SOCIO-ECONOMIC ANALYSIS OF GULF MIGRATION ON MARINE FISHERFOLK IN MALAPPURAM DISTRICT, KERALA

Thesis Submitted to the
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DOCTOR OF PHILOSOPHY IN ECONOMICS

By

NUSAIBA.K.P
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Under the supervision of

Dr. SHIBINU. S
Associate Professor and Head
Department of Economics
PSMO College &
Research Guide, Department of Economics
EMEA College of Arts and Science
Kondotty

Research and Postgraduate Department of Economics
EMEA College of Arts and Science
Kondotty
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CERTIFICATE

This is to certify that the thesis titled **"SOCIO-ECONOMIC ANALYSIS OF GULF MIGRATION ON MARINE FISHERFOLK IN MALAPPURAM DISTRICT, KERALA"** is a bonafide record of research work done for the award of Doctor of Philosophy in Economics by **NUSAIBA.K.P**, (U.O.No.5451/ 2020/Admn, University Order Dated :15.06.2020), Research scholar (Full-Time), Research and Postgraduate Department of Economics, EMEA College of Arts and Science, Kondotty. It is the original work of the candidate carried out under my guidance and supervision and the result of the research presented in this thesis, in full or in part, has not been submitted to any other Institute or University for the award of any degree or diploma or other similar titles. Plagiarism is checked and found within the permitted limits.

Place: Kondotty
Date:

Dr. Shibinu. S
Supervising Teacher
Associate Professor and Head
Department of Economics
PSMO College, Tirurangadi &
Research Guide, Department of Economics
EMEA College of Arts & Science, Kondotty.

Dr. Ibrahim Cholakkal
Co-Guide
Professor
Department of Economics
EMEA College of Arts & Science, Kondotty.

DECLARATION

I, **NUSAIBA. K. P,** affirm that the thesis titled **"SOCIO-ECONOMIC ANALYSIS OF GULF MIGRATION ON MARINE FISHERFOLK IN MALAPPURAM DISTRICT, KERALA"** submitted to the University of Calicut for the award of the degree of Doctor of Philosophy in Economics is a bonafide record of research done by me under the guidance of Dr. Shibinu.S, Associate Professor, Department of Economics, PSMO College, Tirurangadi and Co- Guide, Dr. Ibrahim Cholakkal, Professor, Research and Postgraduate Department of Economics, EMEA College of Arts & Science, Kondotty. I declare that I had not submitted this thesis earlier for the award of any degree, diploma, fellowship or similar title or recognition of any University/Institution. The contents of the thesis have undergone a plagiarism check using iThenticate software at C.H. M.K Library, University of Calicut and the similarity index is within the permissible limit.

Place: Kondotty **NUSAIBA.K. P**
Date:

Dr. Shibinu S
Associate Professor and Head
Department of Economics
PSMO College, Tirurangadi &
Research Guide, Department of Economics
EMEA College of Arts & Science College Kondotty.

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Nusaiba.K.P

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LIST OF ABBREVIATIONS

ANOVA	:	Analysis of Variance
CMFRI	:	Central Marine Fisheries Research Institute
DFID	:	Department for International Development
EEZ	:	Exclusive Economic Zones
FAO	:	Food and Agriculture Organization
GAAT	:	General Agreement on Tariffs and Trade
GDP	:	Gross Domestic Product
GCC	:	Gulf Cooperation Council
GOI	:	Government of India
INP	:	Indo-Norwegian Project
IOM	:	International Organization for Migration
NOAA	:	National Oceanic and Atmospheric Administration
MSY	:	Maximum Sustainable Yield
MMT	:	Million Metric Tone
SAF	:	Society for Assistance to Fisherwomen
SHG	:	Self-Help Groups
SLF	:	Sustainable Livelihood Framework
SLI	:	Sustainable Livelihood Index
SES	:	Socio-Economic Status
OLS	:	Ordinary Least Square
WLS	:	Weighted Least Square

ABSTRACT

The ocean, with its vast and rich ecosystem, plays a vital role in shaping the economic, social and cultural lives of people globally. Marine resources are particularly crucial for the development of coastal communities, offering livelihoods and ensuring food security. In Kerala, the fisheries sector plays a vital role in supporting livelihoods. It provides diverse, dynamic and resilient opportunities for approximately 10.6 lakh fisherfolk, which make up about 3.2 percent of the state's population. This includes 8.15 lakh individuals engaged in marine fisheries and 2.45 lakh in inland fisheries. These communities are spread across 222 marine fishing villages and 113 inland fishing villages. The marine fisheries sector in Kerala holds immense significance, providing essential livelihoods and contributing to the overall socio-economic development of coastal communities. But they are considered as a marginalised section of the society.

The marine sector in Kerala faces significant challenges, including the impacts of climate change, overfishing and environmental degradation. These challenges have led to unstable incomes and increased vulnerability for the marine fisherfolk. As a response, migration, particularly to gulf countries, has emerged as a survival strategy, with remittances helping improve income, living conditions and overall household well-being. Research on the socio-economic effects of migration, especially for marginalised communities like marine fisherfolk, remains limited. Further, there is limited research on the socio-economic effects of migration for marginalised communities like marine fisherfolk, particularly regarding how migration influences income and expenditure patterns. This study aims to address these gaps by examining the socio-economic characteristics, determinants of migration, patterns of migration and income disparities between migrant and non-migrant households. Malappuram district in Kerala is a prime example of migration, especially to Gulf countries. The district has also witnessed socio-economic changes due to migration. The district reflects its significant contribution to the migration and fishing community. This research examines the socio-economic impact of Gulf

migration on marine fishermen in the Malappuram district of Kerala, using primary data collected from 375 households and secondary data for a comprehensive study.

The findings show that migration has significantly improved the socio-economic status of migrant households, leading to better living conditions, type of housing, education and financial stability through remittances. Non-migrant households, in contrast, continue to face economic instability and limited opportunities for upward mobility. The study also highlights increased income inequality among migrant fisherfolk, influenced by education, occupation and remittance flows. Migration boosts livelihood sustainability by enhancing human, financial and physical capital. Despite improvements in socio-economic conditions, non-migrant households continue to face challenges such as limited occupational diversity and restricted opportunities for upward mobility. These issues are particularly severe during the monsoon season, which threatens both their livelihoods and housing stability. Climate change has emerged as a significant concern, exacerbating these vulnerabilities. To address these challenges, policy recommendations include expanding access to financial services, promoting livelihood diversification, such as aquaculture, improving female labour force participation through targeted programs, implementing climate change adaptation strategies and raising awareness through community education programs. Strengthening community networks and investing in sustainable development initiatives are significant to enhancing the long-term financial security and well-being of both migrant and non-migrant marine fisherfolk households.

ABSTRACT

വിശാലവും സമ്പന്നവുമായ ആവാസവ്യവസ്ഥയുള്ള സമുദ്രം, ലോകമെമ്പാടുമുള്ള ജനങ്ങളുടെ സാമ്പത്തിക, സാമൂഹിക, സാംസ്കാരിക ജീവിതത്തെ രൂപപ്പെടുത്തുന്നതിൽ നിർണായക പങ്ക് വഹിക്കുന്നു. തീരദേശ സമൂഹങ്ങളുടെ വികസനത്തിനും, ഉപജീവനമാർഗ്ഗം നൽകുന്നതിനും, ഭക്ഷ്യസുരക്ഷ ഉറപ്പാക്കുന്നതിനും സമുദ്ര വിഭവങ്ങൾ വളരെ നിർണായകമാണ്. കേരളത്തിലെ ജനങ്ങളുടെ ഉപജീവനമാർഗ്ഗങ്ങളെ പിന്തുണയ്ക്കുന്നതിൽ മത്സ്യബന്ധന മേഖലയുടെ പങ്ക് വളരെ വലുതാണ് . സംസ്ഥാന ജനസംഖ്യയുടെ 3.2 ശതമാനം വരുന്ന ഏകദേശം 10.6 ലക്ഷം മത്സ്യത്തൊഴിലാളികൾക്ക് വൈവിധ്യമാർന്നതും, ചലനാത്മകവും, സ്ഥിരതയുള്ളതുമായ അവസരങ്ങൾ മത്സ്യ ബന്ധന മേഖല പ്രദാനം ചെയ്യുന്നു . ഇതിൽ 8.15 ലക്ഷം പേർ സമുദ്ര മത്സ്യബന്ധനത്തിലും 2.45 ലക്ഷം പേർ ഉൾനാടൻ മത്സ്യബന്ധനത്തിലും ഏർപ്പെട്ടിരിക്കുന്നു. 222 സമുദ്ര മത്സ്യബന്ധന ഗ്രാമങ്ങളിലും 113 ഉൾനാടൻ മത്സ്യബന്ധന ഗ്രാമങ്ങളിലുമായി ഈ സമൂഹങ്ങൾ വ്യാപിച്ചുകിടക്കുന്നു, ഇത് സംസ്ഥാനത്തിന്റെ സുസ്ഥിര ഉപജീവനമാർഗ്ഗത്തിനും സാമൂഹിക-സാമ്പത്തിക വികസനത്തിനും മത്സ്യബന്ധനത്തിന്റെ ഗണ്യമായ സംഭാവന എടുത്തുകാണിക്കുന്നു.

കേരളത്തിലെ സമുദ്ര മത്സ്യബന്ധന മേഖല തീരദേശ സമൂഹങ്ങളുടെ ഉപജീവനമാർഗ്ഗങ്ങൾ നൽകുന്നതിലും അവരുടെ സാമൂഹിക-സാമ്പത്തിക വികസനത്തിന് സംഭാവന നൽകുന്നതിലും നിർണായക പങ്ക് വഹിക്കുന്നു. എന്നിരുന്നാലും, ഈ സമൂഹങ്ങളെ പലപ്പോഴും സമൂഹത്തിലെ ഒരു പാർശ്വവൽക്കരിക്കപ്പെട്ട വിഭാഗമായാണ് കണക്കാക്കുന്നത്. കാലാവസ്ഥാ വ്യതിയാനം, അമിത മത്സ്യബന്ധനം, പരിസ്ഥിതി നശീകരണം എന്നിവയുടെ ആഘാതങ്ങൾ ഉൾപ്പെടെ കേരളത്തിലെ സമുദ്ര മേഖല നിരവധി വെല്ലുവിളികൾ നേരിടുന്നു. ഇത്തരം പ്രശ്നങ്ങൾ മത്സ്യത്തൊഴിലാളികളുടെ വരുമാനത്തിലെ അസ്ഥിരതയ്ക്കും അപകടസാധ്യത വർദ്ധിപ്പിക്കുന്നതിനും കൂടാതെ അവർക്കിടയിലെ സാമൂഹിക-സാമ്പത്തിക ബുദ്ധിമുട്ടുകൾ വർദ്ധിപ്പിക്കുന്നതിനും കാരണമായി. വെല്ലുവിളികളെ മറികടക്കുന്നതിനും ഉയർന്ന ജീവിത നിലവാരം കെട്ടിപ്പടുക്കുന്നതിനുമുള്ള ഉപാധിയായി കുടിയേറ്റം എന്നത് ഒരു അതിജീവന സംവിധാനമായി അവർക്കിടയിൽ ഉയർന്നുവന്നിട്ടുണ്ട്. പ്രത്യേകിച്ച് ഗൾഫ് രാജ്യങ്ങളിലെ കുറഞ്ഞ വൈദഗ്ധ്യമുള്ള ജോലികളിലേക്കുള്ള കുടിയേറ്റം . വരുമാന വർദ്ധനവിനും, ജീവിത സാഹചര്യങ്ങൾ മെച്ചപ്പെടുത്തുന്നതിനും മൊത്തത്തിലുള്ള കുടുംബ ക്ഷേമത്തിൽ മാറ്റം കൊണ്ടുവരുന്നതിലും ഇത്തരം കുടിയേറ്റം ഒരു പ്രധാന പങ്ക് വഹിക്കുന്നു.

കേരളത്തിൽ കുടിയേറ്റത്തിൻറെ സാമൂഹിക-സാമ്പത്തിക ആഘാതങ്ങളെക്കുറിച്ച്, പ്രത്യേകിച്ച് ഗൾഫ് രാജ്യങ്ങളിലേക്കുള്ള കുടിയേറ്റത്തിനെ കുറിച്ച് വിപുലമായ ഗവേഷണങ്ങൾ നടന്നിട്ടുണ്ട്. എന്നിരുന്നാലും, കടൽ മത്സ്യത്തൊഴിലാളികൾ പോലുള്ള പാർശ്വവൽക്കരിക്കപ്പെട്ട സമൂഹങ്ങൾക്കിടയിലെ കുടിയേറ്റം മൂലം ഉണ്ടായിട്ടുള്ള സാമ്പത്തിക സാമൂഹിക ചുറ്റുപാടിൽ വന്ന മാറ്റങ്ങളെ

കുറിച്ച് പ്രത്യേക ശ്രദ്ധ കേന്ദ്രീകരിക്കുന്ന പഠനങ്ങൾ പരിമിതമാണ്. കുടിയേറ്റക്കാരും കുടിയേറ്റക്കാരല്ലാത്തവരുമായ കുടുംബങ്ങൾക്കിടയിലെ സാമൂഹിക-സാമ്പത്തിക സവിശേഷതകൾ, കുടിയേറ്റത്തിലേക്ക് നയിക്കുന്ന നിർണ്ണായക ഘടകങ്ങൾ, കുടിയേറ്റ രീതികൾ, വരുമാന അസമത്വം എന്നിവ പരിശോധിച്ചുകൊണ്ട് ഈ വിടവുകൾ പരിഹരിക്കാനാണ് ഈ പഠനം ലക്ഷ്യമിടുന്നത്. 375 വീടുകളിൽ നിന്ന് ശേഖരിച്ച പ്രാഥമിക ഡാറ്റയും, സമഗ്രമായ ഒരു പഠനത്തിനായി ദ്വിതീയ ഡാറ്റയും ഉപയോഗിച്ച്, കേരളത്തിലെ മലപ്പുറം ജില്ലയിലെ സമുദ്ര മത്സ്യത്തൊഴിലാളികൾക്കിടയിൽ ഗൾഫ് രാജ്യങ്ങളിലേക്കുള്ള കുടിയേറ്റം ചെലുത്തുന്ന സാമൂഹിക-സാമ്പത്തിക സ്വാധീനം ഈ ഗവേഷണം പരിശോധിക്കുന്നു.

മെച്ചപ്പെട്ട ജീവിത സാഹചര്യങ്ങൾ, വിദ്യാഭ്യാസം, സാമ്പത്തിക സ്ഥിരത എന്നിവയിലൂടെ കുടിയേറ്റം കുടുംബങ്ങളുടെ സാമൂഹിക-സാമ്പത്തിക സ്ഥിതി ഗണ്യമായി മെച്ചപ്പെടുത്തിയിട്ടുണ്ട്. കുടിയേറ്റക്കാരല്ലാത്ത കുടുംബങ്ങൾ സാമ്പത്തിക അസ്ഥിരത, സാമൂഹിക-സാമ്പത്തിക വളർച്ചയ്ക്കുള്ള പരിമിതമായ അവസരങ്ങൾ എന്നിവ നേരിടുന്നു. കുടിയേറ്റ മത്സ്യത്തൊഴിലാളി കുടുംബങ്ങൾക്കിടയിൽ വർദ്ധിച്ച വരുമാന അസമത്വവും പഠനം എടുത്തുകാണിക്കുന്നു. സാമ്പത്തിക സേവനങ്ങൾ വികസിപ്പിക്കൽ, മത്സ്യകൃഷി പ്രോത്സാഹിപ്പിക്കൽ, സ്ത്രീ പങ്കാളിത്തം മെച്ചപ്പെടുത്തൽ, കമ്മ്യൂണിറ്റി വിദ്യാഭ്യാസ പരിപാടികളിലൂടെ അവബോധം വളർത്തൽ എന്നിവ നയ ശുപാർശകളിൽ ഉൾപ്പെടുന്നു.

CHAPTER 1
INTRODUCTION

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1.1 Introduction

The ocean, with its vast ecosystem, plays a crucial role in shaping the economic, social and cultural lives of people worldwide. Its boundless marine resources not only support the delicate balance of our planet's ecosystem but also serve as a vital source of livelihood for millions. For coastal populations, particularly marine fisherfolk, the ocean is not just a source of livelihood but a way of life. Fishing remains their primary occupation, deeply tied to the natural environment they depend on. These communities face unique challenges, navigating uncertainties brought by climate change, environmental degradation and economic pressures. Marine fisherfolk, being resource-dependent, often struggle to adapt to the shifting dynamics of marine ecosystems and limited opportunities for alternative livelihoods. As Ellis and Allison (2004) highlight, access to natural resources like fisheries and land plays a critical role in the economic upliftment of marginalised groups. For fisherfolk, sustainable use of marine resources is vital to securing their lives and improving their socio-economic conditions.

Building on the profound connection between the ocean and coastal communities, fisheries stand out as a key sector, particularly for marine fisherfolk. Fisheries, categorised alongside agriculture and allied activities are one of the most promising sectors and hold immense importance for fisherfolk communities. Fishing refers to the activity of capturing or harvesting aquatic organisms, primarily fish, from water bodies such as oceans, rivers and lakes, using various tools and techniques like nets, rods and trawlers. In marine fisheries, this practice takes place in the vast expanse of the oceans, where fisherfolk engage in fishing to sustain their families and communities (NOAA ,2006). For marine fisherfolk, the ocean is not just a source of livelihood, but an integral part of their identity and culture. The Food and Agriculture Organization (FAO, 2004) defines fishing communities as those heavily reliant on fish-related activities for their sustenance and economic stability. In addition to food production, the industry creates employment opportunities in related sectors such as fish processing, marketing and logistics, as well as in shipbuilding, equipment manufacturing and tourism. This interconnected system

provides economic stability to coastal societies while promoting social cohesion. However, the delicate balance between marine ecosystems and the livelihoods they support highlights the importance of adopting sustainable practices.

