, Thiruvananthapuram district, Kerala. The study focuses on various socio-economic aspects such as livelihood, income, housing, education, healthcare, access to basic services, and the challenges experienced after displacement. It also examines the changes in the living conditions of displaced households following rehabilitati

CHAPTER: IV
DATA ANALYSIS AND
INTERPRETATION

4.1 Introduction

The fourth chapter presents the analysis and interpretation of the data collected from the respondents. It provides a comprehensive analysis of the findings in relation to the objectives of the study. The chapter facilitates an understanding of the socio-demographic profile of the displaced households, livelihood and income changes, housing conditions, access to healthcare, education, and other basic services, as well as the socio-economic challenges experienced after displacement due to coastal erosion. The collected data are presented and interpreted using descriptive statistical techniques such as frequency tables, cross-tabulation, and graphical representations to provide a clear and systematic understanding of the findings.

4.2 Demographic profile of the Respondent

Table 4.2.1 *Demographic details of the Respondent*

Demographic Details		Frequency	Percentage
Gender	Male	32	45.1
	Female	39	54.9
Marital Status	Single	2	2.8
	Married	57	80.3
	Widowed	11	15.5
	Separate/Divorced	1	1.4
Educational qualification	No formal education	21	29.6
	Primary	28	39.4

	Secondary	18	25.4
	Higher Secondary	4	5.6
	Graduate and above	0	0
Occupation before displacement	Fisherman	34	47.9
	Fish vending	24	33.8
	No Job	3	4.2
	Other	10	14.1
Occupation after Displacement	Fisherman	31	43.7
	Fish vending	15	21.1
	No Job	20	28.2
	Other	5	7.0
Household income Before displacement	Below ₹ 5000	50	70.4
	₹5001-10,000	15	21.1
	₹10,001-20,000	6	8.5
	Above ₹20,000	0	0
Household income After displacement	Below ₹ 5000	51	71.8
	₹5001-10,000	16	22.5

	₹10,001-20,000	4	5.6
	Above ₹20,000	0	0
Type of Family	Nuclear	48	67.6
	Joint	23	32.4

The study was conducted among 71 respondents, with females constituting a slightly higher proportion (54.9%) than males (45.1%). Most respondents were married (80.3%), while widowed individuals accounted for 15.5%. Only a small proportion were single (2.8%) or separated/divorced (1.4%).

The educational status of the respondents reveals low levels of formal education. About more than one third (39.4%) had completed only primary education, while 29.6% had no formal education. Together, nearly 69% of the respondents had primary education or below. Secondary education was attained by 25.4% of respondents, and only meager (5.6%) had completed higher secondary education. None of the respondents had a graduate degree, indicating limited educational opportunities within the community.

Fishing was the primary occupation of 47.9% of respondents before displacement, while 33.8% were engaged in fish vending. After displacement, the proportion of fishermen remained almost unchanged, but fish vending declined considerably from 33.8% to 21.1%. Many women reported difficulties in continuing fish vending due to inadequate transportation facilities from the relocation site, reduced access to fish, and environmental issues such as plastic pellet pollution. As a result, the number of unemployed respondents increased after displacement. Similarly, the International Labour Organization (2021) state that women working in the informal sector are disproportionately affected by displacement and reduced access to markets and transportation.

The income profile of the respondents shows a high level of economic vulnerability. Before displacement, less than three fourth (70.4%) of households earned less than ₹5,000 per month. After displacement, this proportion increased slightly to 71.8%, indicating a worsening financial condition. The percentage of households earning between ₹10,001 and ₹20,000 declined from 8.5% to 5.6%, while no household

reported a monthly income above ₹20,000 either before or after displacement. These findings suggest that displacement has negatively affected the economic well-being of the community. Internal Displacement Monitoring Centre (2023), which states that displacement often results in declining household income, loss of livelihood opportunities, and increased financial insecurity. Also, the disaster-induced displacement can lead to prolonged economic instability among affected households unless sustainable livelihood restoration measures are implemented.

Regarding family structure, 67.6% of respondents belonged to nuclear families, while the remaining lived in joint families. Since the rehabilitation housing mainly consists of two-bedroom flats, joint families often face challenges related to limited living space and reduced privacy compared to nuclear families.

4.3 Objective Wise Analysis

Objective 1: To study the livelihood and income challenges faced by the displaced community.

Table 4.3.1.1 *Crosstabulation between gender and livelihood*

Gender	Effect of displacement on livelihood		
	Yes	No	Total
Male	46.9	28.6	100
Female	53.1	71.4	100

Table 4.3.1.1 which represents the cross-tabulation between gender and the effect of displacement on income and livelihood, it is evident that displacement has significantly impacted the economic conditions of both men and women.

Among the respondents who reported that their primary income and livelihood were affected by displacement, less than half (46.9%) were males and more than half (53.1%) were females. This indicates that women experienced a slightly higher level of livelihood disruption compared to men. The International Labour Organization (2021)

notes that women employed in the informal sector are more vulnerable to livelihood losses following displacement due to limited employment alternatives and greater caregiving responsibilities. Overall, the findings highlight that displacement has had a widespread impact on livelihoods across both genders, with variations in experience between men and women.

Table 4.3.1.2 *Crosstabulation between marital status and primary livelihood after displacement*

Marital status	Did displacement affect your primary livelihood	
	Yes	No
Single	3.1	0.0
Married	82.8	57.1
Widowed	12.5	42.9
Divorced/Separated	1.6	0.0
Total	100	100

In the table 4.3.1.2 represents the cross-tabulation between marital status and the effect of displacement on primary livelihood, showing a clear variation in how different marital groups experienced livelihood disruption. Among those who reported that their primary livelihood was affected by displacement, the majority were married individuals (82.8%), followed by widowed respondents (12.5%), while only a small proportion were single (3.1%) and a negligible share were divorced or separated (1.6%). This indicates that married individuals formed the most affected group in terms of livelihood disruption, likely due to greater household responsibilities and dependency burdens.

In contrast, among respondents who reported that their livelihood was not affected , more than half of the population were married (57.1%), followed by widowed individuals (42.9%), while single and divorced/separated categories were not represented in this group. Overall, the findings suggest that marital status plays a role in how displacement impacts livelihood, with married individuals being more

prominently represented among those who experienced livelihood loss, whereas single respondents appear relatively more represented among those reporting no effect.

Table 4.3.1.3 *Cross tabulation of monthly household income after displacement and primary livelihood*

Monthly household income after displacement	Did displacement affect your primary livelihood	
	Yes	No
Below ₹5000	71.9%	71.4%
₹5001–₹10000	21.9%	28.6%
₹10001–₹20000	6.3%	0.0%
Total	100%	100%

In the table 4.3.1.3 the cross-tabulation between monthly household income after displacement and the effect of displacement on primary livelihood indicates a strong association between livelihood disruption and lower income levels. Among respondents who reported that their primary livelihood was affected by displacement, a majority (71.9%) fall under the lowest income group of below ₹5000 per month. This is followed by 21.9% in the ₹5001–₹10000 category, while only a small proportion (6.3%) reported an income between ₹10001–₹20000. This distribution clearly shows that livelihood loss due to displacement is concentrated among the lowest-income group.