The depletion of marine resources disrupts the balance of coastal ecosystems, threatening both biodiversity and the livelihoods of fisherfolk who depend on these resources. The decline in marine biodiversity reduces fish populations, impacting the livelihoods of fisherfolk and weakening the resilience of marine ecosystems. This results in unstable fish stocks and economic uncertainty as fisherfolk face difficulties in maintaining their income. Overfishing worsens the situation by increasing pressure on the remaining species and speeding up the degradation of ecosystems. This creates a chain reaction where the loss of key species disrupts predator-prey relationships, leading to further depletion of fish populations. Economically, fisherfolk face more competition for fewer resources, fluctuating incomes and the risk of social instability. Overfishing of large fish and shellfish was the first major human impact on coastal ecosystems, causing significant biomass loss and near extinction of large species. These changes occurred before modern ecological studies and were often linked to European colonisation and traditional overfishing practices. Later disturbances like pollution, habitat destruction, diseases, invasive species and climate change have worsened the impact of overfishing which further destabilising the marine environment (Stachowicz et al.2007; Jackson et al. 2001). Research by Rubekie et al. (2022) shows that the decline in marine resources and changes in fishing conditions are driving fisherfolk to migrate in search of better opportunities. This shift is driven by the need to adjust to the challenges of a changing environment prompting fisherfolk to adopt different survival strategies to secure their livelihoods.

1.2 Significance of the Fishing Industry

Fish and fisheries play a crucial role in supporting the health, well-being and economic stability of societies worldwide. As a fundamental component of many economies, fisheries contribute significantly to food security and livelihoods. In 2020, global fisheries and aquaculture achieved a record production of 214 million

tonnes, comprising 178 million tonnes of aquatic animals and 36 million tonnes of algae. Fisheries are broadly categorised into capture fisheries and aquaculture, which are further divided into marine and inland fisheries based on their source of production. Of the 178 million tonnes of aquatic animals produced in 2020, capture fisheries contributed 90 million tonnes (51 percent), while aquaculture accounted for 88 million tonnes (49 percent). Marine fisheries dominated global production, contributing 112 million tonnes (63 percent), with capture fisheries providing 70 percent of this total and aquaculture 30 percent. In comparison, inland fisheries produced 66 million tonnes (37 percent), where aquaculture was the primary contributor at 83 percent and capture fisheries accounted for 17 percent. The global production of marine capture fisheries was heavily influenced by the performance of the top seven producing nations, which accounted for over half of all marine captures in 2020. China led the production, contributing 14.9 percent of the global total, followed by Indonesia (8.2 percent), Peru (7.1 percent), the Russian Federation (6.1 percent), the United States of America (5.4 percent), India (4.7 percent) and Vietnam (4.2 percent) (FAO, 2022). Future projections indicate a moderate increase in global capture production, particularly in regions where sustainable resource management practices are effectively implemented. The substantial share of marine fisheries in global production emphasises their critical role in ensuring food security, supporting coastal livelihoods and driving economic development in coastal regions, particularly in resource-dependent communities.

Fishing is a decisive livelihood activity for many coastal communities, particularly in low-income regions. It provides employment in fishing, processing and related services, while significantly contributing to food security. Fish are a critical source of essential micronutrients such as omega-3, vitamin A and iron. Fishing livelihoods are diverse and adaptable to changing environmental, economic and climatic conditions. Generally, fisheries are broadly categorised into large-scale and small-scale operations. Large-scale fisheries, often part of marine or capture fisheries, typically involve larger vessels equipped with advanced technologies like trawlers and purse seines. These operations are usually labour intensive, relying on wage labour or compensation based on the catch value. In contrast, small-scale

fisheries, also within marine or capture fisheries, are more labour intensive, using smaller vessels and simpler gear, such as handlines or manually pulled nets and operating closer to shore. These fisheries are often managed by individuals or small groups within coastal villages. While small-scale fishers predominantly sell their catch in local markets, many also participate in export activities. Beyond work in fishing alone, many livelihoods are based around, partly or in whole, the diverse activities along the value chain of seafood processing, marketing, trading, boat and gear construction, servicing vessels and so on (Fabinyi & Barclay,2022). According to FAO (2022), an estimated 58.5 million people were employed in fisheries and aquaculture in 2020, either full-time, part-time, occasionally or in unspecified roles. Of this workforce, approximately 21 percent were women. In terms of sectoral distribution, 35 percent were engaged in aquaculture, while 65 percent worked in capture fisheries.

The global importance of the fisheries sector has rebounded in India, where it serves as a cornerstone for coastal and rural communities. It provides essential support to local livelihoods and significantly contributes to national economic growth through seafood exports. With an extensive 8,118-kilometer coastline, enriched by estuaries, backwaters and lagoons, the country offers unparalleled opportunities for capture and culture fisheries. Currently, India is the third largest fish-producing country in the world and accounts for 7.96 per cent of the global production. The sector has been one of the major contributors to foreign exchange earnings, with India being one of the leading seafood exporting nations in the world. In 2022-23, the export improved in quantity terms by 26.73 per cent. India is also a major producer of fish through aquaculture and ranks second in the world after China (Kerala State Planning Board, 2024).

In 2022, region-wise estimates of marine fish landings in India showed that the southwest region, including Kerala, Karnataka and Goa, reported the highest contribution with 1.43 million tonnes, representing 41% of the national total. The southeast region followed with 0.99 million tonnes (28%), while the northwest and northeast regions recorded 0.75 million tonnes (22%) and 0.32 million tonnes (9%),

respectively. The marine fisheries sector in Kerala recorded the highest catch of the last decade with 6.87 lakh tonnes in 2022. A significant increase of 24% was noted against the previous year's landings of 5.55 lakh tonnes (Gopalakrishnan,2023). The significance of the fishing industry is reflected in its role in supporting livelihoods, generating foreign exchange and contributing to economic growth. As India continues to manage and expand its marine resources, the fisheries sector remains integral to both the national economy and the well-being of its communities.

In Kerala, the economy flourishes through its strong ties to agriculture and allied sectors, with marine fish production standing out as a major contributor. With a coastline of 590 kilometers and a continental shelf area of 39,139 sq.km, the region is uniquely positioned along the productive Arabian Sea, making it one of the most prominent maritime areas in the country. The sector has evolved into a dualistic structure, encompassing a traditional segment rooted in ancestral fishing practices and a modernised segment characterised by technological advancements and increased efficiency (Louis et al., 2019). This duality reflects its adaptability and critical role in supporting the socio-economic framework. The importance of the fisheries sector is evident from its substantial contributions to fish production at both national and regional levels. According to the Annual Report (2022-23) by the Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, total fish production in India for 2021-22 stood at 162.5 lakh metric tons (MT), with 41.27 lakh MT contributed by the marine sector. Kerala played a vital role in this, contributing 6.9 lakh MT of marine fish production and 2.29 lakh MT of inland fish production during 2022-23 (Kerala State Planning Board, 2024). This significant share highlights the prominent role of Kerala in the fisheries landscape of India.

Beyond production, the fisheries sector in Kerala has become a crucial source of foreign exchange earnings, supporting the economic stability of the state. Additionally, it plays a prominent role in enhancing nutritional security by supplying affordable, protein-rich food, thereby addressing both economic and food security challenges. Fisheries have also become a vital source of foreign exchange, boosting economic resilience while addressing nutritional security. The fishery-related

livelihoods are complex, dynamic and adaptive. The fisherfolk population is estimated to be around 10.6 lakh, which is around 3.2 per cent of the total population of Kerala. The total fisherfolk population includes 8.15 lakh belonging to the marine sector and 2.45 lakh belonging to the inland sector. They reside in 222 marine fishing villages and 113 inland fishing villages of the State (Kerala State Planning Board, 2024). In addition to income generation, the sector empowers coastal communities, fosters rural development and strengthens local economies. It also preserves cultural identity, as fishing communities continue to uphold traditional knowledge and practices despite modernisation. With the rising global demand for seafood, the fisheries sector presents opportunities for sustainable development and economic growth, ensuring its continued importance in meeting both livelihood and food security needs.

1.3 Socio-Economic Conditions of Marine Fisherfolk in Kerala

The state of Kerala gained worldwide attention and distinguished itself from other Indian states due to the Kerala model of development. The model, distinguished by its unique emphasis on human development over traditional economic growth, has positioned the southwestern Indian state as an exceptional case study. Kerala has achieved remarkable social indicators despite facing challenges like limited economic expansion, that defy the norms of development paradigms. But when referring to the Kerala model of development, about the overall social development achieved by Kerala, the critics argued that different marginalised communities are considered outliers of the model (Kurien, 1995). The marine fisherfolk community is considered as the most vulnerable section of the society and the socio-economic backwardness is the hallmark of the fisherfolk community. The sector provides employment and livelihood to lakhs of the population in Kerala at the same time they are socially and economically lagging behind the mainstream society. Rajan (2002) finds that the socio-economic circumstances of fishermen in Kerala have not improved much in a century of endeavors at fostering the fishing industry. Fishermen have had difficulty in achieving corresponding occupational diversification, although modernisation in the

fishing sector has brought about structural changes and opened up new work opportunities.

The socio-economic status of marine fisherfolk in Kerala is shaped by several challenges and vulnerabilities, mainly due to their reliance on traditional fishing methods and the depletion of marine resources. Over the years, the marine fisheries sector has experienced significant changes, particularly between 1950 and 2014, driven by globalisation. The introduction of mechanised trawlers and the involvement of innovative ventures have transformed the fishing industry, leading to three distinct phases of evolution. Initially, fishing served as the sole livelihood for many communities during the pre-modernisation phase (before 1950). This was followed by the modernisation phase (1950-1990), which introduced improved fishing techniques through the Indo-Norwegian Project. However, the post-modernisation phase (1990 onwards) has brought new challenges, including overfishing and increased conflicts within the industry (Rajan, 2001; Rajan & Pillai, 2020).

Despite the importance of the sector to the economy, marine fisherfolk face persistent socio-economic hardships. A large proportion of this community is engaged in small-scale, artisanal fishing, which results in low and uncertain incomes. This dependency on fishing exposes them to the volatility of fish prices and environmental changes, further complicating their economic situation. Additionally, most fisherfolks live in coastal villages with limited access to basic infrastructure, such as proper housing, sanitation and healthcare. The lack of modern fishing technologies and limited skill development opportunities prevents many from improving their productivity and income potential. They also deal with issues related to ownership, access and conservation of resources (Devi & Pavithran, 2018). While some households rely solely on fishing, others supplement their income through low-paying and unstable activities, such as net-making, fish marketing and working as labourers. Moreover, generally low educational levels of the community contribute to a cycle of poverty and limited social mobility. Other socio-economic challenges include high dependency ratios, exploitation by

intermediaries, widespread debt and limited access to financial resources (Sunitha, 2019). These factors compound the struggles faced by marine fisherfolk, reinforcing their socio-economic vulnerabilities.

1.4 Statement of the Research Problem

The socio-economic conditions of marine fisherfolk in Kerala are increasingly vulnerable due to the compounded impacts of climate change, overfishing and environmental degradation. The depletion of marine resources, coupled with the increasing frequency of extreme weather events such as rising sea levels and storms, has significantly damaged the sustainability of traditional fishing practices (Barange et al., 2018). Additionally, the instability in freshwater and marine environments, due to changes in precipitation and sea temperature, has disrupted fish populations, impacting the livelihoods of coastal communities (Badjeck et al., 2010). While global fishery resources continue to be exploited at unsustainable rates, with many stocks overexploited or depleted, the livelihoods of fisherfolk are placed at greater risk. Which further leads to exacerbated food insecurity and economic vulnerability (Hanjra, 2013). Although there have been some improvements in health and literacy rates among fishermen, they still struggle with low pay, seasonal work and disguised unemployment. And the high costs of maintaining their way of life, along with issues like overfishing, juvenile fishing and declining fish stocks, continue to create hardships (Salim et al., 2017). The changing climate, along with natural disasters and overfishing, has resulted in declining fish catches, creating worsening conditions for fisherfolk in Kerala. This downward trend has led to uncertain income, disguised unemployment and significant depletion of fish resources.

In response to these challenges, fishermen are forced to adopt various strategies to improve their living conditions. Many of them have diversified their income sources into sectors like commerce, farming, labour and services to improve their quality of life. Their coping methods focus on livelihoods and include mobility, diversification, storage, communal pooling and market exchange (Sunitha, 2019). By venturing into non-fishery industries, some fishermen can better withstand the

challenges of the fishing sector. Consequently, many fisherfolks have turned to migration to Gulf countries as a means of securing better livelihoods, transforming this strategy into a vital lifeline for communities facing environmental and economic pressures (Rajan & Pillai, 2020). Furthermore, the migration of fishermen to new areas in response to resource fluctuations is another example of how livelihoods can adapt to changes in the natural environment. As Badjeck et al. (2010) note, diversification whether through multiple job sources, career changes or targeting different species has enabled fishing communities to better cope with natural resource variability and the impacts of climate change.

Fisherfolk migration refers to the temporary or sometimes permanent movement of fishers to distant fishing grounds or camps, often for periods ranging from a few weeks to several months (Wayanoyi et al., 2016). This form of migration, particularly to the Gulf countries, has become an essential strategy for fisherfolk to overcome economic hardships, improve living conditions and secure better incomes. In Kerala, migration, especially to Gulf countries, has become an essential survival strategy for many, with remittances flowing back into the state, particularly benefiting households in regions like Malappuram. Migrant households have seen notable improvements in their income and asset accumulation, which have significantly contributed to reducing poverty in the region (Prakash, 1998). Malappuram district in Kerala sets a classic example in the context of migration, particularly the prominent role it plays in the flow of remittances. This district, a hub for emigration to Gulf countries, has experienced a significant transformation in its socio-economic fabric. The state also holds a prominent position in terms of its marine fisherfolk population and the number of active fishermen (Rajan & Zachariah,2019; Directorate of Fisheries,2022). Many individuals from this community have opted for migration as a way to achieve better livelihoods.

Studies in this area identify significant research gaps concerning migration and its impacts on marginalised communities, particularly marine fishermen. Despite studies focusing on the general socio-economic effects of migration, the specific challenges and benefits for vulnerable groups such as the fisherfolk have been

underexplored. There is a significant lack of analysis concerning the impact of migration on the livelihood vulnerabilities of marine fisherfolk, concerning income and expenditure disparities between migrant and non-migrant households. To address these gaps, current research utilises relevant theoretical frameworks to examine how migration functions as a survival strategy for marine fisherfolk in Malappuram District. The study aims to investigate the socio-economic characteristics of the marine fisherfolk community in the region and explore the factors that drive them to migrate. It also assesses the socio-economic impacts of migration and analyses income and expenditure inequalities among migrant and non-migrant fisherfolk households. Through this comprehensive analysis, the research seeks to provide valuable insights into the experiences of fisherfolk communities who have undergone migration, ultimately contributing to a better understanding of their struggles and resilience.

1.5 Significance of the Study

The significance of this study lies in its potential to fill the critical gaps in understanding the socio-economic dynamics of marine fisherfolk communities in Malappuram district, Kerala. Focusing on this district, which has the highest number of emigrants and remittances (Rajan & Zachariah, 2019) and is notable for its substantial marine fisherfolk population and significant number of active fishermen in the state (Directorate of Fisheries,2022), the research addresses the unique challenges faced by fisherfolk, who often experience heightened vulnerabilities compared to other populations. This study aims to provide insights into how migration serves as a survival strategy for these communities. It also examines the impact on their socio-economic status and seeks to explore the pattern and determinants behind the migration of marine fisherfolk. The study aims to analyse the income and expenditure inequalities between migrant and non-migrant fisherfolk households. By identifying these disparities, the research can highlight the economic benefits and challenges associated with migration, offering insights into how remittances contribute to the financial stability of fisherfolk families. This study aims to fill critical gaps in the existing literature on migration and provide new insights for policymakers and stakeholders. By focusing on the specific needs of the marine fisherfolk in Malappuram, the research aims to facilitate effective

interventions and support systems to enhance their livelihoods and promote sustainable development.

1.6 Research Questions

The marine fisherfolk community in the Malappuram district faces innumerable challenges, including declining fish stocks, climate change and economic instability, disguised unemployment, inadequate housing, limited healthcare and education opportunities. Unfavorable conditions have driven many to seek better livelihoods through migration to Gulf countries, which offer the promise of a better standard of living. However, the underlying reasons for migration and its broader impact on the socio-economic conditions of marine fisherfolk remain underexplored. Migration provides financial relief via remittances but also creates disparities between migrant and non-migrant households in terms of income and expenditure. This study aims to examine these issues by addressing the following research questions:

1. What are the reasons and motives driving the migration of the marine fisherfolk in Malappuram district?
2. What are the income and expenditure inequalities between migrant and non-migrant fisherfolk households?
3. How does migration affect the socio-economic conditions of the marine fisherfolk in the Malappuram district?

1.7 Objectives of the study

The specific objectives of the study are as follows:

1. To analyse the socio-economic characteristics of the marine fisherfolk in the Malappuram district.
2. To understand the pattern and determinants behind the migration of the marine fisherfolk in the Malappuram district.
3. To analyse the income and expenditure inequality between migrant and non-migrant fisherfolk households.

4. To examine the impact of migration on the socio-economic status of the marine fisherfolk in the Malappuram district.

1.8 Hypotheses

A hypothesis is a tentative statement that predicts a relationship or difference between variables and serves as the basis for statistical testing. The key hypotheses of this study aim to explore income variations among migrants based on education and occupation, as well as expenditure disparities between migrant and non-migrant households

1. H0: There is no significant difference in the mean income among migrants based on their educational qualifications.

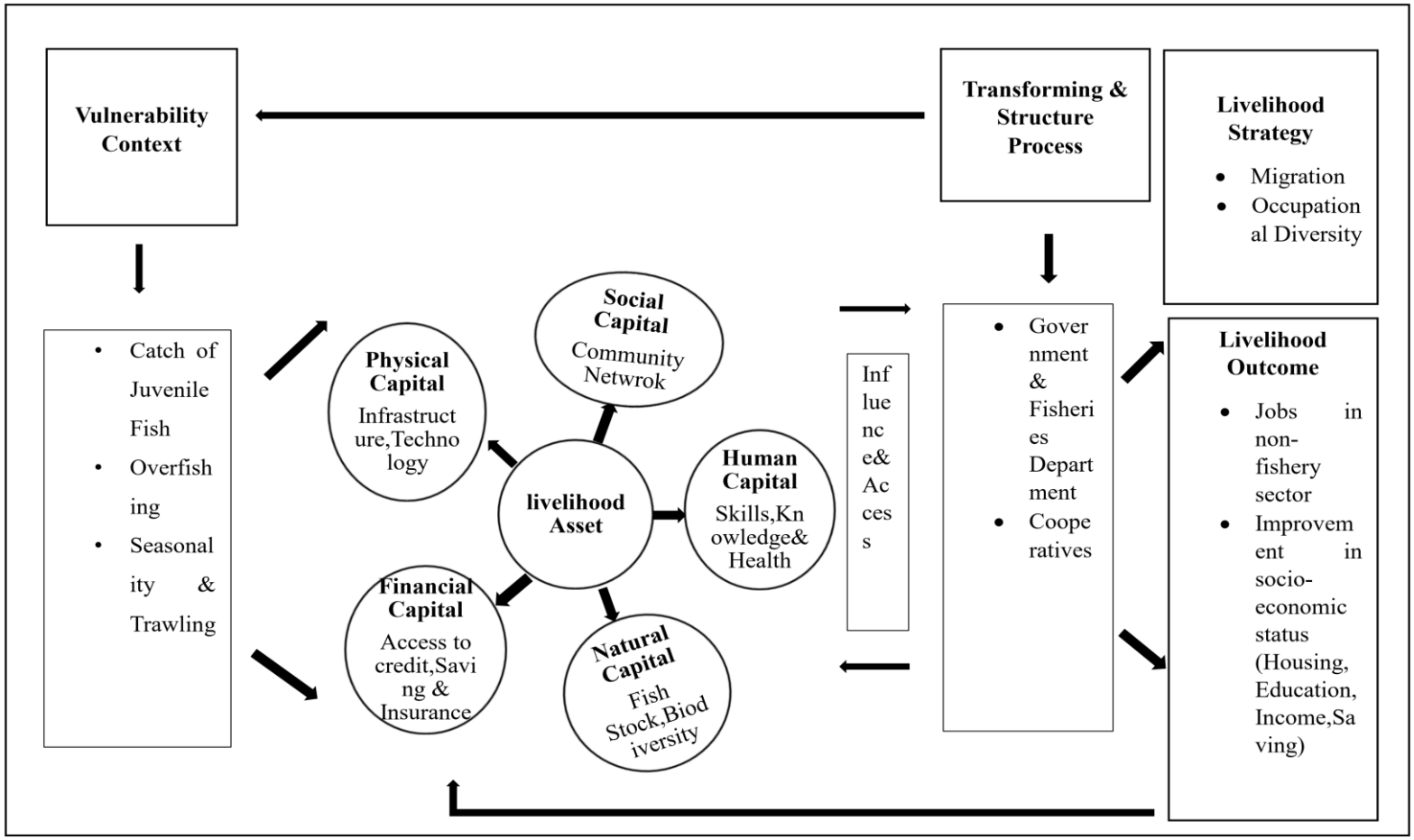
2. H0: There is a significant difference in the mean income among migrants based on their occupation.

3. H0: There is no significant disparity in expenditure between migrant and non-migrant households.

1.9 Analytical Framework

Migration is a kind of geographic or spatial mobility between two geographical entities, usually requiring a change of domicile from the origin to the destination country (UN, 1958). Migration is often circular, with people returning to their home communities regularly and maintaining close connections. This ongoing exchange shows that migration is much more than a single event, it is a vital part of how home communities grow and develop. Furthermore, migration is a household strategy that shapes and perpetuates the most unfavourable socio-economic conditions (McDowell & Haan, 1997; Haan, 2002). It is seen as one of the strategies that households and communities use to sustain their livelihoods and diversify their income, Manage risks and support their well-being.It serves as a way to buffer incomes during difficult times and to achieve personal aspirations and it can vary from short-term moves to permanent relocation (Singh & Basu, 2020).

Figure 1.1: Sustainable Livelihood Framework (SLF)



Source: Developed by the Researcher based on the DFID Sustainable livelihood Framework, 2000; Rajan and Pillai,2020

Migration is influenced by several factors, including a household's abilities (like family size, education and social connections), the assets they have, personal goals and external pressures such as increased climate variability, job opportunities and proximity to towns and cities. People who depend heavily on climate-sensitive jobs, such as fishing and farming are particularly at risk from the effects of climate change, especially those living in vulnerable areas like coastal regions, river basins and semi-arid zones. For these households, migration becomes a crucial strategy to diversify their income and reduce the risks associated with the impacts of severe climate change (Maharjan et. al,2020).

According to the British Department for International Development (DFID, 2000), sustainable livelihoods are characterised by their ability to survive and recover from external shocks and stresses, such as economic fluctuations or environmental disasters. They aim to minimise reliance on external assistance, prioritising economic and institutional sustainability. Central to their sustainability is the responsible stewardship of natural resources to ensure their long-term productivity without compromising future generations. Additionally, sustainable livelihoods operate within ethical frameworks, ensuring that their practices do not harm or diminish the livelihood opportunities of others, thereby fostering fairness and inclusivity in development efforts (Chambers & Conway, 1992).

A livelihood involves the capabilities, assets (including stores, resources, claims and access) and activities necessary for a means of living. A sustainable livelihood can withstand and recover from stresses and shocks, maintain and enhance its capabilities and assets and provide sustainable livelihood opportunities for future generations (Chambers & Conway, 1992). The concept of livelihood integrates factors crucial to the vulnerability or resilience of individual or family survival strategies. It includes the assets of people, the activities they undertake to achieve a satisfactory standard of living and other objectives like risk management and the various facilitators or barriers that affect access to these assets and activities. Livelihoods are fundamentally shaped by the resources individuals possess, their

economic activities and the socio-economic conditions influencing their ability to secure sustainable livelihood outcomes (Allison & Ellis, 2001).

The Sustainable Livelihood Approach (SLA) enhances understanding of the livelihoods of impoverished communities by elucidating the key factors and relationships that influence their survival strategies. The framework identifies five main types of livelihood assets: natural, physical, financial, human and social capital. Natural capital includes resources like land and biological diversity. Fish provide a crucial source of protein and essential nutrients for many people worldwide. Preserving fish biodiversity is essential for sustaining fisheries, ensuring these communities can continue to meet their nutritional needs with fish as a primary food source(Meinam et al., 2023). Fishers in coastal areas rely heavily on the marine ecosystem, yet they report no significant change in fish populations over the past decade, though some acknowledge increased fishing intensity. Physical capital refers to infrastructure and equipment. Fishers typically own sturdy houses with electricity and mobile phone coverage. Public amenities such as schools, healthcare facilities and places of worship are accessible. The majority of fishers possess essential fishing gear and boats, which are crucial for their livelihood.

Financial capital involves income and savings. Most fishers close to the coastline own at least one boat, ensuring the highest return from each catch. However, they lack access to grants and formal financial institutions for savings and loans. Instead, they invest their earnings in fishing gear, with some maintaining bank accounts. During off-peak seasons, fishers often seek alternative income sources, such as unskilled labour, to meet daily needs. A few engage in small businesses, selling fishing equipment or rice. Human capital includes health, education and labour skills. Fishers generally lack skills beyond fishing, with a small number having business acumen. The health and education levels within these communities vary, but the ability to work is vital. Similarly, social capital involves formal and informal networks that provide support and resources. Membership in formal fishing societies offers benefits like financial aid during emergencies, access to soft loans, training opportunities and fishing gear. Non-members rely on informal groups to

maintain social ties and support. Environmental awareness among fishers is limited. While they recognise seasonal variations in fish stocks, they are less aware of broader environmental impacts. Access to clean water is generally adequate, even for those living close to the coastline, which can be challenging in other regions. (Pratiwi et al., 2022).

The natural resources of the sea are conceptualised as common property or open-access resources. This means that marine resources are not subject to exclusive property rights and are freely accessible. Consequently, fishing becomes highly competitive and the basic assets upon which fishing relies become extremely vulnerable to overfishing and subsequent depletion. The depletion of the seabed and juvenile fishing further worsen the issue. Therefore, effective fisheries management is crucial to resolving this problem (Meynen,1989). In these vulnerable conditions, fisherfolks have adopted different livelihood strategies to reduce their vulnerability. By utilising their resources and accumulated marine knowledge, some fishermen are reducing risks and enhancing their quality of life. They go on lengthy fishing excursions outside of their territorial waters, which, although potentially lucrative, exposes them to hazardous weather conditions. They do this by combining this knowledge with contemporary tools like GPS and echo sounders. Another risk-reduction tactic being used by some educated young people from fishing households is diversification into non-fishing-related industries (Rajan & Pillai,2020). A significant decline in fishing opportunities affects various aspects of the lifestyles and living conditions of local communities. Consequently, many youths migrate in search of employment opportunities (Jonsson, 2019).

1.10 Data and Methodology

The study is based on both primary and secondary data. Primary data was collected from 375 households in Malappuram District using a pre-structured questionnaire. Secondary data was obtained from various sources, including the Kerala Marine Fisheries Census (2020 and 2012), Economic Review (2024, 2023, 2022 and 2021), Kerala Fisheries Statistics at a Glance (2022, 2021 and 2020),

Kerala Migration Survey (2018), Fisheries Handbook (2023), reports from Food and Agriculture Organization (FAO), research articles, journals and edited books.

1.10.1 Primary Data

According to the Department of Fisheries & CMFRI (2020), Malappuram district consists of 15,962 fisherfolk families with a total population of 96,018 individuals. Using Cochran's formula for determining sample size, a total of 375 individuals was selected for the study to ensure statistical reliability and representativeness of the sample.

Unlimited Population n = $\frac{z^2 * \hat{p}(1-\hat{p})}{e^2}$

Finite Population: n' = $\frac{n}{1+\frac{z^2 * \hat{p}(1-\hat{p})}{e^2 N}}$

Where,

n = Sample size for an infinite population and

n' = sample size for a finite population

z = Level of confidence (95% confidence level is approximately1.96)

e = desired level of precision (5 percent=0.05)

p = population proportion

N = Population size

Malappuram district holds significant importance in the state due to its highest number of migrants and its leading position in the number of fisherfolk households (Rajan & Zachariah,2019; Department of Fisheries & CMFRI,2020). Data was collected from selected fishing villages using a pre-structured questionnaire to examine the socio-economic impact of migration on these communities. The Interview Schedule, which was canvassed, had eight blocks: (a) Household identification particulars, (b) Details of members in the household (c) Household details, (d) Details about fisherfolk in the household, (e) Migration trend,

(f) Details about return migration, (g) Factors influencing migration (h) Socio-economic impact of migration. General information was collected for the identification of the sample households (which includes household number, district, town/taluk, village and name of the informant). Under details of members in the household, data on relation to the head, sex, age, marital status, educational qualification and occupational status of each member of the household were collected. Household details include ration cards, income details, housing conditions, land, livestock, financial assets, vehicles, modes of communication, consumer durable goods, details on loans and other liabilities and expenditure details.

The details about the number of fisherfolk in the family, the ownership of craft, the mode of craft and occupational diversification are coming under details about the fisherfolk in the household block. Migration particulars, viz., Marital status and age at the time of migration, educational qualification, migration destination, duration of stay and occupation before and after migration are given under trends of migration. The details about the return migrant in the family are given under details about the return migrant block. Under the block factors influencing migration the main reasons of migration, cost of migration and details about student migration were collected. In the last block, the details about remittances, the utilisation of remittances, benefits of remittances and changes of durable assets before and after migration were collected.

1.10.2 Pilot Study

A pilot study was conducted in the fishing taluks of the Malappuram district, specifically in the fishing villages of Puduponnani, Korman Kadappuram and Alungal Beach. A total of 187 households were selected for this preliminary investigation, aimed at assessing the prevalence of migration within the study area and its potential impact on the socio-economic conditions of the households. The pilot study was undertaken to measure the feasibility of the proposed research and to determine whether migration plays a significant role in shaping the socio-economic dynamics of the fisherfolk community. The pilot study revealed that a significant

number of households in the area had members who had migrated (86 Households), highlighting the widespread prevalence of migration. This finding reinforced the importance of the proposed research, as migration emerged as a key factor influencing household socio-economic conditions. Consequently, the pilot study confirmed that a full-scale investigation into the socio-economic impact of migration within these fishing communities is both relevant and feasible. Additionally, based on the pilot study results, unnecessary questions were removed and those needing further clarification were revised for greater clarity. This process allowed the researcher to evaluate and improve the effectiveness of the data collection tool, enhancing its validity and reliability. As a result, the final version of the questionnaire became more refined, ensuring its suitability for capturing accurate and relevant data for the study.

1.10.3 Sample Selected for the Study

A sample of 375 households was collected using a multistage random sampling procedure during a survey conducted between September 2023 and January 2024. In the initial stage, the taluks of Ponnani, Tirur and Tirurangadi were selected, as they include the marine fisherfolk population of Malappuram District. Malappuram District comprises 23 fishing villages, which are coastal settlements primarily inhabited by marine fisherfolk. In the second stage, two fishing villages with the highest concentration of fisherfolk were identified from each taluk, Puduponnani and Thekkekadavu from Ponnani Taluk, Korman Kadapuram and Paravanna from Tirur taluk and Alungal Beach and Parappanangadi from Tirurangadi taluk were selected. These villages were chosen to capture a comprehensive representation of the socio-economic conditions of the marine fisherfolk community.

Table 1.1

The Sample Selected for the Study

Taluk	Fishing Villages	Total Sample	Migrant Household	Non-Migrant Household
Ponnani	Puduponnani	56	26	31
	Thekkekadavu	41	19	22
Tirur	Kormankadapuram	75	35	40
	Paravanna	75	34	41
Tirurangadi	Alungal Beach	64	29	35
	Parappanangadi	64	29	34
	Total	375	172	203

Source: Department of Fisheries & CMFRI,2020

A total of 375 samples were randomly selected from each fishing village, with the sample size determined proportionally based on the fisherfolk population in each village. This proportional allocation ensures that the data collected accurately represents the population distribution across the selected villages. For analysing the socio-economic impact of migration, the study includes both migrant and non-migrant households. Only those households with at least one member having a minimum of one year of migration experience have been included in the category of migrant households and those individuals who have moved to gulf regions for employment purposes have been included under the migrant category. Households with no emigrant members and any of the members who are engaged in fishing or related activities are considered as non-migrant households (Christopher,2022). Out of 375 households 172 are migrant households and 203 are non-migrant households. The respondents for the study were the migrant members or the eldest available household members at the time of data collection.

1.10.4 Statistical Tools and Econometric Models Used

In this study, a variety of statistical tools and econometric models were utilised to analyse the data. Descriptive statistics such as percentage, mode and median were employed to summarise key variables and provide an overview of the data. The t-test (Paired and independent sample), chi-square test, multiple linear

regression model, Pearson's correlation and ANOVA were applied to examine relationships and differences between groups. To specifically analyse the impact of migration, the Sustainable Livelihood Index (SLI) and the Ordered Probit model were used. These methods together offer a comprehensive approach to exploring the socio-economic impact of Gulf migration on the marine fisherfolk in the Malappuram district. For the analysis, software such as the Statistical Package for the Social Sciences (SPSS) and Stata were used. To enhance the robustness of the analyses, the Central Limit Theorem (CLT) served as a guiding principle. The CLT asserts that, as sample size increases, the sampling distribution of the sample mean approaches a normal distribution, irrespective of the original distribution of the population (Kwak & Kim, 2017). This foundational concept justifies the use of normal distribution-based statistical methods.

1.10.4.1 Validation for the First Objective

A thorough investigation was undertaken to address the first objective of analysing the socio-economic characteristics of the marine fisherfolk in the Malappuram District. To examine this objective, both migrant and non-migrant marine fisherfolk are considered. Migrant marine fisherfolk are individuals from the marine fishing community who have relocated from their place of origin to the Gulf regions in search of better employment opportunities, higher income and improved socio-economic conditions. Non-migrant marine fisherfolk are those who have remained in their original communities and continue engaging in traditional marine fishing activities within their local regions. The eldest member from each of the migrant households, who migrated to the Gulf countries, was identified as the migrant marine fisherfolk. Similarly, the eldest member from each of the non-migrant households engaged in fishing was identified as the non-migrant marine fisherfolk.

The study socio-economic profile of marine fisherfolk, including variables such as age (Continuous variable), gender (Categorised as Male and Female), family size (Categorised as below 5 members, 6 to 10 members, 11 to 15 members and above 15 members) and marital status (Categorised as married, unmarried,

widow/widower and divorced), house ownership, type of house(luxury, very good, good, poor and kutcha), total land holding (Categorised as no land, below 5 cents, 5-10 cents, 11-15 cents, 16-20 cents and above 20 cents), ration card ownership, type of ration card (white, blue, pink and yellow), access to cooking, water and bathroom facilities.