Similarly, among those who reported that their livelihood was not affected, 71.4% still fall under the below ₹5000 income group, while 28.6% are in the ₹5001–₹10000 category, and none reported income above ₹10000. This suggests that even among those whose livelihood was not directly affected, many still belong to economically vulnerable households. Overall, the findings indicate that displacement is closely linked with low household income, with the majority of both affected and unaffected groups concentrated in the lowest income bracket, highlighting persistent economic vulnerability in the displaced population. According to the World Bank (2021), disaster-induced displacement often results in prolonged income reduction and increased household poverty due to disruptions in livelihoods, loss of productive assets, and

limited access to employment opportunities. World Bank (2021), which states that disaster-induced displacement often results in prolonged income reduction and increased household poverty due to disruptions in livelihoods, loss of productive assets, and limited access to employment opportunities.

Table 4.3.1.4 *Crosstabulation between occupation and types of family on primary livelihood*

Data		Did displacement affect your primary livelihood	
		Yes	No
Occupation after displacement	Fishermen	46.9%	14.3%
	Fish vending	20.3%	28.6%
	Other	6.3%	14.3%
	No job	26.6%	42.9%
	Total	100%	100%
Types of family	Nuclear	68.8%	57.1%
	Joint	31.3%	42.9%
	Total	100%	100%

The cross-tabulation between occupation after displacement and the effect of displacement on primary livelihood highlights notable changes in employment patterns among the respondents. Among those who reported that their primary livelihood was affected by displacement, the less than half proportion are fishermen (46.9%), indicating that the fishing community has been the most directly impacted. This is followed by 26.6% who reported having no job after displacement, 20.3% engaged in fish vending, and a small proportion (6.3%) engaged in other occupations. This suggests that displacement has led to a significant shift away from traditional fishing activities and, in many cases, resulted in unemployment or informal livelihood adaptation.

In contrast, among respondents who reported that their livelihood was not affected (“No” category), 42.9% are currently without a job, followed by 28.6% engaged in fish vending, and 14.3% each in fishing and other occupations. This indicates that even among those who stated their livelihood was not affected, a considerable proportion are

still unemployed or engaged in low-income informal work. The Internal Displacement Monitoring Centre (2023), which found that many displaced households continue their traditional occupations under less productive and economically insecure conditions after relocation.

Overall, the findings reveal that displacement has had a substantial impact on occupational structure, particularly affecting fishermen, while also contributing to increased unemployment and a shift towards informal and less stable livelihood activities.

The cross-tabulation between type of family and the impact of displacement on primary livelihood shows differences between nuclear and joint family households. Among respondents who said their livelihood was affected by displacement, most belong to nuclear families (68.8%), while 31.3% are from joint families. This suggests that people in nuclear families were more likely to experience livelihood disruption, possibly because they have fewer family members to share economic responsibilities and support each other.

On the other hand, in the group that reported no effect on livelihood, 57.1% are from nuclear families and 42.9% are from joint families. Here, joint families have a relatively higher share compared to the affected group, which may indicate that joint family systems provide better support or stability during displacement situations. The United Nations Development Programme (2022), which notes that households with stronger family support systems generally demonstrate greater resilience and coping capacity during and after disasters.

Overall, the data indicates that nuclear families are more commonly affected by livelihood loss due to displacement, while joint families show slightly better resilience in maintaining livelihood stability.

Table 4.3.1.5 *Crosstabulation between Gender and How Livelihood Affect*

Gender	How was your livelihood affected				
	Loss of Job	Reduced income	Change in occupation	Increased expenses	NA
Male	30.0%	51.3%	0.0%	43.8%	66.7%
Female	70.0%	48.7%	100.0%	56.2%	33.3%
Total	100%	100%	100%	100%	100%

Table 4.3.1.5 represents the crosstab analysis on how displacement has affected livelihood across different genders. The findings indicate a clear gendered difference in the experience of livelihood loss. Around 70% of female respondents reported job loss after displacement. This is largely because many of them depended on fish vending as their primary source of income. After relocation, they were forced to shift to alternative and often less stable forms of work such as fish vending in unfamiliar markets or domestic labour. Some women also reported indirect livelihood loss, explaining that their husbands were no longer able to continue fishing after relocation, which further reduced household income.

Among male respondents, 51.3% reported that reduced income was the main way in which their livelihood was affected due to displacement. However, a notable proportion of male respondents (66.7%) stated that their livelihood was not significantly affected. This suggests that while some men experienced income instability, others were able to maintain or adapt their primary occupation after relocation more effectively than women.

Overall, the data highlights that displacement had a more severe impact on women's employment and income stability compared to men, largely due to their dependence on informal and location-specific livelihoods.

Table 4.3.1.6 *Crosstabulation between gender and being able to go fishing and fish vending after relocation*

Gender	Currently able to go fishing /fish vending			
	Yes	No	Occasionally	NA
Male	33.3%	37.5%	55.3%	45.1
Female	66.7%	62.5%	44.7%	54.9
Total	100%	100%	100%	100%

Table 4.3.1.6 represents the crosstab analysis of the respondents' current ability to continue fishing or fish vending after displacement, categorized by gender. The findings show that among those who are currently able to continue fishing or fish vending, 66.7% are female respondents, while 33.3% are male respondents. This may be because many women have continued engaging in fish vending activities despite the challenges associated with relocation.

Among respondents who reported that they are not currently able to continue fishing or fish vending, 62.5% are women and 37.5% are men. This indicates that women have faced greater difficulties in maintaining their traditional livelihood activities after displacement. Factors such as increased distance from fishing harbours, transportation challenges, limited access to markets, and family responsibilities may have contributed to this situation.

The data further show that 55.3% of the respondents who are able to engage in fishing or fish vending only occasionally are men, compared to 44.7% women. This suggests that some male respondents have adapted by participating in fishing-related activities intermittently rather than on a regular basis.

Among respondents for whom the question was not applicable (NA), 54.9% are female and 45.1% are male. These respondents may be engaged in occupations other than fishing and fish vending or may not have been involved in these activities before displacement.

Overall, the table indicates that displacement has affected the continuity of fishing and fish-vending livelihoods for both genders, with women appearing to face greater barriers in sustaining these livelihood activities on a regular basis after relocation.

Table 4.3.1.7 *Crosstabulation between gender and reason for not going fishing/fish vending*

Gender	If not able to go fishing/fish vending, the reason							NA
	Increased distance from the sea	Lack of transport	Loss of boat fishing equipment	Restriction in the fishing area	Shifted to another occupation	Health-related issues	other	
Male	63.6%	53.3%	100.0%	0.0%	0.0%	50.0%	12.5	33.3
Female								%
Total	36.4%	46.7%	0.0%	0.0%	100.0%	50.0%	87.5	66.7
	100%	100%	100%	0.0%	100.0%	100.0%	100.0	100.0
							%	0%

Table 4.3.1.7 represents the crosstab analysis of the reasons why respondents are unable to continue fishing or fish vending after displacement, categorized by gender. The findings reveal that increased distance from the sea is a major challenge, with 63.6% of those reporting this reason being male respondents and 36.4% being female respondents. This suggests that relocation has created significant barriers for fishermen in accessing their traditional fishing grounds. Lack of transport was reported by both genders, with 53.3% of the respondents being male and 46.7% female. This indicates that transportation difficulties affect the ability of both fishermen and fish vendors to continue their livelihood activities. All respondents (100%) who reported loss of boats or fishing equipment as a reason for not fishing were men. This is expected, as men are predominantly engaged in fishing activities that depend on such assets. Similarly, all respondents (100%) who stated that they had shifted to another occupation were

women. This reflects the tendency of displaced women to seek alternative livelihood options when fish vending becomes difficult or unviable after relocation. The International Labour Organization (2021), highlights that women working in the informal sector are more likely to lose their traditional livelihoods after disasters and are often compelled to shift to unstable or low-paying occupations

Health-related issues were reported equally by both men and women (50% each), suggesting that health concerns can affect livelihood participation regardless of gender. Among those who reported other reasons, a large majority (87.5%) were women, while only 12.5% were men, indicating that women face a wider range of challenges in sustaining their livelihoods after displacement. Among respondents for whom the question was not applicable (NA), 66.7% were women and 33.3% were men, likely because they were not directly involved in fishing or fish-vending activities.

Overall, the findings show that men are more affected by challenges related to access to fishing resources and equipment, whereas women are more likely to experience livelihood disruptions that force them to shift occupations or face other barriers after displacement. This highlights the gender-specific nature of livelihood challenges in the post-displacement context.

Table 4.3.1.8 *Crosstabulation between gender and alternative livelihoods currently depends*

Gender	What alternative livelihood is currently dependent on			
	Daily wage labour	Small business/petty shop	Government employment scheme	No alternative livelihood
Male	85.7%	0.0%	0.0%	40.6%
Female	14.3%	0.0%	0.0%	59.4%
Total	100.0%	0.0%	0.0%	

Table 4.3.1.8 represents the crosstab analysis of the alternative livelihoods currently depended upon by respondents after displacement, categorized by gender. The findings show that among those who have shifted to daily wage labour as an alternative source of income, 85.7% are male respondents, while only 14.3% are female respondents. This

suggests that men are more likely to engage in daily wage work to compensate for the loss or reduction of their traditional livelihood after displacement. The table indicates that none of the respondents reported depending on small businesses, petty shops, or government employment schemes as alternative livelihood options. This may reflect limited access to financial resources, lack of opportunities, or inadequate awareness and utilization of government-supported livelihood programmes among the displaced population. A significant proportion of respondents reported having no alternative livelihood. Among them, 59.4% are female respondents and 40.6% are male respondents. This finding suggests that women face greater challenges in finding substitute sources of income after displacement. Factors such as household responsibilities, limited mobility, lack of employment opportunities, and dependence on fish vending as a traditional occupation may have contributed to this situation.

Overall, the findings indicate that while some male respondents have adapted by engaging in daily wage labour, a large number of displaced respondents mainly, women, remain without any alternative livelihood, highlighting their economic vulnerability and the need for targeted livelihood support and rehabilitation measures.

Table 4.3.1.9 *Government livelihood support*

Livelihood		Frequency	Percentage
Livelihood support or compensation from govt.	Yes	0	0.0%
	No	71	100%
If Yes, support is adequate to meet needs	Yes	0	0.0%
	No	0	0.0%
	Partially	0	0.0%

The table 4.3.1.9 highlights a complete absence of institutional support, as 100% of respondents reported that they did not receive any livelihood assistance or compensation from the government. Overall, the findings clearly indicate that displacement has severely disrupted traditional livelihoods, reduced income stability,

and left the majority of the population without adequate alternative livelihood opportunities or external support.

Objective 2: Impact of displacement on accessing housing, healthcare, education and basic service.

Table 4.3.2.1 *Crosstabulation between gender, family type , income after displacement and current income sufficient to meet basic needs*

Gender, types of family, and income		Current income sufficient to meet basic needs		
		Yes	No	Sometimes
Gender	Male	50.0%	39.6%	64.3%
	Female	50.0%	60.4%	35.7%
	Total	100.0%	100.0%	100.0%
Type of Family	Nuclear family	100.0%	60.4%	85.7%
	Joint family	0.0%	39.6%	14.3%
	Total	100.0%	100.0%	100.0%
Monthly income after displacement	Below ₹5000	75.0%	75.5%	57.1%
	₹5001- ₹10,000	25.0%	22.6%	21.4%
	₹10001- ₹20,000	0.0%	1.9%	21.4%
	Total	100.0%	100.0%	100.0%

The above table represents the cross-tabulation of respondents' perceptions regarding whether their current income is sufficient to meet their basic needs based on gender, type of family, and monthly income after displacement. With regard to gender, an equal

proportion of male (50.0%) and female (50.0%) respondents stated that their current income is sufficient to meet their basic needs. However, among those who reported that their income is not sufficient, more than half (60.4%) were female respondents, indicating that women face greater financial difficulties in meeting daily household requirements. Similarly, among respondents who stated that their income is only sometimes sufficient to meet basic needs, a majority (64.3%) were males, suggesting that income adequacy often depends on the availability of work, earnings, and household expenses. The Food and Agriculture Organization of the United Nations (2022), which reports that women in small-scale fishing communities are disproportionately affected by livelihood disruptions because of their dependence on informal post-harvest activities and limited access to alternative employment.

With respect to family type, all respondents (100.0%) who reported that their income is sufficient to meet their basic needs belonged to nuclear families. Among those who stated that their income is not sufficient, 60.4% belonged to nuclear families and 39.6% belonged to joint families. Likewise, among respondents who reported that their income is sometimes sufficient, the majority (85.7%) belonged to nuclear families. This may be because nuclear families generally rely on fewer earning members and may experience greater financial pressure after displacement. The International Organization for Migration (2021) also highlights that social and family networks are important resources that help displaced households manage economic shocks.

Regarding monthly income after displacement, the majority of respondents across all categories belonged to the income group earning below ₹5,000 per month. Among those who reported that their income is sufficient, 75.0% earned below ₹5,000, while 25.0% earned between ₹5,001 and ₹10,000. Similarly, among respondents who stated that their income is not sufficient, 75.5% earned below ₹5,000. This indicates that low post-displacement income levels are closely associated with difficulties in meeting basic needs. Overall, the findings suggest that income sufficiency is influenced by gender, family structure, and monthly earnings, with lower-income households experiencing greater economic vulnerability after displacement.