For analysing income and expenditure patterns, the study used data on the monthly income and expenditure of households from all sources. Savings habits and debt were explored by identifying whether households had savings or debts. For measuring livelihood diversification, two indices were employed, the Ogive Index and the Simpson Diversity Index. The Ogive Index was used to measure the concentration of sectoral activities within the community, calculated using the formula:

$$\text{Ogive index} = \sum_{i=1}^{N} \frac{(Si - 1/N)^2}{1/N}$$

The index assesses how concentrated or dispersed a variable is across units in a dataset. In this coastal economy, N represents the number of economic sectors, while Si denotes the sectoral share of economic activity. If the distribution is equal across N sectors, then Si equals 1/N. In this case, the Ogive index equals zero, indicating perfect diversity. When there exists an unequal distribution of sectoral activity, the result of the 'Ogive index' will be higher (Biswas & Mallick, 2021). The Simpson Diversity Index (SID), which assesses the variety of occupations, was calculated as:

$$\text{Simpson Index (SID)} = 1 - \frac{\sum_{i=1}^{S} n(ni-1)}{N(N-1)}$$

In the coastal economy, N represents the total number of income sources, S denotes the number of activities and ni refers to the number of individuals participating in each specific income source or activity. The Simpson Diversity Index (SID) takes a value between 0 and 1. When the SID approaches 1, it signifies an increase in livelihood diversification. Conversely, a SID value of 0 indicates complete specialisation in a single income source (Biswas & Mallick, 2021).

Together, these indices provide insights into the economic dynamics of the community, highlighting occupational concentration and diversity among migrants and non-migrants**.** The pattern of occupation (fishing, allied activities, driver, shopkeeper and others like business, accountant, fitness trainer, engineer, construction work and household worker) is also used to identify livelihood diversification. The pattern of education among them is analysed using educational status (Literate without school education, SSLC and below, Plus Two, Degree, PG and others such as professional certificate courses and technical education). Also, this detailed analysis offered a comprehensive understanding of the socio-economic conditions of the marine fisherfolk community, highlighting significant differences between migrant and non-migrant households across multiple socio-economic dimensions.

1.10.4.2 Validation for the Second Objective

To understand the pattern and determinants behind the migration of the marine fisherfolk community in the Malappuram district, graphs, percentages, cross-tabulations and multiple linear regression were employed. Cross tabulations were used to identify patterns and relationships between pre-migration characteristics such as age at first visit, marital status at the time of migration, family size, occupation and their influence on the factors (push and pull) that lead to migration. This method provided insights into the most common factors driving migration within this community. A multiple linear regression (dependent variable: duration of total stay, independent variables: Age at first visit, marital status, debt and family size) is employed to estimate the major determinants of duration of long stay. The general equation for multiple linear regression using Ordinary Least Squares (OLS) is:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots + \beta_k X_{ki} + u_i$$

Where Y is the dependent variable, X_1, X_2 ... X_k Are the explanatory variables (or regressors), u represents the stochastic disturbance term and i denotes the i^{th} observation. OLS analysis also includes Weighted Least Squares (WLS) to improve

the efficiency of estimates in cases of heteroscedasticity or unequal variances. WLS assigns different weights to observations based on the variance of errors, helping to reduce bias and provide more reliable regression coefficients by addressing non-constant variance. By assessing the strength and direction of these relationships, this analysis offers a complete understanding of the key motives influencing the migration decisions of marine fisherfolk.

1.10.4.3 Validation for the Third Objective

To assess income and expenditure inequality between migrant and non-migrant fisherfolk households, a comprehensive analysis was conducted using advanced statistical methods, focusing on monthly income and expenditure as the primary variables. The Lorenz curve was employed to measure income disparity, providing a graphical representation of the income distribution within the community. In this curve, the diagonal line represents perfect equality, where every household would have the same income. The Lorenz curve for the fisherfolk households lies below this line, illustrating the presence of income inequality. The Gini coefficient, derived from the Lorenz curve, offered a quantitative measure of income inequality. In general, Gini coefficients range from 0 (perfect equality) to 1 (maximum inequality).

In addition to this, an ANOVA test was also employed to measure if there is any significant difference between income and occupation, income and expenditure among migrants. For expenditure inequality, the independent t-test was used to compare the average expenditure between migrant and non-migrant households. This test provided statistical evidence of differences in spending patterns, revealing that migration may lead to significant changes in expenditure behaviour among households. To understand what are the determinants of expenditure among the marine fisherfolk community, a multiple linear regression model (Dependent variable: total expenditure, independent variables: Migration status, family size, income and Age) was used. The general form of the multiple linear regression equation using Ordinary Least Squares (OLS) is:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots + \beta_k X_{ki} + u_i$$

Where Y denotes the dependent variable, X_1, $X_2 \ldots X_k$ are the explanatory variables (or regressors), u is the stochastic disturbance term and i mean the i^{th} observation .OLS analysis includes Weighted Least Squares (WLS) to address heteroscedasticity by assigning weights based on error variance, improving estimate efficiency and reliability.An independent t-test was also used to analyse whether there is a significant difference in various types of expenditures, such as food, non-food, medical, education and others, between migrant and non-migrant households. By combining these methods, the analysis provided thorough validation of the objective, offering both visual and statistical insights into the inequality present in income and expenditure among marine fisherfolk households.

1.10.4.4 Validation for the Fourth Objective

The fourth objective was to assess the impact of migration on the socio-economic status of the marine fisherfolk in the Malappuram district. To analyse the socio-economic impact of migration, two approaches were used: Inter analysis (comparing migrant and non-migrant households) and intra-analysis (examining migrant households). For Inter analysis an ordered probit regression model was employed to examine the impact of migration on the socio-economic status of the marine fisherfolk with the use of Stata software. The ordered probit model is applied when the dependent variable is ordinal, meaning it has a clear, ordered set of categories, but the intervals between categories are not necessarily uniform. The general form of the ordered probit model expresses the latent variable as a function of independent variables and a coefficient vector.

$$y_i^* = \beta' X_i + u_i$$

where X_i represents the vector of independent variables (migration status, income, education and occupation), β is the vector of coefficients and u_i is the error term, assumed to follow a standard normal distribution (Gujarati & Porter,2008).Since the latent variable y_i^* is unobservable, the model estimates the probability that an individual falls into a particular category based on the cut-points T_j . The probability of being in category j is calculated as:

$$P_{ij} = p(y_i = j) = p(u_{j-1} < y_i^* \leq u_j) = F\left(u_j - \beta' xi\right) - F\left(u_{j-1} - \beta' xi\right)$$

In ordered probit models, F represents the cumulative distribution function (CDF) with a standard normal distribution. In these models, P_{ij} is the probability that an individual falls into category j. It is calculated using the difference between cumulative probabilities of the latent variable y_i^* falling within specific thresholds. The dependent variable in this model is the current socio-economic status of respondents, measured on a three-point Likert scale: low, middle and high. The independent variables (such as migration status, income, type of house, education and occupation) influence these probabilities and their effect is measured through changes in the linear combination of coefficients and variables. In the model, which deals with j alternatives, each alternative has its own set of marginal effects. These effects represent the impact of changes in independent variables on the probabilities of selecting different outcomes. The marginal effects of each variable across the alternatives sum up to zero, meaning that an increase or decrease in a particular independent variable affects the probability of selecting a specific alternative j by a certain percentage (Salisu, 2017).

To evaluate the impact of migration within migrant households (Intra analysis) cross-tabulations, paired sample t-tests and correlations were employed. The variables considered include pre and post-migration type of house, land ownership, savings, debt and the amount of remittances and income. This detailed approach helps to validate the crucial role migration plays in enhancing the socio-economic conditions of the coastal community. In this chapter, a Sustainable Livelihood Index (SLI) was developed to evaluate and compare the livelihood sustainability of both migrant and non-migrant households. Sustainable livelihoods refer to the ability of individuals and households to meet their essential needs and improve their quality of life in a way that is resilient to external shocks, adaptable to changing circumstances and mindful of preserving the natural resources they rely on (Nasrnia & Ashktorab, 2021).

Table 1.2

Sustainable Livelihood Index (SLI) Components

Capital	Indicator	Data type
Human Capital (HC)	Level of education General family health	Level of education of respondent (Literate without school education , SSLC and Below, Plus two, degree, PG and Others,) Total number of sick family members
Physical Capital (PC)	Type of House Fishing boat owned	Type of house (Categorised as Luxury , Very good , Good , Poor and Kutcha) Number of fishing boats owned
Social Capital (SC)	Participation in non-governmental cooperation Political Participation	Kudumbasree /Ayalkoottam (Yes or No) (Political Participation: Yes or No)
Financial Capital (FC)	Income Remittances Saving	Monthly income (Rs) Receiving remittances (Yes or No) Saving (Yes or No)
Natural Capital (NC)	Land livestock	Total land owned Number of livestock

Source: Developed by the Researcher based on primary survey, 2024

For each indicator, values were normalised using the min-max method to ensure comparability across different scales.

$$\text{Standardised Value}=\frac{\text{Actual Value}-\text{Minimum Value}}{\text{Maximum Value}-\text{Minimum Value}}$$

Equal weights were then applied to each capital and the SLI was calculated by averaging the normalised values of the indicators within each capital category. Equal weighting in composite indices is preferred for promoting fairness, as it ensures all indicators contribute equally, preventing any single factor from dominating. This method is useful when the relative importance of indicators is uncertain, providing a balanced representation without subjective bias (Greco et al, 2019). Therefore, the index values come in the range between 0 and 1. While zero means the perfect negative situation and one means the perfect positive situation. A movement from 0 to 1 means a favourable situation in this index. Each group of the index was derived from specific indicators, ensuring a comprehensive assessment of

the overall livelihood sustainability of the households. The individual indices can be presented separately to illustrate the performance across different capital categories. Subsequently, the aggregated measure of the SLI provides a holistic view of the family's livelihoods, enabling meaningful comparisons between different households and insights into the factors contributing to their sustainability. The Sustainable Livelihood Index (SLI) categorises sustainability into three levels, low (0 to 0.49), moderate (0.50 to 0.69) and high (0.70 to 1). This framework evaluates the resilience and resource accessibility of migrant and non-migrant households within the marine fisherfolk. To analyse the association, a cross-tabulation was performed between the Sustainable Livelihood Index (SLI) and migration status, between SLI and socio-economic status among marine fisherfolk.

1.11 Scheme of the Study

The study is organised into seven chapters as follows:

Chapter I: Provides the general context, significance of the study, statement of the problem, objectives and hypotheses. It also outlines the analytical framework, briefly discusses the methodology and highlights the scope and limitations of the study.

Chapter II: Defines key terms, presents the theoretical framework and provides a review of the literature.

Chapter III: Discusses the background of the study, highlights the significance of the fishing industry and the socio-economic conditions of marine fisherfolk in Kerala. It also covers migration and its socio-economic impact at global, national and regional levels, as well as the adoption of migration as a survival strategy for marine fisherfolk.

Chapter IV: Presents the socio-economic profile of marine fisherfolk (both migrant and non-migrant) in the Malappuram district.

Chapter V: Examines the pattern and determinants of migration among the marine fisherfolk in the Malappuram district.

Chapter VI: Investigate income and expenditure disparities between migrant and non-migrant marine fisherfolk households.

Chapter VII: Analyses the impact of migration on the socio-economic status of the marine fisherfolk in the Malappuram district.

Chapter VIII: Summarises the major findings of the study and presents the conclusion.

1.12 Limitations of the study

This study aims to examine the socio-economic effects of migration within the marine fisherfolk community. However, it is essential to recognise its limitations, which may influence the interpretation and broader application of the findings. Addressing these limitations can pave the way for future research that explores these dynamics in greater depth.

1. The focus on marine fisherfolk excludes non-fishing communities affected by migration.
2. The study focuses only on the Malappuram district, limiting the applicability of findings to other areas.
3. The research does not explore the role of gender or the specific impact of migration on women within the fisherfolk community.
4. The cross-sectional nature of the study prevents an in-depth analysis of long-term socio-economic changes resulting from migration.

CHAPTER 2
CONCEPTUAL ISSUES AND EMPIRICAL STUDIES

- *Introduction*
- *Basic terms used in this study*
- *Theoretical Review*
- *Empirical Review*
- *Research Gap*

2.1 Introduction

This chapter offers a detailed examination of key concepts, perspectives and insights from both theoretical and empirical studies related to migration and marine fisherfolk. It focuses on migration trends from Kerala to the Middle East, major destination for migrants from the region, analysing the factors influencing this movement and its socio-economic implications for individuals and communities. The discussion also addresses the socio-economic conditions of marine fisherfolk communities in Kerala. Further, the analysis explores how migration functions as an important livelihood strategy for coastal households. The chapter integrates theoretical and empirical evidence to provide a comprehensive understanding of the relationship between migration and development within the coastal fisherfolk community.

2.2 Basic terms used in this study

The National Oceanic and Atmospheric Administration (NOAA, 2006) provides several key definitions related to aquatic ecosystems and fisheries management:

Aquaculture is the farming of aquatic organisms, including fish, mollusks, crustaceans and aquatic plants, with some form of intervention in the rearing process to enhance production, such as regular stocking, feeding and protection from predators. Farming also implies individual or corporate ownership of the stock being cultivated.

The term fish collectively refers to mollusks, crustaceans and other aquatic organisms harvested for consumption or commercial purposes. Fish stock denotes the population of fish within a defined geographic area that is available for capture in a fishery. It represents the exploitable living resources utilised for subsistence or economic gain.

The fishery includes systems involved in harvesting fish, including wild capture and aquaculture. It is defined by the target species, geographic area, fishing methods and associated vessels. A fishery also reflects the interaction between fish

and fishers within a specific region. Fishing involves any activity, excluding scientific research, aimed at capturing or harvesting fish, including actions leading to such outcomes and related operations at sea.

Fisher is a gender-neutral term used to refer to an individual, regardless of gender, who is involved in fishing activities within a fishery. Fisherfolk is a collective term used to refer to individuals or communities engaged in fishing activities, typically encompassing both fishermen and fisherwomen, as well as their families and associated workers within the fishing industry.

The fishing community comprises individuals and groups dependent on harvesting or processing fishery resources for social and economic needs. This includes vessel owners, operators, crew members, recreational fishers, processors, gear suppliers and others engaged in fishing-related activities.

Fish stock depletion describes fish populations that are significantly reduced due to overfishing, resulting in diminished reproductive capacity and spawning biomass. Recovery requires robust rebuilding measures, which are influenced by the extent of depletion, conservation efforts and environmental conditions.

A Migrant household is defined as a household that has experienced any form of migration, whether internal or international, at any point in time. Gulf migrants are individuals who have moved to one of the six Gulf Cooperation Council (GCC) countries: UAE, Saudi Arabia, Kuwait, Qatar, Bahrain and Oman. Other migrants refer to those who have migrated to different regions within the country or to other parts of the world. If no members of a household have migrated elsewhere, that household is classified as a non-migrant household (Shibinu,2016).

International migration is the movement of persons away from their place of usual residence and across an international border to a country of which they are not nationals**.** An international migrant is any person who is outside a State of which they are a citizen or national or in the case of a stateless person, their State of birth or habitual residence. The term includes migrants who intend to move permanently

or temporarily and those who move in a regular or documented manner as well as migrants in irregular situations**.** (IOM,2019).

Immigration is the act of moving into a country other than one's country of nationality or usual residence, where the destination country becomes the individual's new usual place of residence. It focuses on the arrival in the destination country. Emigration is the act of leaving one's country of nationality or usual residence to settle in another country, where the destination country becomes the individua's new usual place of residence. It focuses on the departure from the origin country (IOM,2019).

Juvenile fishing refers to the practice of targeting young fish that have not yet reached sexual maturity. This type of fishing can be detrimental to fish populations as it may lead to the capture of fish before they have had the opportunity to reproduce, potentially hindering the sustainability of the species.

Labour migration is the movement of persons from one state to another or within their own country of residence, for employment. A low-skilled migrant worker is a migrant worker whose level of education, occupational experience or qualifications make them eligible to practice a typically low-skilled occupation only (IOM,2019).

Marine describes waters that do not receive freshwater input from land and maintain a salinity above 30 practical salinity units (PSU) year-round, characteristic of oceanic conditions. Marine fishing involves harvesting fish and other aquatic organisms from oceans or seas, encompassing both commercial and recreational activities (Lockwood,2002).

A marine fisherman is a person (male/ female/LGBTQ) who is engaged in marine fishing or any other activity associated with marine fishery or both . Actual Fishing means the adult members in the family engaged in fishing activities full-time or part-time and the adult members in the family engaged in the marketing of fish, making or repairing nets, etc. Fishermen family means a family in which at least one member is engaged in marine fishing or associated activities or both. And a

household is defined as consists of a person or a group of persons, who live together in the same house (CMFRI &Dof,2020).

Overfishing occurs when fish are harvested before reaching their optimal growth stage, reducing their contribution to the overall biomass. This practice depletes the stock to a level that hinders achieving the Maximum Sustainable Yield (MSY) (Lockwood,2002).

A vulnerable group is any group or sector of society (such as children, the elderly, persons with disabilities, ethnic or religious minorities, migrants, particularly those in an irregular situation or persons of diverse sex, sexual orientation and gender identity (SSOGI) that is at higher risk of being subjected to discriminatory practices, violence, social disadvantage or economic hardship than other groups within the State. These groups are also at higher risk during periods of conflict, crisis or disaster (IOM,2019).