Table 4.3.2.2 *Crosstabulation between family type, income, and displacement increased monthly household expenses*

Family type, monthly income		Displacement increases monthly household expenses		
		Yes	No	Not sure
Family type	Nuclear family	64.6%	100.0%	100.0%
	Joint family	35.4%	0.0%	0.0%
	Total	100.0%	100.0%	100.0%
Monthly household income	Below ₹5000	70.8%	100.0%	71.8%
	₹5001-₹10000	23%	0.0%	22.5%
	₹10001-₹20000	6.2%	0.0%	5.6%
	Total	100.0%	100.0%	100.0%

The above table represents the cross-tabulation of respondents' opinions on whether displacement has increased their monthly household expenses based on family type and monthly household income. With regard to family type, a majority of the respondents who stated that displacement increased their monthly household expenses belonged to nuclear families (64.6%), while 35.4% belonged to joint families. All respondents who reported that displacement did not increase their household expenses (100.0%) and those who were not sure (100.0%) belonged to nuclear families. This suggests that nuclear families are more likely to experience the financial burden associated with displacement, possibly due to their dependence on a limited number of earning members and the absence of shared resources available in joint families.

Regarding monthly household income, the majority of respondents who reported an increase in household expenses after displacement belonged to the income group earning below ₹5,000 per month (70.8%). This was followed by 23.0% of respondents earning between ₹5,001 and ₹10,000 and 6.2% earning between ₹10,001 and ₹20,000. Similarly, all respondents who stated that displacement did not increase their expenses belonged to the below ₹5,000 income category. The findings indicate that households with lower income levels are more likely to perceive a rise in household expenses after

displacement. This may be due to additional costs related to housing, transportation, livelihood adjustments, and meeting daily needs, which place a greater financial strain on economically vulnerable households.

Table 4.3.2.3 *Crosstabulation between no of children and the displacement's effect on education*

No of Children	Displacement affects children's education		
	Yes	No	NA
0	0.0%	9.1%	82.8%
1	20.0%	22.7%	13.8%
2	50.0%	36.4%	3.4%
3	15.0%	13.6%	0.0%
4	0.0%	9.1%	0.0%
5	15.0%	9.1%	0.0%
Total	100.0%	100.0%	100.0%

The above table presents the cross-tabulation of respondents' opinions on whether displacement affected children's education based on the number of children in the household. Among the respondents who reported that displacement affected children's education, half of them (50.0%) had two children. This was followed by respondents with one child (20.0%), three children (15.0%), and five children (15.0%). The findings suggest that households with a greater number of children were more likely to experience educational disruptions after displacement due to increased financial responsibilities and challenges in ensuring regular school attendance.

Among the respondents who stated that displacement did not affect children's education, the largest proportion (36.4%) had two children, followed by those with one child (22.7%) and three children (13.6%). Smaller proportions of respondents with no children, four children, and five children (9.1% each) also reported no impact on education. This indicates that some households were able to continue their children's education despite the challenges associated with displacement.

A large proportion of respondents fell under the Not Applicable (NA) category, with 82.8% having no children. This is expected, as respondents without children could not comment on the impact of displacement on education.

Overall, the findings indicate that displacement had a considerable impact on children's education, particularly among households with two or more children. Respondents reported that educational difficulties arose because the resettlement area lacked adequate transportation facilities, including regular bus services and convenient transport routes to schools. As a result, children faced difficulties in travelling to educational institutions, leading to irregular attendance and disruptions in their studies.

Table 4.3.2.4 *Access to basic services*

Basic services		Frequency	Percentage
Public transportation	Yes	22	31.0%
	No	36	50.7%
	Limited	13	18.3%
Difficulty accessing health care	Yes	57	80.3%
	No	14	19.7%
Distance for health care from current residence	Less than 2 km	55	77.5%
	2km-5km	16	22.5%
Access to drinking water	Yes	65	91.5%
	No	6	8.5%
Access to electricity	Yes	71	100%
	No	0	0.0%
Access to Sanitation	Yes	71	100%

The table 4.3.2.4 represents about different basic amenities of displaced people regarding public transportation, . Accessibility to public transportation emerged as another significant concern. More than half of the respondents (50.7%) reported a lack of public transportation facilities, while only 31.0% indicated adequate availability. Limited transportation services can restrict access to employment, healthcare, education, and social networks. Families particularly reported that school-going children now face difficulties commuting to school due to the lack of reliable public

transport, resulting in longer travel times, increased transportation costs, and dependence on private vehicles or walking.

Although 77.5% of respondents reported that healthcare facilities were located within two kilometres of their current residence, a large majority (80.3%) still experienced difficulties in accessing healthcare services. This apparent contradiction indicates that physical proximity alone does not guarantee effective healthcare access. Therefore, the difficulties reported by respondents may be linked to transportation constraints, financial limitations, or inadequate healthcare resources.

The findings show that access to drinking water is relatively satisfactory, with 91.5% of respondents reporting that they have access to drinking water, while 8.5% reported inadequate access. However, qualitative responses collected during the field survey revealed that the water supply is not always reliable. Several respondents stated that there are frequent interruptions in the water supply, forcing residents to depend on a common public tap. As the rehabilitation flats accommodate approximately 108 families, reliance on a single common tap often results in long waiting times and difficulty in collecting sufficient water for daily household needs. During periods of water shortage, some families reported temporarily visiting the homes of relatives to meet basic needs such as drinking, cooking, bathing, and other domestic activities. These findings indicate that while drinking water infrastructure has been provided, the reliability and adequacy of the supply remain important concerns. The findings show that access to drinking water is relatively satisfactory, with 91.5% of respondents reporting that they have access to drinking water, while 8.5% reported inadequate access. However, qualitative responses collected during the field survey revealed that the water supply is not always reliable. Several respondents stated that there are frequent interruptions in the water supply, forcing residents to depend on a common public tap. As the rehabilitation flats accommodate approximately 108 families, reliance on a single common tap often results in long waiting times and difficulty in collecting sufficient water for daily household needs. During periods of water shortage, some families reported temporarily visiting the homes of relatives to meet basic needs such as drinking, cooking, bathing, and other domestic activities. Furthermore, all respondents reported access to electricity and sanitation facilities. However, the respondents mentioned during the field survey revealed that the functionality and maintenance of these facilities remain a concern. Several respondents reported

recurring drainage and sewage problems, with drainage lines frequently becoming blocked and sewage waste not being cleaned or removed promptly. These issues often lead to foul odours, water stagnation, and unhygienic environmental conditions, affecting the health, comfort, and quality of life of residents. Respondents emphasized that although sanitation facilities are available, inadequate maintenance reduces their effectiveness and creates additional hardships for households. These results suggest that the rehabilitation programme has been successful in providing essential physical infrastructure and basic amenities.

Table 4.3.2.5 *Socio economic condition*

Socio-economic conditions		Frequency	Percentage
Displacement affects social relationships	Yes	27	38.0
	No	17	23.9
	To some extent	27	38.0
Current living is social supportive	Yes	24	33.8
	No	16	22.5
	Partially	31	43.7
Access to public service currently	Improved	2	2.8
	Same	27	38.0
	Worsened	42	59.2
Financial insecurity	Yes	68	95.8
	No	3	4.2
Taken loan or debt	Yes	45	63.4
	No	36	36.6
Major problem currently facing	Loss of livelihood	10	14.1
	Housing insecurities	3	4.2
	Debt	23	32.4
	Lack of basic service	10	14.1

	Psychological stress	25	35.2
Quality of life declined after displacement	Yes	45	63.4
	No	5	7.0
	Slightly	21	29.6

Table 4.3.2.5 indicates that displacement has had a considerable impact on the social and economic well-being of the respondents. Regarding social relationships, 38.0% of the respondents reported that displacement had affected their social relationships, while another 38.0% stated that it had affected them to some extent. Only 23.9% reported no impact. This suggests that nearly three-fourths of the respondents experienced some degree of disruption in their social networks following relocation. During the field survey, several respondents explained that before displacement they lived close to their relatives, neighbours, and fishing community, allowing frequent social interaction and mutual support. After relocation to the rehabilitation flats, many families reported reduced interaction with their former community members and a weakened sense of belonging.