2.3 Theoretical Review

Human migration is a multifaceted phenomenon that has been extensively studied through various theoretical lenses, each offering unique insights into the socio-economic impacts on countries and communities. This theoretical review aims to explore the diverse range of theories that have been developed to explain the drivers of migration, the processes involved and the effects on both sending and receiving regions. Migration is broadly defined as a permanent or semi-permanent change of residence. The drivers of migration are influenced by factors present both at the point of origin and the destination. Migration is often motivated by a combination of push and pull factors, alongside a set of intervening obstacles. Push factors are those that compel individuals to leave their place of origin, such as poverty, unemployment or a lack of opportunities. On the other hand, pull factors are the conditions that attract individuals to a new location, such as better job prospects, higher wages or an improved quality of life. In the context of marine fisherfolk, push factors might include the seasonal and unpredictable nature of fishing as a livelihood, while pull factors could involve the more stable economic opportunities offered in Gulf countries (Lee,1966).

The Neoclassical Economic Theory, the macro level model explains that international migration is a result of labour market disparities between countries. Nations with an abundant labour supply relative to capital have lower wages, while countries with less labour relative to capital have higher wages. The wage difference drives workers from low-wage countries to high-wage countries (Lewis,1954; Harris & Todaro,1970). The microeconomic perspective focuses on individual decision-making in migration. Individuals decide to migrate based on a cost-benefit analysis where they expect to gain a positive net return, usually monetary, from moving to another country (Sjaastad 1962 ; Todaro 1969; Todaro,1976)

Stark & Bloom (1985) in their work 'The New Economics of Labor Migration' looks into noteworthy progressions in the field of labour migration studies, offering a sophisticated perspective on the societal and economic elements that impact migration choices. By adding variables about social interactions and broader economic phenomena, the study broadens the scope of traditional migration research. The significance of interpersonal income comparisons is a major theoretical finding in the paper. People frequently feel either relative deprivation or satisfaction when they compare their income to that of their reference group. Migration is fuelled by this comparison, as individuals relocate to a group where their absolute income may be lower to improve their relative position. For example, to lessen feelings of deprivation, a person might prefer to be in a group where income inequality is lower. The idea of asymmetric skill information is another important addition. Migration patterns can shift significantly when employers in different locations have incomplete knowledge about the skills of possible migrants. Only specific skill levels may migrate in the presence of perfect information.

On the other hand, when information is asymmetric, either no migration or total migration happens because highly skilled workers might choose not to migrate if the combined wage for migrants is too low. Additionally, the study highlights that families, rather than individuals, frequently decide on migration together. As part of this collective decision-making process, migrants and non-migrants implicitly enter into contractual agreements to share the costs and benefits of migration. For

instance, rather than being solely acts of charity, remittances sent home by migrants to their families frequently form part of a mutually advantageous contractual arrangement. This method emphasises how families can manage migration effectively and adaptable, seeing it as a strategic choice that maximizes benefits for the whole family. Additionally, migration is viewed as a risk management tactic. Families can effectively pool risks and achieve scale economies by having members migrate to sectors with uncorrelated earnings. This plan helps the members who are moving, while also giving those who choose to stay behind financial stability. Overall, by combining social, familial and economic aspects, Stark's and Bloom's research offers a thorough understanding of labour migration. It changes the way that migration is perceived, from an isolated act of desperation to a deliberate, planned choice made in the framework of social networks and family.

The Sustainable Livelihood Framework (SLF) provides a useful framework for examining how migration affects marine fishermen's livelihoods. Ellis (1999) claims that SLF highlights how different capital assets human, social, financial and physical shape livelihoods. Migrant fishermen frequently accumulate financial capital through remittances, allowing their households to make investments in improved housing conditions, education or fishing gear. However, there are drawbacks to migration as well, most notably the loss of social capital as a result of family separation and weakened community networks (Haan & Zoomers, 2005).

The theoretical review underscores the multifaceted nature of human migration, particularly among marine fisherfolk. It illustrates how various theories ranging from Neoclassical Economic Theory, which emphasises labour market disparities, to Stark and Bloom's framework which highlights social networks and family decision making contribute to our understanding of migration as both an individual and collective strategy. The interplay of push factors, such as the unpredictable nature of fishing and pull factors, including better economic opportunities abroad, shapes the migration experiences of fisherfolk. This inclusive analysis not only deepens our understanding of the drivers and processes of

migration but also underscores the importance of considering socio-economic contexts and family dynamics in migration studies.

2.4 Empirical Review

Migration acts as a survival strategy and serves as a crucial mechanism for individuals to manoeuvre from the stress and shocks confronted in their lives and to recover from it. In 2022, there were around 281 million international migrants globally, which was equal to 3.6 per cent of the global population (IOM,2021). There was an increasing trend in the number of international migrants over the past five decades. Nowadays people adopt migration as a livelihood strategy to overcome the vulnerable situation. Migration emerged as a crucial livelihood tactic to overcome precarious circumstances and achieve a higher standard of living. The marine fishermen are considered to be one of the most vulnerable and marginalised communities in the state. Using previous studies as a foundation, this section examines how migration functions as a response to socio-economic challenges in coastal communities. It explores the meaning, patterns and characteristics of migration, followed by the migration of Indians to the Middle East and its socio-economic consequences. The section also investigates migration trends from Kerala to the Middle East, focusing on the socio-economic conditions of the marine fisherfolk community. Lastly, it discusses how migration functions as an essential livelihood strategy for coastal communities.

2.4.1 Migration: Meaning and Characteristics

IOM (2024), defines a migrant is a person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently and for a variety of reasons. And the term includes many well-defined legal categories of people such as migrant workers and those persons whose particular types of movements are legally defined such as smuggled migrants, as well as those persons whose status of movement are not specifically defined under international law. In 1970, the total number of international migrants was 2.9 percent of the world population and now it is 3.6 percent of the world population.

The history of migration began with the enslavement of Africans, starting in the mid-sixteenth century. Over two centuries, more than 15 million Africans were transported to work in Europe, North America and the Caribbean. Slavery was abolished in 1833 in the British Empire and in 1865 in the United States. After slavery ended, the indentured labour movement emerged in the 1840s, with around 50 million people from India and China migrating to work in Africa, America and Southeast Asia, mainly in unskilled jobs. Migration slowed during the First World War and the Great Depression and the Second World War led to the forced displacement of millions of Europeans. In the mid-twentieth century, migration changed, occurring in two phases. The first phase, from 1940 to the early 1970s, saw people moving to Europe, the United States and New Zealand for better economic opportunities, with migration later extending to Asia and Canada. During the second phase, from the early 1970s to the 1990s, European migration decreased, while global migration to the United States increased, especially for skilled jobs. Temporary migration for unskilled and seasonal work also grew, particularly to oil-rich countries like those in the Middle East and South Africa (Moideeen, 2009).

Sanyal & Maity (2018) state that migration is a compelling force deeply woven into the fabric of human existence, creating connections between otherwise unrelated cultures, economies and goals. Migration has an impact that extends far beyond geographical borders, as people move in search of new opportunities and connections. It transforms communities and sparks discussions about identity, belonging and the essential qualities of humanity. The phenomenon of migration has always existed and has been a part of human history since the beginning of time. For thousands of years, people have travelled to distant places in search of food, safety from hardship or wealth, bringing with them their distinct customs, languages, diseases and genetic heritage.

Virupaksha et al. (2014) describe migration as a complex process with stages like decision-making, preparation, relocation and integration. They categorise migration into ten types: internal migration (moving within the same country or continent), external migration (moving to a different country or continent),

immigration (entering a new country) and emigration (leaving one's home country). Other types include population transfer (forced migration due to government policies), impelled migration (due to unfavourable conditions like war or persecution), step migration (incremental moves from rural areas to cities), chain migration (family or community relocation), return migration (voluntary return to the original location) and seasonal migration (temporary moves for job or climate reasons). These categories help us to understand the diverse motivations and impacts of migration.

Castles (2013) explains that human migration plays a pivotal role in global migration processes. The widening income and security gaps between developed and developing nations are primary migration drivers. Additionally, factors such as economic development, demographic changes and technological advancements contribute to migration. Today, migrants maintain transnational connections rather than fully shifting their social existence from one society to another.

Mcleman & Hunter (2010) explore migration in the context of vulnerability and climate change, finding that populations adopt migration as a diversification strategy when facing environmental or climate changes. The study examines the link between climate change and vulnerability through case studies of migration during various climate challenges, such as dry-season migration in the West African Sahel, hurricane-related displacements in the Caribbean, winter migration of snowbirds to the U.S. Sun Belt and the 1930s drought migration on the North American Great Plains. Environmental factors, combined with socioeconomic, cultural and political dynamics, influence the decision-making process of migration.

Njock & Westlund (2006) define migration as a twofold opportunity, benefiting both host and recipient countries by contributing to local and national economies and enhancing food security. It also benefits the country of origin through financial remittances from overseas. Rao (1981) highlights the significance of migration in developing countries, serving as an important factor in economic development and manpower planning.

Morrison (1977) clarifies that migration plays a pivotal role in facilitating social mobility. In rural areas, population growth and a lack of demand for labour lead to rising unemployment and underemployment, prompting migration to urban areas in search of better opportunities. Migration promotes economic efficiency and development by relocating workers.

2.4.2 Indians Migration to the Middle East and its Socio-Economic Impact

Chandramalla (2022) pointed out that People migrate to areas with greater opportunities in search of better economic prospects. Both internal and international migration is common in nations like India where job opportunities are scarce and unemployment rates are high. Due to the prospect of employment, a sizable number of Indian labourers have moved to the Gulf Cooperation Council (GCC) nations over the previous thirty years. In the Gulf Cooperation Council, low- and semi-skilled labourers make up about 90% of the migrant Indian workforce. Such labour migration is concentrated in the GCC countries, which include Saudi Arabia, The UAE, Bahrain, Kuwait, Oman and Qatar. With more than 9 million Indian migrants living in these nations, India is the South Asian nation that contributes the most migrant workers to the GCC. This migration trend emphasises how crucial economic factors are in determining migration patterns and how important labour mobility is in resolving global employment issues.

Singh (2022) highlights the long history of immigration and emigration in India, tracing the evolution of the Indian diaspora from the colonial era to modern times. Initially, large numbers of Indians were forcibly relocated as bonded labourers to colonies in Africa, Asia and the Caribbean, following the abolition of slavery in 1833. The partition of India and Pakistan further intensified migration, especially along religious and ethnic lines. Despite social challenges, India remains the world's largest country of migrant origin, with key emigration hotspots in Tamil Nadu, Kerala, Bihar and Uttar Pradesh. The history of Indian migration can be divided into three periods the colonial era of forced labour, the post-colonial era of large-scale displacement and the modern era of migration to the Gulf countries, with Kerala being a significant contributor to the Middle Eastern workforce.

Dhar & Bhagat (2021) examined that about one-third of international and one-tenth of internal migrants return to their respective places of origin. It also shows that there are two types of return migrants one that belongs to poor, marginal social groups. They are probably not very successful or due to certain mishaps returned to their families living at the place of origin. During the 1970s and the 1980s, there was concern that India was losing its educated and skilled workforce to the Western countries, popularly known as the 'brain drain'. With the recent changes in the global economy, growing unemployment rates in the developed countries and rapid growth of the Indian economy there is a likelihood that the reverse brain drain has also been occurring.

Singh & Sirkeci (2021) highlight that India has a prominent role in international migration encompassing both large-scale internal migration and international remittances. This migration dynamics is unsurprising in India. Because, India is the second most populous country in the world and has a variety of languages, religions and cultures it was not a new one. According to the 2018 United Nations World Migration Report, India has the largest diaspora globally, with over 15.6 million people living outside of the subcontinent. India has a long history of international migration, predating both the arrival of indentured labour flows and the period of British colonization. The current position of India as the world's leading supplier of skilled, semi-skilled and unskilled labour highlights the country's critical influence on the patterns of global migration.

Das et al. (2020) observed the impact of labour out-migration on the socio-economic conditions in rural India. They found that while migration significantly contributes to the socio-economic development of the sending areas, remittances are primarily used for consumption rather than investment, limiting long-term improvements in migrant's status. Consequently, migration persists across generations. The study also highlighted the negative effects of a father's absence on the development of left-behind children, with non-migrant children outperforming their migrant peers in education and social development. Economically, over 70% of migrant household's income comes from remittances, while non-migrant households

rely on agriculture. Although remittances boost family income, they do not significantly enhance agricultural income, land ownership, savings or investments. However, migration has led to improvements in household infrastructure, such as better housing, electricity, sanitation and the use of modern gadgets.

Shah (2013) in his work titled 'Labour Migration from Asian to GCC Countries: Trends, Patterns and Policies', pointed out that among the six-oil rich Gulf Cooperation Council (GCC) was the top recipient of temporary labour migration and approximately 47 per cent of their population being nonnatives. Since the 1980s, there has been a noticeable increase in the trend of labour migration into the area. The majority of migrants are Asian labourers, primarily from Bangladesh, India, Indonesia, Pakistan, the Philippines and Sri Lanka. Over time, the percentage of Asian workers has risen relative to that of Arab workers, with the former group accounting for between 60 and 70 per cent of foreign workers in certain countries.

Ahmad & Khan (2011) characterise Indian citizens living overseas or migrating for employment as Indian migrants. These individuals often cross borders seeking better income and job opportunities for themselves and their families. Indian workers are valuable assets to both the sending and receiving countries. While the Gulf States employ a significant number of Indian workers, India benefits substantially from the remittances sent by these migrants. The Gulf States are the primary source of remittances to India. Additionally, the presence of Indian managers and professionals in the Gulf contributes to the economic prosperity and stability of these regions. Despite the challenges faced by workers, the Gulf countries remain an attractive destination for Indian migrants.

Azeez & Begum (2009) in their study on Gulf migration, outline migration as the voluntary or involuntary movement of people. Voluntary migration occurs when individuals relocate for employment opportunities, while involuntary or forced migration is driven by factors such as natural disasters, wars or illnesses. Over the past few decades, voluntary migration has surged due to the complexities of modern life and changing socioeconomic conditions. The 1973 Persian Gulf oil boom, which led to labour shortages in oil-exporting nations, created a demand for both skilled

and unskilled workers. This drew labour from South East Asian countries like India, Bangladesh, Pakistan and Sri Lanka. Remittances from Gulf countries have notably improved economic conditions in certain regions of India, with Kerala alone contributing around 50% of Indian migrants and remittances to the Gulf.

Kohli (2005) highlights two significant benefits of migration for densely populated developing nations like India, which face high poverty and unemployment rates. Migration helps reduce unemployment and brings in vital foreign exchange, crucial for addressing current account deficits. This is particularly evident in the case of Indian migration to the Gulf states. The 1970s oil boom in the Gulf created employment opportunities that attracted Indian migrants, whose remittances boosted both the Gross Domestic Product (GDP) and State Domestic Products (SDPs) of India. For example, in Kerala, remittances accounted for 22% of the net SDP in 2003- 04, demonstrating the profound impact of Gulf migration. Kerala serves as a prime example of how Gulf migration has driven the socio-economic development of the state, particularly in districts like Thrissur, Kasargod and Malappuram. The influence of remittances is evident in the lifestyles of these regions, religious practices, investment patterns and educational aspirations, with noticeable cultural and economic ties to the Gulf.

Kapur (2004) provides a conceptual framework for the domestic impact of international migration from India. International migration and a country's diaspora can have significant economic effects on the country of origin. The education and training received from abroad through international migration have been instrumental in channeling the flow of expertise to India, fostering its integration into the global economy and redefining traditional notions of citizenship. The book highlights a paradox that although migration overseas is both a cause and an effect of globalisation, the majority of the factors influencing the countries of origin are specific to those countries.

Srivastava (2003) notes that migration to the Middle East surged from the late 1970s to the early 1980s, followed by a decline in the mid to late 1980s. However, the 1990s saw a significant rise in labour migration again, with around 3

million Indians now residing in Gulf nations, mostly from Punjab, Kerala, Tamil Nadu and Andhra Pradesh. Over the past few decades, new patterns have emerged, challenging old migration trends. In both developed and developing countries, the workforce has increasingly shifted towards the tertiary sector. Additionally, improved communication and urban congestion in developed nations have slowed urbanisation. The growth of the informal sector in developing countries has also become prominent, absorbing much of the workforce. In countries like India, permanent workforce shifts coexist with 'circulatory' migration, where people move between rural and urban areas or between underdeveloped and developed regions, often working in the unorganised sector.

Birks et al. (1988) examined the six Gulf Cooperation Council (GCC) employment trends and foreign worker dynamics in their study in light of recent changes. A total of 7.1 million workers were employed in these countries in 1985 and a sizable percentage of them were foreigners, varying from 68% to almost 91% in different states. Asia accounted for about 63% of the non-native labour force, with Arab foreigners making up 30%. Remarkably, 36% of all migrant labourers came from Pakistan and India. While they controlled industries like manufacturing, utilities and construction, non-natives also played important roles in services and other sectors.

Weiner (1982) notes that nearly two-thirds of the workforce in the Persian Gulf, including Kuwait, Qatar, Bahrain, the UAE and Oman consists of temporary immigrants. This unique phenomenon addresses severe labour shortages without resorting to open migration. The demand for migrant workers in these oil-producing Gulf states is driven by several factors. The creation of welfare states and investments in industry to diversify economies from oil exports have significantly increased this demand. However, the Gulf countries face a shortage of skilled local workers due to small populations and low participation rates, making it necessary to import labour. Most Indian emigrants to the Gulf come from states like Maharashtra, Gujarat, Punjab, Kerala, Karnataka and Goa, with a higher proportion of educated individuals migrating to this region. Despite this, persistent joblessness among the

educated suggests an excess of cognitive resources even with migration. Indian workers in the Gulf are primarily involved in construction and infrastructure projects for both local and multinational companies. Many are employed in various sectors, from factory roles to engineering positions in oil companies. Additionally, hospitals in the Gulf recruit medical professionals from Bangladesh, Pakistan and India, while Indian professionals are also sought by government-run institutions.