The respondents also expressed mixed opinions regarding social support in their present place of residence. While 33.8% felt that their current living environment was socially supportive, 43.7% reported receiving only partial social support and 22.5% felt that they lacked adequate social support. During field interactions, respondents mentioned that although they have gradually built relationships with neighbours in the rehabilitation flats, the level of trust, cooperation, and emotional support is not comparable to that of their original coastal settlements, where community members shared similar occupations, traditions, and daily activities. The study further reveals that access to public services has deteriorated after displacement. A majority of respondents (59.2%) stated that access to public services had worsened, while 38.0% reported no change and only 2.8% experienced improvement. Respondents explained during the survey that services such as transportation, healthcare, and access to government offices have become more difficult after relocation. In particular, the discontinuation of the bus service to the rehabilitation settlement has affected mobility, making it difficult for residents to access schools, hospitals, workplaces, and markets.

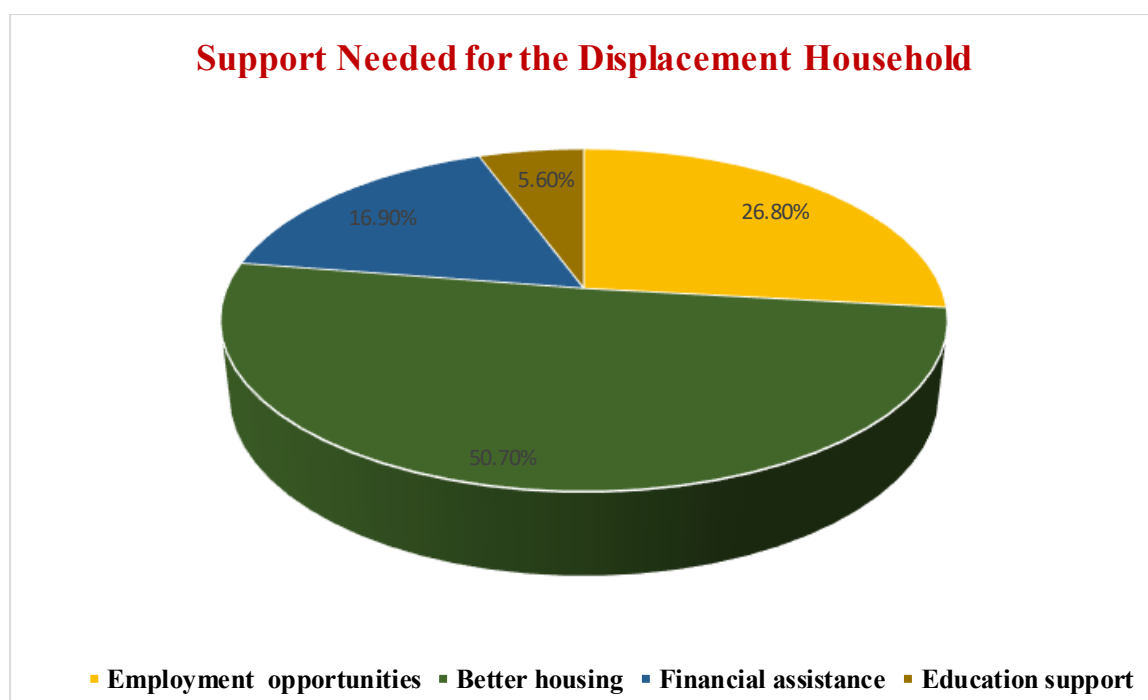
Financial insecurity emerged as one of the most serious consequences of displacement. An overwhelming 95.8% of respondents reported experiencing financial insecurity, while only 4.2% indicated otherwise. The high prevalence of financial insecurity reflects the continuing livelihood challenges faced by displaced households.

The study also found that more than half of the respondent (63.4%) had taken loans or incurred debt after displacement, while 36.6% had not. During the field survey, many respondents explained that they borrowed money to meet daily household expenses, children's education, Marriage, healthcare costs, and repayment of previous loans after losing their regular source of income. They mainly depend on private moneylenders because it's easier to get loans than from the formal banking system. In majority of the time they were not able to repay the amount due to lack of earnings.

When respondents were asked about the major problems they currently face, 35.2% identified psychological stress as the most significant issue, followed by debt (32.4%), loss of livelihood (14.1%), lack of basic services (14.1%), and housing insecurity (4.2%). During interviews, respondents described feelings of uncertainty, anxiety about their financial future, and emotional distress arising from displacement, loss of traditional livelihoods, and changing living conditions.

the findings indicate that displacement has negatively affected the overall quality of life of the respondents. Nearly two-thirds (63.4%) reported that their quality of life had declined after displacement, while 29.6% felt that it had declined slightly and only 7.0% reported no decline. During the field survey, respondents explained that although they now have permanent housing, they continue to experience livelihood insecurity, increased living expenses, transportation difficulties, unreliable water supply, sanitation issues, debt, and psychological stress, all of which have reduced their overall quality of life.

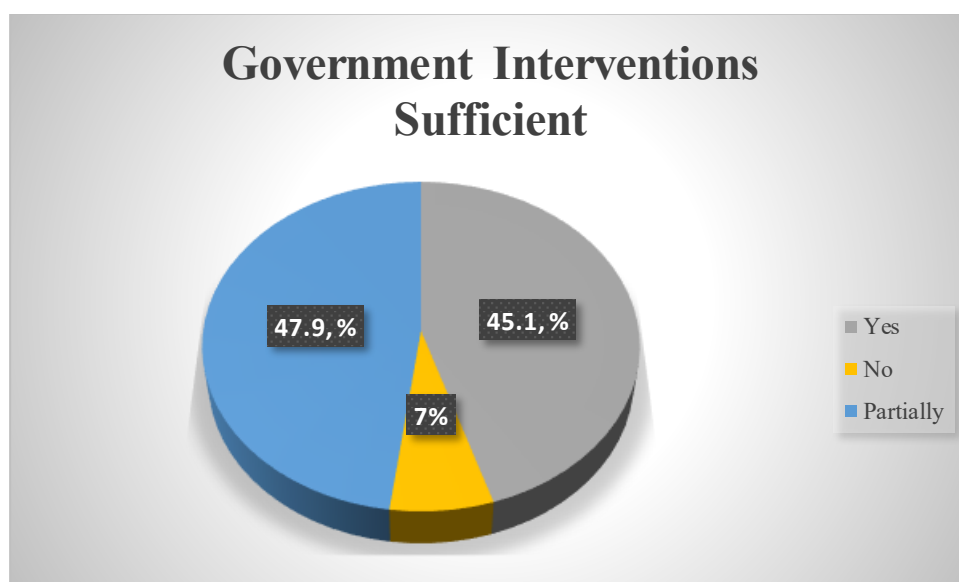
Figure 4.3.2.1 *Support Needed for the Displacement Household*



The figure 4.1 illustrates the support needed by households displaced due to coastal erosion. The findings reveal that better housing (50.7%) is the most important requirement identified by the respondents, indicating that adequate housing remains their primary concern after displacement. During the survey, many respondents expressed a preference for independent single houses rather than apartment flats, stating that they were accustomed to living in individual coastal houses before displacement. They reported that flats restrict their traditional way of life, provide limited space for storing fishing equipment, and reduce opportunities for social interaction within the community. Employment opportunities (26.8%) were identified as the second most important need, highlighting the necessity of restoring livelihoods and ensuring stable income sources. Financial assistance (16.9%) was also considered important to cope with income loss and increased living expenses following displacement. Education support (5.6%) was the least reported need, suggesting that while educational assistance is beneficial, respondents consider housing and livelihood restoration to be more urgent. Overall, the findings indicate that rehabilitation programmes should prioritize culturally appropriate housing, preferably independent houses, along with livelihood support and

financial assistance to improve the long-term well-being of displaced households. According to the Sphere Association (2018) states that humanitarian shelter programmes should ensure adequate living space, privacy, safety, and support for people's customary lifestyles and livelihood practices

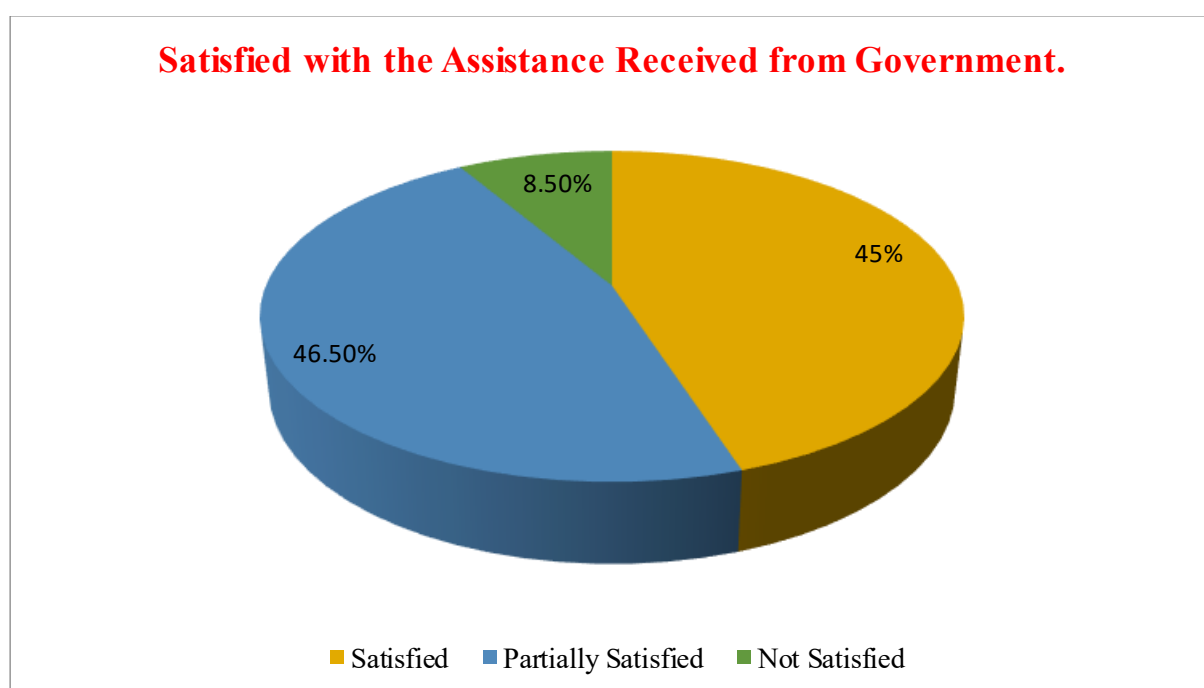
Figure 4.3.2.2 *Government Interventions Sufficient*



The findings show that 47.9% of the respondents believed that government interventions were partially sufficient, indicating that while some support was received, it did not fully address their rehabilitation and livelihood needs. A further 45.1% of the respondents stated that government interventions were sufficient, suggesting that they were generally satisfied with the assistance provided, particularly in terms of housing and basic rehabilitation measures. However, 7% of the respondents felt that government interventions were not sufficient, reflecting dissatisfaction with the support received. During the survey, several respondents who considered the interventions only partially sufficient explained that although the government provided housing, the rehabilitation process did not adequately restore their livelihoods or accommodate their traditional way of life. Many also expressed a preference for independent houses instead of apartment flats, stating that they were accustomed to living in single houses near the

coast, where they had sufficient space for fishing-related activities, storing equipment, and maintaining close community relationships.

Figure 4.3.2.3 *Satisfied with the Assistance Received from Government*



The above figure shows the respondents' level of satisfaction with the assistance received from the government after displacement due to coastal erosion. The findings reveal that 46.5% of the respondents were partially satisfied with the assistance provided, making it the largest group. This indicates that while government support addressed some of their immediate needs, it was not sufficient to fully meet their expectations or long-term rehabilitation requirements. Additionally, 45% of the respondents reported being satisfied, suggesting that nearly half of the displaced households appreciated the assistance they received. However, 8.5% of the respondents were not satisfied, reflecting that a small proportion felt the support was inadequate or failed to address their specific needs.

CHAPTER V

FINDINGS, SUGGESTIONS, AND CONCLUSION

5.1 Introduction

This chapter presents the major findings, suggestions, and conclusion of the study on the socio-economic impact of people displaced due to coastal erosion in Thiruvananthapuram district. The findings are derived from the analysis and interpretation of primary data collected from 71 displaced households residing in rehabilitation settlements such as Prethiksha Flats, Golden Residential Settlement, and Ettuveedu. The data were analysed using appropriate statistical techniques to understand the socio-economic conditions of the displaced population.

The chapter summarizes the major findings in relation to the objectives of the study, including the socio-demographic characteristics of the respondents, the livelihood and income challenges experienced after displacement, and the impact of displacement on housing, healthcare, education, access to basic services, social relationships, and overall quality of life. It also highlights the major problems faced by the displaced community, such as financial insecurity, unemployment, indebtedness, psychological stress, and limited livelihood opportunities after relocation.

Based on these findings, practical suggestions are proposed to improve rehabilitation policies and programmes for communities displaced due to coastal erosion. The recommendations focus on strengthening livelihood restoration, improving housing and public services, enhancing access to transportation, healthcare, education, and promoting community participation in rehabilitation planning. The chapter concludes by summarizing the overall outcomes of the study and emphasizing that successful rehabilitation should extend beyond physical relocation to include sustainable livelihood support, social well-being, and long-term resilience. The findings of this study are expected to contribute to the development of more inclusive, people-centred, and sustainable rehabilitation strategies for coastal communities affected by erosion and displacement.