2.4.3 The Socio-Economic Impact of Gulf Migration in Kerala

Kerala is distinguished by its unique development approach known as the 'Kerala model of development.' This model is significantly supported by foreign remittances, which have played a crucial role in Kerala's progress. Historically, Kerala faced high unemployment, widespread poverty and a dense population due to rapid growth and limited industrialisation. The major change came in the 1970s with the rise in Gulf oil prices, leading many Keralites to migrate to the Gulf. This migration transformed Kerala's economy, society and culture, integrating it with the global world and revitalising its social fabric. According to Zachariah et al. (2000), foreign remittances have been essential for development in Kerala, adding vibrancy and progress to the state. Migration from Kerala has increased dramatically in recent decades, impacting all aspects of life in the state. Before the 1940s, Kerala had minimal migration. The first significant shift occurred in the 1940s when Kerala began to integrate more with other Indian states. The second shift happened in the 1970s, making Kerala a major emigration state, with international migration becoming more prominent compared to earlier internal migration (Zachariah et al., 2001).

Aneja & Praveen (2022) investigated the impact of international remittances on Kerala's economic growth. They found that the state economy is deeply connected with developed countries due to the widespread dispersion of its emigrants. In 1998, 93.9% of Kerala's emigrants lived in Gulf nations, primarily Saudi Arabia (37.5%) and the UAE (31%). By 2008, 88.5% were in the Gulf, mainly the UAE (41.9%), with some also in the USA and UK. By 2018, the proportion in the Gulf slightly decreased to 89.2%, with 39.1% in the UAE, 23% in Saudi Arabia

and 8.7% in Qatar. The study revealed a decline in the number of new emigrants from Kerala but an increase in remittances from those already abroad. This paradox arises because existing Gulf emigrants have secured higher-paying jobs and are sending more money home. While this influx of remittances has positively impacted Kerala's economic growth, the study warns that this trend may not continue indefinitely. The Kerala Migration Survey (2018) noted a rising number of return migrants, who may face unemployment and poverty. Aneja and Praveen recommend that the government implement measures and policies to address these potential issues.

Kannan & Hari (2020) pointed out that Kerala has been a leading performer in migration, alongside Punjab and Gujarat. With 2.12 million emigrants, who have identifiable households in Kerala, they represent over 6% of the state's population and 17 to 18% of its workforce. Despite a decline in remittance growth to 3.4% annually from 2011 to 2020, the economy of Kerala continues to grow at a nominal rate of over 10%. This indicates that while remittances have decreased, they have still significantly contributed to economic growth. The study concludes that the economy remains robust in Kerala even with the reduced flow of remittances.

Sunny et al. (2020) In their study 'Remittances, Investment and New Emigration Trends in Kerala', found that while remittances have led to long-term improvements in health and education due to increased human capital formation at the household level, their immediate effect is a higher standard of living. Receiving remittances has boosted the per capita income and the spending patterns of households. Households receiving remittances spend less on food and allocate a larger share of their income to durable non-food goods. Additionally, remittances have enabled households to increase their savings and invest in assets, real estate and buildings.

Abraham (2020) conducted a study on occupational mobility among international migrants and return migrants in Kerala, dividing job mobility into three phases: pre-emigration, emigration and post-return. The study found that many emigrants from Kerala worked in the service sector abroad, regardless of their

previous occupation or training. Due to challenging labour market conditions in their destination countries, many emigrants are returning to Kerala and rejoining the workforce. The work indicates moderate occupational mobility both between pre-emigration and abroad and between abroad and post-return occupations. While workers often leave their traditional occupations while abroad, they are likely to return to their original jobs upon coming back to Kerala.

Shibinu (2020) observed that since the mid-1970s, commodity exports have gradually surpassed manpower exports, which had previously been a significant focus. After independence, a large-scale emigration of skilled, semi-skilled and unskilled workers occurred, primarily to the GCC countries: UAE, Saudi Arabia, Oman, Kuwait, Qatar and Bahrain. Remittances from these Gulf countries have significantly benefited Kerala, though they have also led to increased luxury consumption, easier lifestyles, rising liabilities and declining agricultural production. Education plays a crucial role in migration, as many Gulf migrants from Kerala are educated and see migration as a solution to unemployment. Young members of Gulf-migrant households often pursue professional or technical qualifications to enhance their migration prospects. The study also found that migrants from Malappuram can migrate to Saudi Arabia at a lower cost than those from Thiruvananthapuram and Ernakulam, creating a migration chain. Malappuram district ranks first in both the number of emigrants and remittance receipts.

Cheethanapuravan (2019) outlines the migration of Keralites during the twentieth century as occurring in three distinct phases. The first phase involved migration to places like Karachi, Sri Lanka, Malaya and Burma, where many Keralites, driven by the pressures of colonial rule, worked in semi-skilled jobs and on plantations. The second phase, from 1945 to 1960, saw a new wave of migrants heading to Singapore, Malaysia and various Indian cities like Bombay, Delhi, Calcutta and Madras. This period brought significant changes to all aspects of life due to both internal and international migration. The third phase began in the early 1970s, triggered by a surge in oil prices, which led to a massive wave of migration to the Gulf states. This migration significantly contributed to the development of

infrastructure and economic growth in the Middle East, improving the fortunes of these countries.

Rajan & Zachariah (2019) in their working paper based on the Kerala Migration Survey 2018, provide a detailed analysis of the recent trends in emigration and remittances in Kerala. The study highlights that 2,121,887 people have left Kerala for various destinations worldwide. However, there has been a noticeable decline in the total number of emigrants, with the 2018 figure being 2.78 lakhs lower than in 2013 and 1.49 lakhs lower than in 2016. The districts that saw the most significant drops in emigration between 2013 and 2018 include Ernakulam, Thiruvananthapuram, Kozhikode, Malappuram, Kannur, Kasaragod and Pathanamthitta. Despite the decline, Malappuram remains the leading district for sending migrants, followed by Kannur, Thrissur and Kollam. The Gulf region continues to be the most popular destination for Keralite emigrants, with 89.2% of them heading there. The remaining 10% is divided among the USA, UK and Australia. Even with a slight decrease from 2016 to 2018, the Gulf still hosts 1.89 million Keralites.

Khan (2019) conducted a study on the forced migration of Muslims from Kerala to Gulf countries, revealing that the poor socio-economic conditions of the 1960s and 1980s, along with mass unemployment and a cycle of poverty, compelled many Muslims in Kerala to migrate to the Gulf. The primary destination for these migrants was Saudi Arabia. One of the key motivations behind this migration was the desire to improve their standard of living through international remittances. Approximately 95% of these emigrants headed to Arab countries in the Middle East, with nearly 40% going to Saudi Arabia alone. Outside the Arab world, the United States was a notable destination, attracting 2.2% of the total emigrants. The main regions of origin for these emigrants were Malappuram and Thrissur, with Thiruvananthapuram serving as a secondary centre.

Khan & Valatheeswaran (2016) study found that when a family member migrates abroad, the remaining male members reduce their participation in the labour market by 24%. Female family members, especially wives, see an even

greater decrease in participation, with reductions of 46% and 49% respectively. This indicates that migration has a more significant impact on female job participation than on males. Although this withdrawal leads to an increase in the number of unemployed individuals in emigrant households, remittances provide financial support, allowing them to wait for preferred job opportunities. The study also found that international migration boosts self-employment activities among migrant households. However, it also increases the household responsibilities of women, regardless of their location or economic status. Despite this, emigrant households experience a greater reduction in unpaid family work among women, particularly in rural areas.

Venier (2011) discovered that emigration from Kerala to Gulf countries increased significantly since 1970 and UAE was the most popular destination at that time. Kerala has a long history of international emigration stretching back centuries. In the initial years, migration was viewed as a temporary measure and people expected to return after earning income and become wealthier. But this perspective changed and emigrants realised that this was a golden opportunity to become self-employed and wealthier from international experiences.

Zacharia et al. (2011), in their article 'Impact of Migration on Kerala's Economy and Society', analysed the determinants and consequences of both internal and external migration. They classified migrants into four categories: emigrants who were residents of Kerala but had moved abroad by 1998, return emigrants who had returned to Kerala after living abroad for at least a year or shorter durations due to studies or job searches, out-migrants who had left Kerala to live elsewhere in India by 1998 and return out-migrants who had come back to Kerala after residing in another part of India for at least a year or shorter periods for studies or job searchesThis framework helps in understanding how the migration impacts on Kerala's economy.

Rajan (2004) examined the social and economic implications of emigration from Kerala to the Gulf region. Kerala has the highest number of emigrants in west Asia, as well as the highest remittance inflows among all other Indian states. The

effects of migration were widespread and that can see all aspects of life and all family in Kerala in one way or another. Their study based on 10,000 households in Kerala, found out the economic effect of labour migration on housing quality, education, asset holding and consumer durable ownership. They also analyse how the labour migration affected the left-behind women in the household and elderly people.

Paul & Subash (2005) considered the impact of international migration on Kerala's economy. They identified several challenges affecting future migration, including economic shifts in Gulf countries, increased local labour availability and competition from more skilled workers from other Asian nations. To address these challenges, they suggest enhancing workers skills through educational reforms aligned with the demands of destination countries like the USA, Singapore, Malaysia and the Gulf states. Migration and remittances have positively influenced Kerala's economy by boosting consumption, savings, investment and income distribution. Migrant households have achieved higher income, consumption and asset acquisition compared to non-migrant households. However, rising costs of land, goods, education and healthcare have negatively impacted the middle-class and fixed-income groups. Additionally, Kerala faces challenges with a large-scale return of migrants due to job shortages, lower wages, strict laws and health issues. This repatriation issue is expected to worsen in the coming years.

Pushpangadan (2003) found that migration to Gulf countries and financial sector reforms in the 1990s significantly contributed to economic growth in Kerala. During this period, remittance savings more than doubled, driven by the state's changing demographics and increased savings among migrant households. However, despite this rise in savings, the credit-deposit ratios of commercial banks declined, highlighting their limited role in connecting investors and savers. Kerala experienced a major economic transition from the 1970s to the 1990s, evolving from a cycle of stagnation to one of robust growth. To foster sustainable development, he suggests several strategies: actively identifying global markets for skilled labour and providing world-class training, enhancing domestic tourism through institutional

innovations and reducing reliance on imported components by promoting local production to address challenges related to the rapid development of the motor vehicle sector.

Zachariah et al. (2000) analysed the socio-economic and demographic impacts of migration in Kerala and found that most migrant households (86%) use their remittances primarily for daily living expenses and supporting household consumption. The remittances have facilitated improvements in bank deposits, construction and maintenance of buildings, debt repayment and education. Despite these gains, there is only a slight difference in education spending between households with and without emigrants, although housing conditions and the consumption of durable goods have improved. Interestingly, non-migrant households have slightly more average school years. Migration has led to upward occupational mobility and a decrease in the unemployment rate, from 37 lakh in 1998 to 12.68 lakh currently. Additionally, migration has contributed to a significant drop in poverty rates, with Muslims, Ezhavas and Latin Christians experiencing the largest reductions, while Syrian Christians and Nairs see the least change. This highlights how migration has positively transformed Kerala's socio-economic landscape, improved livelihoods and reduced poverty across various demographic groups.

Banerjee & Jayarajan (2002) studied how emigration affects people's standard of living. Their study found that increased remittances from abroad lead to higher educational attainment, better health indicators and improved consumption levels, all contributing to a higher standard of living.Furthermore, they observed that remittances not only help in meeting basic needs but also facilitate investments in long-term assets and socio-economic mobility, thereby significantly uplifting the overall well-being of households.

Zachariah et al., (1999) reported that 95% of emigrants from Kerala went to Arab countries in the Middle East, with Saudi Arabia alone accounting for nearly 40% of the total. The United States was another notable destination, accounting for 2.2% of the total emigration. Emigrants predominantly came from the Malappuram-

Thrissur area, with Thiruvananthapuram as a secondary centre. Thrissur, Palakkad, Kozhikode, Kollam and Ernakulam each had nearly 100,000 emigrants. Over a million families depend on the earnings of these emigrants for daily needs, children's education and other financial obligations. Internal migration is largely driven by Syrian Christians, Nairs and Ezhavas from the former Travancore- Cochin State, while emigration is primarily composed of less educated Muslims from the Thrissur-Malappuram region.

Prakash (1998) explored the extensive labour migration from the Indian state of Kerala to the oil-producing state of the middle east. The inflow of gulf remittances and their expenditure has led to economic transformation in Kerala which is an impoverished and industrially underdeveloped economy since the 1970s. The migration to the gulf and remittances lead to attaining higher levels of income, education and asset acquisition among migrant households in Kerala. This will ultimately lead to the reduction of poverty and the attainment of high health standards among them. However, that will create an adverse effect among non-migrant households in Kerala.

2.4.4 Significance of the Fisheries Sector in Kerala

The marine fisheries sector in Kerala is crucial to the economy of the state, providing livelihoods, contributing to food security and playing a key role in both domestic and international markets. Despite its significance, the sector faces marginalisation within the overall development model. The fisherfolk community, particularly those involved in marine fishing, often experiences socio-economic challenges such as low income, poor living conditions and limited access to resources. This section will examine the importance of the marine fisheries sector, highlighting its contribution to the economy of Kerala, the socio-economic struggles faced by the marine fisherfolk and how migration has emerged as an essential livelihood strategy for this community to overcome vulnerabilities and improve their economic standing.

2.4.4.1 The importance of the Marine Fisheries Sector

Rajan & Pillai (2020) highlighted that fishing has historically been the main livelihood for coastal communities, with these populations relying on the sea for their income. Traditionally, they have managed maritime resources collectively. The wealth provided by the sea has played a vital role in their economic well-being, making fishing an integral part of their lives and cultural identity.

GOI (2020) handbook shows that the fisheries sector in India is still developing, with only 57% of its freshwater aquaculture and 70% of its marine fisheries potential utilized. India ranks as the second-largest fish producer and aquaculture nation in the world, following China. This sector is crucial for providing direct employment to around 16 million people and many more indirectly. It plays a key role in food production, contributing to nutrition and food security. India's diverse aquatic resources include an exclusive economic zone (EEZ) of 2.02 million sq. km, a continental shelf of 530,000 sq. km and a coastline of 8,118 km. The marine fishery potential is estimated at 5.31 million metric tons (MMT), with 43.3% demersal, 49.5% pelagic and 4.3% oceanic fish. Fish production has increased from 5.66 MMT in 2000-01 to 12.61 MMT in 2017-18, with inland fisheries contributing 8.92 MMT and marine fisheries 3.69 MMT.

GOI (2018) highlights the crucial role of the fisheries sector in the socio-economic development of the country. It generates significant income and employment, supports various industries and provides affordable, nutritious food. It is particularly vital for the economically disadvantaged population. India is the world's second-largest fish producer, contributing 6.56% of global production and about 1% to the country's gross value added (GVA), with fisheries accounting for over 5.37% of agricultural GVA. The sector earned 45,106.89 crore from exports in 2017-18, with an impressive annual growth rate of 19.11%. It supports about 16 million people directly and nearly twice as many through the value chain. The sector has experienced an annual growth rate of over 7% in recent years.

Murugan & Sivagnanam (2018) in their study 'Fisheries Sector and Economic Growth in India' outline the evolution of India's marine fisheries sector

through four distinct phases. The first phase, up to 1965, was marked by small indigenous crafts and traditional gear with minimal mechanisation. The second phase, from 1965 to 1986, saw significant changes, including the increased use of synthetic gear, a focus on exports, more mechanised fishing vessels, government investment in fishing harbours and the motorisation of smaller artisanal boats. The third phase, from 1986 to 2000, featured further advancements like widespread motorisation of artisanal boats, popularisation of ring seines, offshore expansion of fishing grounds, extended voyage fishing and the introduction of seasonal fishing closures for sustainability. The ongoing fourth phase, post-2000, faces challenges such as stagnant in-shore catches, reduced investments and conflicts over sea fishing access, reflecting the sector's evolving nature and the need for adaptive strategies.

Rao et al. (2016) emphasise that India, with its vast 2.02 million square kilometers of exclusive economic zone, is home to a diverse range of marine fishery resources, offering an annual harvestable potential of 4.41 million metric tonnes. The marine fisheries sector is crucial for the livelihoods of nearly 4 million people and plays a significant role in providing food and nutrition to a large portion of the population. While India has historically been a leader in global marine fish production, it currently ranks 7th in the world, following China.

Shakir (2017) observes that the coastal region of Kerala is home to a diverse mix of Hindu, Christian and Muslim communities, each strongly holding onto their religious identities. Despite this diversity, these fishing communities face discrimination from non-fishing groups, who are hesitant to form social connections with them. Although members of the fishing community actively participate in various political groups to represent their interests, they are often excluded from leadership positions.

Rao et al. (2014) elaborate that fisheries resources encompass fish and other aquatic products obtained through both capture fisheries and aquaculture. Capture fisheries involve harvesting fish from natural bodies of water such as rivers, lakes, reservoirs and oceans, while aquaculture pertains to the cultivation of fish in controlled environments such as tanks, ponds and reservoirs. These resources

include popular fish species like cod, salmon, catfish and tilapia, as well as mollusks like oysters, crustaceans such as shrimp and other marine creatures like sea urchins, starfish, jellyfish and sharks.

CMFRI (2012) reported that there were 3,288 marine fishing villages and 1,511 landing centres across 9 coastal states and 2 union territories in India, with around 4 million marine fisherfolk spread across 864,500 families. Of this population, about 38 percent were actively engaged in fishing, with 85 percent working full-time. Kerala plays a crucial role in marine fisheries In India, contributing roughly 20 percent of the nation's total fish landings. This success is due to the advantageous geography in Kerala, including a 590-kilometre coastline, a 3,600 square kilometre exclusive economic zone and an extensive network of inland waters, ensuring abundant fish resources.