5.2 Findings And Discussion

The present study was conducted among 71 households displaced due to coastal erosion and currently residing in rehabilitation settlements in Valiyathura, Thiruvananthapuram district. The study aimed to assess the socio-economic impact of displacement on the affected population. The findings indicate that coastal erosion-induced displacement has significantly influenced the livelihood, economic stability, housing conditions, access to basic services, and overall well-being of the displaced households.

The socio-demographic profile of the respondents revealed that females constituted a slightly higher proportion of the sample than males. Most respondents were married, reflecting that the majority of households had family responsibilities. The educational level of the respondents was generally low, with a considerable proportion having no formal education or only primary-level education. This limited educational background has reduced their opportunities to secure alternative employment after displacement and has increased their dependence on traditional occupations and informal employment.

The study found that fishing and fish vending were the major sources of livelihood before displacement. However, displacement disrupted these traditional occupations, resulting in a decline in employment opportunities and household income. Many respondents reported that relocation increased the distance between their residences and the sea, making it difficult to continue fishing activities. Inadequate transportation facilities, increased travel costs, loss of fishing equipment, and changing occupational patterns further affected their ability to sustain their livelihoods. Women engaged in fish vending were particularly affected, as many were unable to continue their work after relocation due to limited access to fish landing centres and local markets.

The economic condition of the displaced households remains a major concern. The findings indicate that most respondents belong to low-income families and continue to experience financial insecurity after displacement. Household income has declined because of reduced employment opportunities, while living expenses have increased due to transportation costs, healthcare expenses, and educational needs. Many households have accumulated debt to meet their daily expenses, and unstable income has made loan repayment difficult. The study also revealed that none of the respondents had received livelihood assistance or compensation to restore their income sources after displacement, highlighting a significant gap in rehabilitation measures.

With regard to housing, the respondents acknowledged that government rehabilitation programmes have provided safer living conditions by relocating families away from erosion-prone coastal areas. However, many respondents expressed dissatisfaction with apartment-style housing. They preferred independent houses similar to their previous residences, as these better suited their traditional lifestyle and provided sufficient space for family activities, fishing equipment, and social interaction. Although basic facilities such as electricity, drinking water, and sanitation were available, respondents reported problems related to irregular water supply, inadequate drainage systems, sewage issues, and poor maintenance of common facilities.

The findings further show that displacement has affected access to essential services. Public transportation was identified as one of the major challenges faced by the respondents. Limited transport facilities have increased the difficulty of travelling to workplaces, educational institutions, healthcare centres, and markets. Although healthcare facilities are available within a reasonable distance, financial constraints and transportation problems often prevent timely access to medical services. Similarly, children's education has been affected due to increased travel distance, higher transportation expenses, and additional educational costs, placing a greater financial burden on families.

The study also highlights the social consequences of displacement. Many respondents reported that relocation weakened their social relationships and community networks. Moving away from their native coastal settlements resulted in reduced interaction with relatives, neighbours, and traditional support systems. Although respondents have gradually adjusted to the rehabilitation settlements, many felt that the sense of community and mutual support available in their original villages had declined. This reduction in social cohesion has affected their emotional well-being and ability to cope with post-displacement challenges.

Psychological and emotional stress emerged as another important finding of the study. Financial insecurity, unemployment, debt, uncertainty regarding future livelihoods, and changes in living conditions have created anxiety and stress among many respondents. These challenges have affected their overall quality of life and reduced their sense of security and well-being. A majority of the respondents perceived

that their living conditions had deteriorated after displacement despite improvements in physical safety from coastal hazards.

The study also examined respondents' perceptions regarding rehabilitation support. While the provision of permanent housing was appreciated, most respondents believed that rehabilitation programmes focused mainly on relocation rather than long-term socio-economic recovery. They expressed the need for employment opportunities, livelihood restoration programmes, financial assistance, improved transportation, and better maintenance of rehabilitation settlements. Respondents also emphasized the importance of involving displaced communities in planning and implementing rehabilitation programmes to ensure that their needs and traditional way of life are adequately addressed.

Overall, the findings demonstrate that coastal erosion-induced displacement has affected multiple dimensions of the lives of displaced households. Although rehabilitation has reduced their exposure to coastal hazards, significant challenges remain in restoring livelihoods, improving income security, strengthening access to essential services, and rebuilding social and economic resilience. The study concludes that successful rehabilitation should extend beyond the provision of housing and include comprehensive measures that promote sustainable livelihoods, social inclusion, economic stability, and long-term well-being for displaced coastal communities.

5.3 Suggestion

Based on the findings of the study, the following suggestions are proposed to improve the socio-economic conditions and overall well-being of people displaced due to coastal erosion in Thiruvananthapuram district.

The government should adopt a comprehensive rehabilitation approach that focuses not only on providing safe housing but also on restoring the livelihoods of displaced families. Since the majority of the respondents depended on fishing and fish vending before displacement, rehabilitation programmes should include livelihood restoration measures such as financial assistance, skill development, vocational training, and support for alternative income-generating activities. Fishing communities should also be provided with improved transportation facilities and assistance for fishing equipment to help them continue their traditional occupations.

A major concern expressed by the respondents was the design of rehabilitation housing. Many residents stated that future rehabilitation projects should prioritise the construction of independent single houses rather than apartment flats. They explained that independent houses are more suitable for the lifestyle of fishing communities, providing adequate space for storing fishing equipment and accommodating larger families. Respondents also pointed out that several households consist of more than five family members, making apartment flats overcrowded and uncomfortable. They suggested that, where land availability is limited, houses could be constructed with additional floors instead of relocating families to apartment complexes. This would preserve privacy, provide more living space, and better support their traditional way of life.

The study also found that transportation is one of the major challenges faced by displaced households. Therefore, public transportation services connecting rehabilitation settlements with fishing harbours, markets, schools, hospitals, and workplaces should be strengthened. Better transport facilities would reduce travel time and costs while improving access to employment and essential services.

Special attention should be given to women, who experienced greater livelihood disruption after displacement. Government agencies and local self-governments should promote women-centred livelihood programmes, self-help groups, entrepreneurship development initiatives, and microfinance schemes to enhance their economic

independence. Facilities that support fish vending, including transportation and market access, should also be improved.

Respondents from Prethiksha Flats specifically suggested that the implementation of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in their area would provide a reliable source of income, especially for unemployed women and economically vulnerable households. Expanding employment opportunities through MGNREGA or similar public employment programmes would help improve household income and reduce financial insecurity among displaced families.

Another important issue highlighted during the study was that many respondents had been informed that livelihood training programmes would be provided after rehabilitation. However, they reported that these promised training programmes were never conducted. Therefore, the government should ensure that all commitments made during the rehabilitation process are fulfilled. Regular skill development programmes, vocational training, entrepreneurship training, and capacity-building initiatives should be organised to help displaced persons develop alternative livelihood opportunities and improve their long-term economic resilience.

The maintenance of rehabilitation settlements should receive greater attention. Regular maintenance of water supply systems, drainage networks, sanitation facilities, waste management services, and common infrastructure should be ensured to improve the living environment. Local authorities should establish effective grievance redressal mechanisms to address infrastructure-related issues promptly.

Healthcare services should be strengthened through regular medical camps, preventive healthcare programmes, and mental health counselling services within rehabilitation settlements. Since many respondents reported stress, anxiety, and financial insecurity after displacement, psychosocial support should form an integral part of rehabilitation programmes.

Educational support should be enhanced through scholarships, transportation assistance, and financial aid for children from displaced households. These measures would reduce educational disruptions and encourage continued school attendance.

5.4 Conclusion

In addition to livelihood challenges, the study identified problems related to transportation, access to healthcare and education, financial insecurity, debt, and psychological stress. The weakening of social networks and community relationships after relocation has also affected the overall well-being of the displaced population. These findings indicate that displacement is not merely a physical relocation but a complex social, economic, and psychological process that requires comprehensive and long-term support.

The study concludes that effective rehabilitation should extend beyond the provision of safe housing. A successful rehabilitation programme must integrate livelihood restoration, employment opportunities, skill development, quality infrastructure, accessible public services, psychosocial support, and active community participation. Policies should be designed in consultation with the affected communities to ensure that rehabilitation measures address their cultural practices, occupational needs, and aspirations.

Overall, this study emphasizes that coastal erosion-induced displacement is a multidimensional development and disaster management issue that requires coordinated action from government departments, local self-governments, civil society organizations, and the affected communities. A people-centred and sustainable rehabilitation approach will not only improve the socio-economic conditions of displaced households but also strengthen their resilience to future coastal hazards. It is hoped that the findings and recommendations of this study will contribute to the formulation of more inclusive and effective rehabilitation policies for coastal communities affected by erosion and displacement in Kerala

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ANNEXURE

Tool for Data Collection

Socio-economic impact on people displaced due to coastal erosion.

Demographic details:

1. Name:
2. Age:
3. Gender:
☐ Male ☐ Female ☐ Other
4. Marital status:
☐ Single ☐ Married ☐ Widowed ☐ Divorced/Separated
5. Educational qualification:
☐ No formal education ☐ Primary ☐ Secondary ☐ Higher Secondary ☐ Graduate & above
6. Occupation before displacement:
7. Current occupation (after displacement):
8. Monthly household income before displacement:
☐ Below ₹5,000 ☐ ₹5,001–10,000 ☐ ₹10,001–20,000 ☐ Above ₹20,000
9. Monthly household income after displacement:
☐ Below ₹5,000 ☐ ₹5,001–10,000 ☐ ₹10,001–20,000 ☐ Above ₹20,000
10. Type of family:
☐ Nuclear ☐ Joint
11. Number of family members:
12. No. Of children
13. No. Of elderly
14. No. Of bedridden

Displacement:

15. How many years have you been displaced from your original residence due to coastal erosion?
- ☐ less than 8 year ☐ More than 8 year
16. Where did you live before getting this housing?
- ☐ Original coastal house
- ☐ Temporary shelter
- ☐ Relative's house
- ☐ Rented house
- ☐ Other (specify): _____
17. What was the condition of your house before displacement? ☐ Fully damaged
- ☐ Partially damaged ☐ Unsafe to live
18. What was the condition of your house before displacement?
- ☐ Yes ☐ No
19. During which season did displacement mostly occur?
- ☐ Monsoon ☐ Post-monsoon ☐ Summer ☐ All seasons
20. What type of housing do you currently live in?
- ☐ Government resettlement housing ☐ Rented house ☐ Relative's house ☐ Temporary shelter
21. Are you satisfied with your current housing condition?
- ☐ Yes ☐ No ☐ Partially
22. Did you or your community engage in any struggles or actions (such as protests, petitions, or collective activities) to secure safer housing before displacement?
- ☐ Yes ☐ No
23. Did you ask the government for support for displacement?
- ☐ Yes ☐ No
24. Was it a forced displacement?
- ☐ Yes ☐ No

Livelihood and income challenges:

25. Did displacement affect your primary livelihood?
☐ Yes ☐ No
26. If yes, how was your livelihood affected?
☐ Loss of job ☐ Reduced income ☐ Change in occupation ☐ Increased expenses
27. Are you currently able to go for fishing/ fish vending after relocation?
☐ Yes ☐ No ☐ Occasionally ☐ NA
28. If you are not able to go for fishing/ fishvending regularly, what is the main reason?
☐ Increased distance from the sea
☐ Lack of transport
☐ Loss of boat or fishing equipment
☐ Restrictions at the fishing area
☐ Shifted to another occupation
☐ Health-related issues
☐ Other (specify): _____
☐ NA
29. What alternative livelihood are you currently depending on, if any?
☐ Daily wage labour
☐ Small business / petty trade
☐ Government employment schemes (MGNREGA, etc.)
☐ No alternative livelihood
30. Have you received any livelihood support or compensation from the government?
☐ Yes ☐ No
31. If yes, was the support adequate to meet your needs?
☐ Yes ☐ No ☐ Partially

Access to basic services:

32. Is your current household income sufficient to meet basic needs (food, clothing, shelter)?

☐ Yes ☐ No ☐ Sometimes

33. Has displacement increased your monthly household expenses?

☐ Yes ☐ No ☐ Not sure

34. Has displacement affected your children's education?

☐ Yes ☐ No ☐ Not applicable

35. Are public transportation facilities easily accessible from your current residence?

☐ Yes ☐ No ☐ Limited

36. Do you face difficulty in accessing healthcare facilities after displacement?

☐ Yes ☐ No

37. How far is the nearest healthcare facility from your current residence?

☐ Less than 2 km ☐ 2–5 km ☐ More than 5 km

38. Does your current house have access to basic amenities?

Drinking water ☐ Yes ☐ No

Electricity ☐ Yes ☐ No

Sanitation ☐ Yes ☐ No

39. Has displacement affected your social relationships and community support?

☐ Yes ☐ No ☐ To some extent

40. Do you feel that your current living environment is socially supportive?

☐ Yes ☐ No ☐ Partially

41. Has access to public services (ration shop, health centre, school) improved after relocation?

☐ Improved ☐ Same ☐ Worsened

42. Do you feel financially more insecure after displacement compared to before?
☐ Yes ☐ No
43. Have you taken any loans or debts after displacement?
☐ Yes ☐ No
44. What are the major problems you currently face due to displacement?
☐ Loss of livelihood ☐ Housing insecurity ☐ Debt ☐ Lack of basic services ☐
Psychological stress
45. Do you feel your overall quality of life has declined after displacement?
☐ Yes ☐ No ☐ Slightly

Suggestions

46. What kind of support do you think is most needed for displaced families?
☐ Employment opportunities ☐ Better housing ☐ Financial assistance ☐
Education support ☐ Healthcare
47. Do you feel government interventions are sufficient to address coastal erosion-related displacement?
☐ Yes ☐ No ☐ Partially
48. How satisfied are you with the assistance received from the government?
☐ Satisfied ☐ Partially satisfied ☐ Not satisfied ☐ Not received any assistance