Ayyappan & Diwan (2006) identify three primary categories of fisheries in India: inland, marine and aquaculture fisheries. Inland capture fisheries refer to fish obtained from natural water bodies such as rivers and canals. Estuaries. Floodplains wetlands, lagoons and reservoirs and this sector holds enormous production potential to meet the inland fish requirement of the country. The marine environment provides immense biodiversity that is being catalogued for commercial uses. These include several microorganisms, algal forms and invertebrates, that could serve as potential sources of bioactive substances including antimicrobials, anaesthetics and anticarcinogens etc. As well as a wealth of valuable genetic material for transgenics and thus it presents a huge opportunity for both food and drugs for the seas. The culture fisheries are further divided into freshwater aquaculture, coastal aquaculture and mariculture.

Mathew (2000) clarifies that fisheries are divided into two sectors: traditional and mechanised. The traditional sector includes both marine and inland areas. Currently, the traditional fishing sector produces only a small surplus of fish for the market. Despite this, it has long provided livelihoods for many, who have extensive knowledge of the ocean, including local winds and currents. The fishing economy involves three main activities, harvesting (or catching) fish, processing and

marketing. Harvesting alone accounts for 66% of the workforce in the fisheries sector.

2.4.4.2 Marine Fisherfolk Community in Kerala

George (2018) highlights the importance of the cultural diversity and sustainability of fisherfolk communities. However, achieving sustainable development for these communities is challenging due to various factors such as ecological, economic, social, cultural, institutional and technological limitations in fisheries development. Ensuring the stability and well-being of fisherfolk is crucial and requires the introduction of new technologies, improved training opportunities, investments in infrastructure and a focus on their overall welfare.

Salim et al. (2017) observed the socio-economic profile of a vulnerable coastal fishing community in Kerala. The findings highlighted that, out of all the coastal states in India, Kerala relies significantly on fishing for subsistence, livelihood and employment. The study also revealed that 12% of the fisherfolk in Kerala earn additional income through related activities, such as marketing fish, repairing nets, vending fish, processing and other tasks associated with the fishing industry. This supplementary income plays a crucial role in supporting their primary fishing activities and overall economic stability.

Devika (2017) utilised mixed-method field research in Adimalathura, a coastal village in Trivandrum, it was found that the fisherfolk are among the poorest communities in the district. The study pointed out that the main challenge they face is diminishing fish resources. The dramatic decrease in fish availability, along with increased fishing pressure, has severely affected their livelihoods and created substantial instability in their economic well-being.

FAO (2004) defines a fishing community as a group that primarily relies on harvesting or processing fish to meet their social and economic needs. This definition specifically excludes individuals who are involved in fishing activities but do not directly engage in the core activities of fishing. This includes fishing vessel owners, the families of fishermen, operational crews, recreational anglers, fish

processors, gear suppliers and others involved in the industry but not directly in the primary fishing activities.

Dhanuraj (2004) outlines that fishing communities consist of diverse individuals, including men, women and children, who make their living through different parts of the fish industry. This involves activities such as catching, handling, processing and selling fish and fish products. Fishing, in a broader sense, covers any activity aimed at capturing or harvesting fish but does not include scientific research conducted by research vessels. It also encompasses supporting activities that aid these fishing operations at sea.

Rajan (2002) identified that fishing, which was once a community-centered occupation, has now turned into a commercial activity. The younger generation is moving away from fishing due to factors such as geographic and social changes. Fishing is shifting from a family-based job to a worker-owner model. This transition has reduced job opportunities within the sector and limited future employment prospects for young people in fishing communities.

2.4.4.3 Socio-Economic Conditions of Marine Fisherfolk Community in Kerala

Salim & Shinu (2020) emphasise that the fisheries industry in Kerala serves as a model for other coastal states due to its focus on sustainability and the welfare of fishermen. The state has implemented innovative management and welfare programs to enhance socio-economic standards. After the 2004 tsunami, the Department of Fisheries established the Society for Assistance to Fisherwomen (SAF). SAF's program, Theeramaythri, has significantly empowered fisherwomen, increasing their impact score from 0.14 to 0.64 by establishing 1,200 Self-Help Groups (SHGs). A study of 600 of these groups revealed that they experienced increased sales and income following financial support.

Kerala State Planning Board (2019) report emphasises that good health is essential for both individual well-being and national development. The health sector in Kerala is often regarded as a model for other Indian states, with significant achievements in life expectancy and low rates of infant mortality, birth and death.

However, the state faces emerging health challenges, including mental health issues, suicide, substance abuse, alcoholism, adolescent health problems and rising road traffic accidents. Marginalised communities, such as Scheduled Tribes and fish workers, experience poorer health outcomes compared to the general population.

Salim et al. (2017) examined the income, health, livelihood security and debt status of Kerala's marine fisherfolk community. Their study found that the marine capture industry generates the highest annual income and carries the most debt compared to other sectors. Fisherfolk often earns additional income through labour and business activities. Despite having multiple income sources, many households are burdened with debt and rely on private money lenders to cover daily expenses and improve their standard of living.

Jayaselvi (2016) study indicates that fishermen often have low socio-economic status and poor education, which contributes to poor oral and general health. Many fishermen in India face economic and social challenges, leading to low productivity and fish production. Their poor health affects their overall well-being and their approach to seeking medical care. There is a pressing need for government action to raise awareness about the importance of health among fishermen. The government should organise awareness campaigns about health care services and health insurance.

Shakir (2017) enlightened the coast of Kerala is inhabited by Hindu, Christian and Muslim communities, each holding onto their distinct religious identities. Despite this, the fishing communities face ongoing discrimination from those outside their sector, who are unwilling to engage with them socially. Even though the fishing community is involved in different political groups to advocate for their needs, they frequently remain excluded from leadership roles.

Nelson (2016) in his study found that there are some improvements in the lives of fisherfolks in terms of education but they still lag behind in terms of health standards. The human development indices according to the UNDP show that the community has to go a long way up in the development ladder. The existing vulnerable conditions of the fishermen should be eradicated with education and

awareness. The community has to go a long way to attain human development and be at par with mainstream society. It needs to pounce over poverty, deprivation in basic amenities, educational backwardness and ill health status which would further help in widening the opportunities, enlarging choices and expanding capabilities.

Vipinkumar et al. (2014) tried to evaluate the impact of Self-Help Groups (SHGs) on reducing the level of debt among marine fisherfolks. The study is based on a primary survey along the coastal regions of north, center and south Kerala. The findings show that the members of SHGs had lower levels of debt compared to non-SHG members. The members have a better repayment capacity than non-members.

Russell & Dobson (2011) observed that fishermen must demonstrate mobility, flexibility and adaptation throughout the year and over several years due to the significant variations in local fish catches, which are caused by fluctuating climatic conditions, changing marine ecosystems, differing rates of erosion from various watersheds, unpredictable weather patterns and rapidly evolving coastal environments worldwide.

Sathiadhas & Prathap (2009) examined the socio-economic aspects of migrant fisherfolk from Colachel, Thoothoor and Vallavilai in Tamil Nadu, Kanyakumari district. They found that advances in fishing technology have encouraged fisherfolk to migrate in search of better catches and earnings. This migration has had significant effects on both the social and economic lives of the migrants and their families. Key reasons for migration include unstable income, exploitation by fishing units, forced sales and delayed payments.

Suprabha (2008) considered the effects of government social security and welfare schemes on the lives of small-scale marine fisherfolk in Kerala. Kerala is noted for having excellent infrastructure and basic amenities compared to other Indian states, including fully electrified villages, good road connections, superior boat yards, ice plants and cold storage facilities. However, many marine fisherfolk are still unaware of the government welfare programs available to them. Political interference and other issues have left a significant portion of the community uninformed about these programs.

Sathiadhas (2006) explored that advancements in marine fishing technology in Kerala have led to overcapitalisation, marginalisation and increased competition for resources, profoundly impacting coastal communities. Disguised unemployment remains a pressing concern, requiring improved domestic marketing and alternative livelihoods. Expanding secondary sector opportunities and promoting coastal aquaculture could address these challenges and support sustainable development.

Rajan (2002) observed that fishing, once a community-centered occupation, has transformed into a profit-driven commercial activity. The younger generation is increasingly moving away from the sector due to geographic, demographic, sociographic and ethnographic factors. The traditional family-based system has shifted to a worker-owner model, presenting challenges such as limited opportunities for occupational diversification and a need for greater employment potential.

Hapke (2001) underscored that women in the Trivandrum region have traditionally played a vital role in fishing and fish markets, contributing significantly to fisherfolk livelihoods. However, mechanisation and modernisation have led to overfishing and declining catches, especially impacting artisanal fishermen. Consequently, women's participation in fish marketing has become crucial for household survival. This shift towards commercialisation, however, has also increased the marginalisation of women within the fishing community.

Kurien (2001) examined that while fishermen receive more social security compared to other groups, there is a need for a balance between promotional and protective measures. Fishermen require more employment opportunities and job training programs. Additionally, poor coordination among authorities and delays in implementing health policies have resulted in inadequate health and sanitation conditions for fishermen, leading to increased vulnerability among them.

Pillai et al. (2000) examined the socio-economic conditions of marine fisherfolk families, focusing on the effects of technological advancements and mechanisation in the fishing sector. They found that mechanisation negatively impacts the income and employment opportunities for traditional fisherfolk who rely on traditional fishing tools and methods. The study suggests that improving literacy

rates among the marine fisherfolk community is a key way to enhance their socio-economic conditions.

Kurien (1995) highlights that the poor quality of life and substandard living conditions of marine fishing communities in Kerala are largely due to their overcrowding on a narrow strip of land along the coastline. Another study by Kurien and Achary (1988) attributes the decline in fish resources and stagnant fish harvests to destructive fishing practices, such as trawl nets and pelagic fishing. They also note that the mechanised sector's increased appropriation of resources and degradation of marine environments have led to reduced earnings and income deprivation among traditional marine fisherfolk in Kerala.

BOBP (1985) defined marine fisherfolk in India belong to lower and disadvantaged castes, occupying the lowest economic strata of society. Fisherwomen, in particular, face even lower status within this hierarchy, making their situation more challenging compared to their male counterparts. Despite this, many fisherwomen share in tasks such as fish distribution, marketing, processing, curing and preserving, along with men.

Gulathi (1984) cited that fishing has long been the primary livelihood for people in coastal areas of Kerala. Women are involved in various stages of the fishing process, from the arrival of the catch on the beaches to its sale in markets. Despite their crucial role, women often face discrimination both at home and in public spaces. In traditional fisherfolk families, fishing typically results in just a hand-to-mouth existence. Women in these households generally manage domestic responsibilities and care for children, while also engaging in supplementary work to support the household's income.

2.4.4.4 Migration as a livelihood Strategy of the Marine Fisherfolk Community

Raju et al. (2021) studied labour mobility in the marine fisheries sector in Odisha, India. The research highlighted that migration among fishermen is driven by low income, debts, financial commitments and disguised unemployment. While migration generally improves their standard of living, it also presents challenges

such as language barriers, cultural differences and conflicts with established migrant workers. The study underlines that labour mobility benefits the marine fishery economy but can also lead to ecological and social changes, potentially causing disputes with local fishers over limited resources.

Rajan & Pillai (2020) discuss how fishing has traditionally been the sole income source for millions living in coastal areas, with the resources of the sea being collectively owned by these communities. They warn that without controlling seabed destruction and unsustainable fishing, both the long-term and local economies will suffer, impacting secondary and tertiary sectors and increasing migration among fishing labourers. Their study on migration as a livelihood strategy in South India highlights that, due to declining fish stocks, rising operational costs and increased dangers at sea, many fishermen are migrating to the Gulf countries. This migration has become crucial for coping with strained conditions. Fishermen engaged in deep-sea fishing often stay in their native lands, while those using single-day crafts are more likely to migrate, leaving their families behind in culturally constrained living conditions.

Rexford (2016) explores the impact of migration on artisanal fisheries in Ghana, focusing on Jamestown and Chorkor communities. Migrant fishermen have significantly contributed to local economic development by transferring fishing technology, creating jobs and increasing fish landings. However, migration also presents challenges that can affect the well-being of residents. Fishermen move to these areas for better fishing opportunities and access to essential inputs like fuel, gear and motors, highlighting the complex relationship between migration and the fishing industry, with both positive and negative effects on the communities.

Wanyonyi et al. (2016) explored the diverse migration patterns of fishers in East Africa. They found that fishers follow various routes and stay at different destinations for varying lengths of time. Some fishers return to their main destination after a season, while others move between several locations, including circular and permanent migrations. Seasonal migrations are predictable and useful for management, but individual patterns vary widely. The main reasons for

migration include the search for better fishing grounds, higher earnings and cultural practices. The study highlights how seasonal monsoons and fishing techniques influence these migration patterns, reflecting the complexity of artisanal fisher migration in the region.

Russell & Dobson (2011) found that fishermen need to be highly mobile, flexible and adaptable year-round and over multiple years due to significant fluctuations in local fish catches. These variations are influenced by changing climatic conditions, erosion rates from various watersheds and unpredictable environmental factors that impact fishing practices and sustainability.

Korra (2010) concluded that many fisherfolk are compelled to leave their villages due to survival challenges, especially after the monsoon season. Poor crop yields, lack of local employment, debt and the need to fund children's marriages or invest in agriculture drive migration. Despite owning land and resources, these households migrate because there are few local work opportunities or alternatives during the off-season. He highlights that many migrants are compelled to leave their villages due to inadequate food yields, lack of local employment and debt. Despite owning land and other resources, they often face no viable local alternatives during the slack season, leading them to migrate for additional income and investment opportunities.

Nunan (2010) studied how mobility among fisherfolk on Lake Victoria impacts their livelihoods and found it to be a crucial part of their strategies. Moving between different landing sites helps reduce poverty and vulnerability by ensuring a steady income from fishing throughout the year. This mobility is closely linked to their overall livelihood strategies, allowing them to adapt to changing fish populations and market demands while maintaining their socio-economic stability.

Sathiadhas & Prathap (2009) state that fisherfolk face numerous challenges during long trips away from home. These challenges include social tension for families and poor working conditions for the fishermen, who often struggle with debt bondage. Families, especially women, must manage irregular income from

male members and frequently rely on informal debt sources. Additionally, there are frequent conflicts between migrants and local marine fisherfolk.

Salagrama & Koriya (2008) examined livelihood diversification among coastal fishing communities in India as an established practice driven by poverty and deprivation. Migration for survival can be geographical, involving relocation while continuing the same livelihood, or occupational, involving a shift to different activities locally or elsewhere. Geographical migration often involves short or long-distance moves, with women participating in shore-based tasks like sorting, processing and selling fish, in addition to housekeeping. Occupational migration, observed at the household level, sees different family members engaging in various activities to boost family income. Women play a key role in this diversification, while older people and children also contribute.

Njock & Westlund (2006) depict two main types of migration in coastal fishing communities: internal and international. Internal migration involves moving between fishing settlements within a country, driven by changes in the fisheries sector and can be short-term, long-term or permanent. International migration involves moving to another country for an extended period while maintaining ties to the home country. Migrants are categorized as unattached, relying on social networks for support or contractual, moving for specific work agreements. Economic factors such as seeking new markets, saving opportunities and security are the primary drivers of migration. Njock and Westlund highlight that fishing communities are complex and migration, driven largely by economic needs, is a key strategy for managing their livelihoods.

Migration is a strong tool for livelihood diversification and can play in diminishing vulnerability and reducing poverty in low-income countries (Ellis,2003) migration should be seen as the norm rather than the rule, as an integral part of societies rather than a sign of separation an essential element in people's livelihoods, whether rich or poor and often essential element of population's livelihood strategies (Dee Haan,1999).

2.5 Research Gap

While many studies highlight the positive impacts of migration on household structures and local economies, there is a significant gap in understanding its specific effects on marginaliaed communities, particularly marine fishermen. These communities often face considerable socio-economic challenges, primarily due to their reliance on marine resources and traditional fishing practices, which render them particularly vulnerable to economic pressures and environmental changes. In light of ongoing economic hardships, many individuals within these communities have turned to migration to the Middle East as a vital survival strategy (Rajan & Pillai, 2020). Factors such as low income, high dependency ratios and limited access to financial resources exacerbate their vulnerability, further intensified by changes in the fishing industry that lead to income instability and increased dependence on migration as a coping mechanism.

Despite the crucial role of migration in the economic survival of marine fisherfolk, comprehensive research examining its impact on income and expenditure disparities between migrant and non-migrant households especially among marginalised groups remains deficient. Gaining insight into these dynamics is essential for developing informed policies and interventions that promote the socio-economic development of these vulnerable populations. Therefore, this study aims to fill these research gaps by investigating the socio-economic characteristics of the marine fisherfolk in Malappuram, exploring their motivations for migration and assessing the socio-economic effects of migration. By examining these aspects, this research seeks to deepen our understanding of the relationships between migration and socio-economic conditions in marginalised communities, ultimately contributing to the development of strategies that enhance their resilience and improve their living standards.

CHAPTER 3

MARINE FISHERFOLK IN KERALA: AN OVERVIEW

- *Introduction*
- *Fisheries Sector in Kerala*
- *Marine Fishery*
- *Fish Production in Kerala*
- *Marine Fisherfolk Community in Kerala*
- *Socio-Economic Conditions of Marine Fisherfolk Community in Kerala*
- *The Stages of Transition: Fisheries Sector in Kerala*
- *Survival through Migration: Strategies of Marine Fisherfolk*
- *Kerala to the Gulf: An Overview of Historical and Contemporary Migration*
- *Socio-Economic Effects of Gulf Migration on Kerala*
- *Conclusion*

3.1 Introduction

Fishing has long been a traditional and essential occupation in Kerala, serving as a foundation for food security, employment opportunities and livelihood stability for centuries. The historical significance of fishing practices in the region can be traced back nearly two millennia, highlighting its deep-rooted connection to the local culture and economy. The coastal area once celebrated for its relatively peaceful and prosperous living conditions, relied on basic fishing vessels powered by hand or sails. These traditional methods not only provided sustenance for local communities but also facilitated trade links with distant lands, including ancient Greece, Rome and the Arabian Peninsula (Antony, 2011). Such interactions enriched the knowledge and skills of the fishing community, contributing to a vibrant exchange of goods and cultural practices.

Despite its rich history and foundational role in Kerala's development, the marine fishing sector faces significant contemporary challenges, including low income levels, limited access to resources and fluctuating fish prices. Families struggle to meet basic needs due to competition from mechanised fishing and the overexploitation of resources, compounded by environmental changes and climate change. As a result, many in the fishing community are seeking better opportunities through migration, particularly to the Middle Eastern countries. This strategy provides access to higher wages and improved living conditions, with remittances supporting families and enhancing economic stability. This chapter tries to explore the importance of the fishing industry in Kerala, examining its historical significance and current challenges. It also analyses how migration serves as a strategy for marine fisherfolk to address their socio-economic difficulties while highlighting its broader implications for the sector and the communities involved.

3.2 Fisheries Sector in Kerala

The fisheries sector is a vital component of global economies and societies. This sector generates a diverse array of products, ranging from essential food items that form the cornerstone of nutrition for millions to luxury goods catering to high-end markets. Fish has become a fundamental element of diets worldwide and the income generated from the fishing industry significantly contributes to the economic growth and stability of many nations. In India, marine fisheries hold particular significance, serving as a crucial pillar of the natural resource-based economy and providing essential income and employment opportunities to vulnerable and marginalised communities. The sector plays a vital role in supporting a large portion of the population, making it integral to both social and economic well-being.

The fisheries sector in Kerala plays a pivotal role in supporting a significant portion of the population and contributing to the overall economy. With a 590 km-long coastline, Kerala is a major player in marine fisheries, making substantial contributions to both local and national food security. Fishing traditions in the region can be traced back to the first century AD, with early travellers documenting the use of advanced fishing methods, highlighting the rich cultural heritage associated with this occupation. The unique coastal environment of Kerala, characterised by its diverse ecosystems, considerably influences the variety of fish species available and the fishing practices employed by local communities. Factors such as monsoon seasons, tidal patterns and the geographical layout of the coast all contribute to the abundance and diversity of marine life. Over time, fishing techniques in Kerala have evolved, shaped by the influences of international trade and innovations introduced by trading partners. These advancements have allowed local fishermen to adapt to changing market demands and improve their catch efficiency. Today, the fisheries sector in Kerala sustains the livelihoods of countless families and also plays an essential role in the economy of the state.

Table 3.1

Fisheries Sector: A Comparative Overview of Kerala and India

Fisheries Sector	Kerala	India
Length of coastline	590 Km	8118 Km
Number of marine fisheries villages	222	3477
Annual fish production	0.68 MMT	14.16 MMT
Marine	0.48 MMT	3.72 MMT
Inland	0.2 MMT	10.43 MMT
Total Fishermen Population	1044361	2,80,63,538
Inland Fisermen Population	240196	23117820
Marine Fishermen Population	804165	4945718

Sources: Department of Fisheries (2020); Kerala State Fisheries Department (2020)

Table 3.1 demonstrates the significant role of the fisheries sector in Kerala within the broader context of the fisheries industry in India. Although the coastline of Kerala (590 km) constitutes just 7.3% of India's total 8,118 km coastline, the state plays a crucial role in the national fisheries sector. Kerala has 222 marine fisheries villages, highlighting a concentrated fishing community despite the lower number compared to India's total of 3,477 villages. The annual fish production of the state is 0.68 million metric tonnes (MMT), including 0.48 MMT from marine sources and 0.2 MMT from inland sources, reflecting its substantial contribution to the total production of the country (14.16 MMT). The fisherfolk population in Kerala and India plays a crucial role in the fisheries sector. In Kerala, there are 1,044,361 fisherfolk, with 804,165 involved in marine fishing and 240,196 in inland fishing. In India, the total fisherfolk population is 28,063,538, with 4,945,718 in marine fishing and 23,117,820 in inland fishing. Furthermore, Kerala has a higher proportion of marine fishermen compared to the national average, highlighting the region's dependence on marine resources for livelihoods.

3.3 Marine Fishery

Marine fishing and inland fishing represent the two main categories of fishing. Marine fisheries occur in saltwater environments such as the ocean and are divided into offshore, deep-sea and coastal types. Inland fisheries, on the other hand,

take place in rivers and lakes and include capture and culture fisheries. Historically, fishing was a socio-economic activity where people often exchanged goods or services. However, with the introduction of advanced mechanical equipment, the fishing industry has shifted towards a market-oriented model requiring significant investment (Van, 2001). In Kerala, the marine fisheries sector is crucial for food security and livelihood. Over 8 lakh people rely on marine fishing in the state, emphasising its importance for local sustenance, the production and the export of fish. The significant contribution of the sector is its central role in the economy and the well-being of fishing communities.

Table 3.2

District-Wise Distribution of Total Coastal Line in Kerala

Sl. No	District	Length of Coast Line (in Km)	Percentage to Total
1	Thiruvananthapuram	78	13.2
2	Kollam	37	6.3
3	Alappuzha	82	13.9
4	Ernakulam	46	7.8
5	Thrissur	54	9.2
6	Malappuram	70	11.9
7	Kozhikode	71	12.0
8	Kannur	82	13.9
9	Kasargode	70	11.9

Source: Department of Fisheries, 2015.

Table 3.2 presents a detailed distribution of coastline across various districts, indicating significant disparities in coastline length. Districts such as Alappuzha, Kannur and Thiruvanthapuram feature extensive coastlines, which can lead to a greater abundance of marine resources and heightened fishing activities. This surplus of coastline supports a more dynamic fishing industry and fosters enhanced economic development opportunities within these regions. Conversely, districts with shorter coastlines, such as Kollam, face limitations in their access to marine resources, which may restrict their fishing activities and diminish their economic impact. The differences in coastline length are crucial, as they directly influence the availability of marine resources and the associated economic prospects tied to the

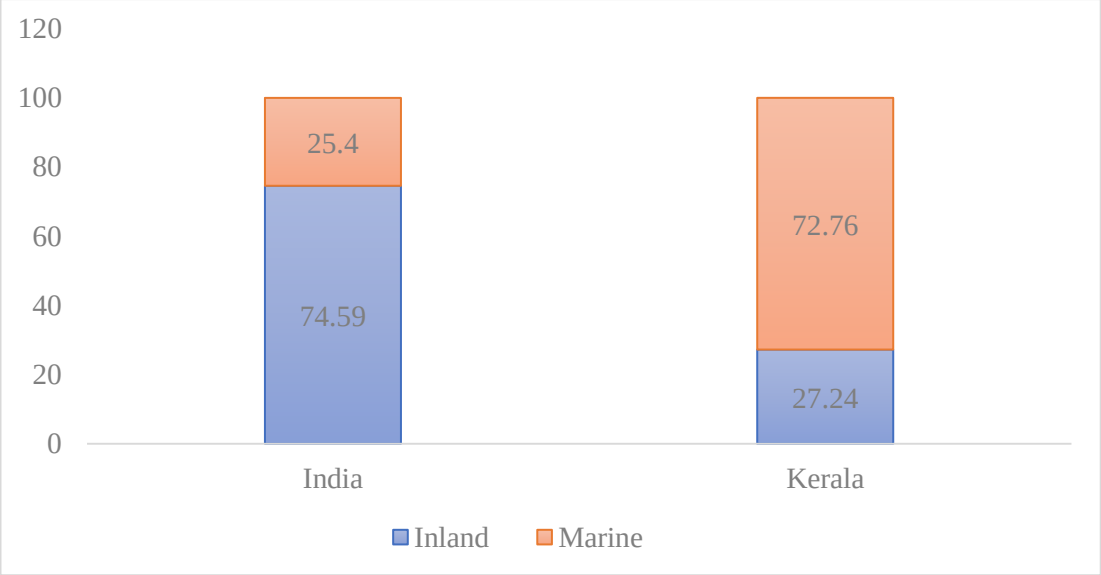
fishing industry. Overall, this varied distribution of coastline across districts plays a significant role in shaping the extent of fishing-related economic opportunities and contributes to the overall vitality of the fishing sector in the region.

3.4 Fish Production in Kerala

Fish production in Kerala is a dynamic component of the economy and food security, which gives its rich marine resources and extensive coastline. The fishing industry in India is supported by its vast network of rivers, lakes and coastline. Inland fisheries contribute more to the total fish production in the country compared to marine fisheries. However, Kerala stands out for its robust marine fisheries sector, enhanced by the abundant coastal resources and intricate system of backwaters. The fishing industry in Kerala benefits from a diverse range of marine species and effective fishing practices, making it a key player in both local and national fish production.

Figure 3.1

Fish Production of India and Kerala



Source: Kerala State Planning Board, 2024

Figure 3.1 reveals the distribution of fish production between marine and inland fishing in both India and a specific coastal line of Kerala state. In the broader context of India, marine fishing contributes approximately 25.4% to the total fish

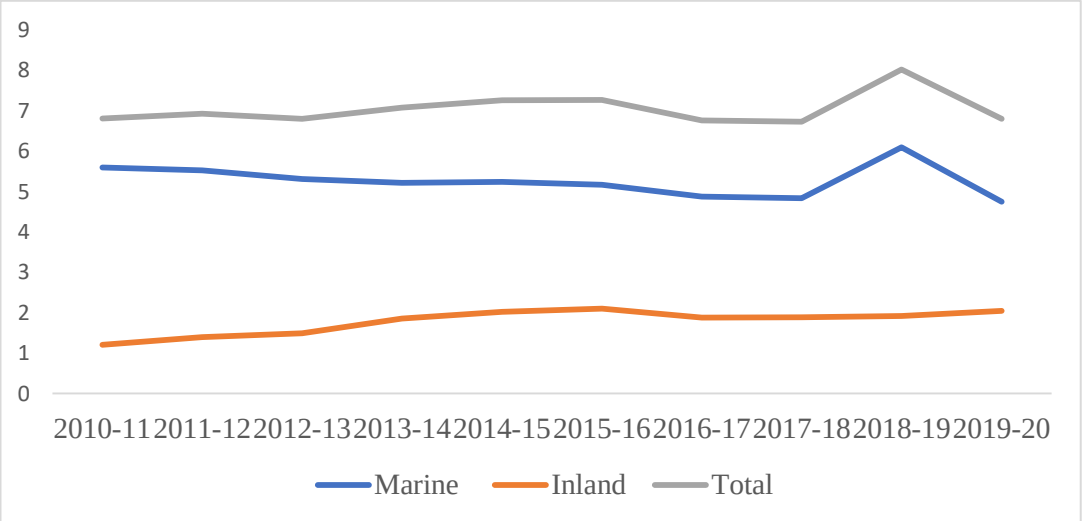
production, while inland fishing constitutes a substantial 74.6%. This data reveals that a significant majority of fish produced across the country originates from inland sources, including rivers, lakes and ponds. Conversely, the specific coastal state is renowned for its extensive coastline and rich marine biodiversity. Marine fishing accounts for a remarkable 72.8% of the total fish production within this region, while inland fishing contributes only 27.2%. This striking contrast underlines the heavy reliance on marine resources for fish production, emphasizing the strong focus on oceanic fishing practices compared to other regions of India. This reliance on marine fishing not only reflects the geographical advantages of the coastal state but also highlights the cultural and economic significance of marine fisheries to local livelihoods and food security.

3.4.1 Trends of Marine and Inland Fish Production in Kerala

Over the past thirty years, Kerala has seen a steady increase in fish production, which includes both marine and inland sources. Although there have been fluctuations, the overall trend is one of growth. This growth highlights the importance of the fishing industry in Kerala. The sector has managed to adapt and continue expanding despite facing various challenges and opportunities.

Figure 3.2

Trends of Fish Production in Kerala(in Lakh Tonnes)



Sources: Kerala State Planning Board,2016; Kerala State Planning Board,2021

Figure 3.2 shows the trends of marine and inland fish production in Kerala. The marine fish output fluctuates in a variety of ways. Some years see significant growth, while others see decreases. Nonetheless, the production of marine fish is generally on the rise despite these oscillations. This implies that, despite fluctuations, the marine fisheries industry has developed over time due to several causes, including market demand, technology improvements and sustainable fishing methods. Similar fluctuations can be seen in inland fish production over time. Production rises noticeably during some times and falls during others. However, there is a noticeable upward trend in fish production in inland areas. With investments in aquaculture, pond management and resource conservation, this shows the increasing significance of inland fisheries in total fish production in Kerala.

3.4.2 District-Wise Details of Marine Fish Production in Kerala

District-wise details of fish production provide valuable insights into the distribution and significance of marine resources across the region. Each district contributes uniquely to the total fish output in the state, reflecting the diversity of its coastal ecosystems and fishing practices. Understanding these district-wise contributions is crucial for assessing the economic impact of the fishing sector, planning resource management and supporting the livelihoods of local fisherfolk. This analysis highlights the varying levels of fish production across districts, explaining the pivotal role of each in sustaining Kerala's robust fishing industry and meeting both domestic and export demands.

Table 3.3

Marine Fish Production in Kerala 2022-23 (in Tonnes)

District	Marine Fish Production
Thiruvananthapuram	60715
Kollam	143373
Alappuzha	35674
Ernakulam	206003
Thrissur	36258
Malappuram	23828
Kozhikode	116373
Kannur	57409
Kasargode	11313
Kerala	690945

Source: Kerala State Planning Board, 2024

Table 3.3 displays the marine fish production figures for different districts in Kerala for the year 2022-23. Ernakulam leads with 206,003 tonnes, making it the top producer in the state. Kollam follows with 143,373 tonnes and Kozhikode contributes 116,373 tonnes. Thiruvananthapuram and Thrissur produce 60,715 tonnes and 36,258 tonnes, respectively. Alappuzha, with 35,674 tonnes and Kannur, with 57,409 tonnes, are also notable contributors. Malappuram and Kasargode produce 23,828 tonnes and 11,313 tonnes, respectively. Overall, Kerala produced 690,945 tonnes of marine fish in 2022-23. This distribution reveals the varying levels of fish production across districts, highlighting the significant role of districts like Ernakulam, Kollam and Kozhikode in contributing to the fishing industry of the state. The high production levels in these districts reflect their vital role in supporting local livelihoods and meeting both domestic and export demands for fish. The data also emphasises the importance of managing and sustaining fishery resources across different regions to ensure long-term productivity and economic stability.

3.5 Export of Marine Products

In India, the marine fishery sector provides millions of people with more than just a means of subsistence, income and food security. It also makes up a sizable portion of the foreign exchange earnings of the country. The marine fisheries sector of the country exports a vast range of marine products to international markets, which considerably boosts the nation's foreign exchange reserves. Its dual purpose highlights the economic importance of the sector in preserving the means of subsistence for coastal communities and enhancing the country's economic resilience overseas. At the same time, the total fish resources and fish production also lead to the exporting of marine resources and that will ultimately lead to earning of foreign reserves and countries Gross Domestic Product (GDP).

Table 3.4

Export of Marine Products in India and Kerala (In Million Metric Tonnes)

Year	India	Kerala
2014-15	1051243	166754
2015-16	945892	149138
2016-17	1134948	159141
2017-18	1377244	178646
2018-19	1392559	183064
2019-20	1289651	148227
2020-21	1149510	144700
2021-22	1369264	182430
2022-23	1735286	218629

Source: Kerala State Planning Board, 2024

Table 3.4 displays the export of marine fish production for India and Kerala over several years. In the fiscal year 2014-15, India exported 1,051,243 tonnes of marine fish, with Kerala contributing 166,754 tonnes. The following year, 2015-16, India's exports decreased to 945,892 tonnes, while the contribution of Kerala was 149,138 tonnes. By 2016-17, exports of India increased to 1,134,948 tonnes and state contribution rose to 159,141 tonnes. In 2017-18, nation exports further increased to 1,377,244 tonnes, with Kerala contributing 178,646 tonnes. The trend

continued in 2018-19 with India's exports reaching 1,392,559 tonnes and Kerala's contribution growing to 183,064 tonnes. However, in 2019-20, exports in India dropped to 1,289,651 tonnes and the contribution of Kerala fell to 148,227 tonnes.

The following year, 2020-21, saw a further decrease with India exporting 1,149,510 tonnes and Kerala's contribution at 144,700 tonnes. The year 2021-22 showed a recovery with India's exports rising to 1,369,264 tonnes and Kerala's contribution increasing to 182,430 tonnes. In the most recent year, 2022-23, India's exports reached 1,735,286 tonnes, while Kerala's contribution was 218,629 tonnes. This data reflects the fluctuations in marine fish export levels and the growing role of Kerala in contributing to India's marine fish exports. The increase in exports indicates a growing demand for marine fish and highlights enhanced capacity and role in meeting this demand. It also suggests that the fishing industry of Kerala is becoming more integral to the national overall marine fish export strategy. For Kerala, this growth can lead to greater economic benefits, including increased revenue and improved livelihoods for local fisherfolk. However, the fluctuations in export levels also point to potential challenges such as market volatility and the need for sustainable fishing practices to ensure long-term stability and growth in the sector.

3.6 Marine Fisherfolk Community in Kerala

The traditional livelihoods of the fisherfolks have led to the establishment of close-knit communities, which often consist of individuals from various families who provide mutual support and assistance. These communities are unevenly distributed across different districts, exhibiting a rich diversity of religious beliefs, cultural backgrounds and fishing practices. In the region, over a million people rely on the fishing industry for their livelihood, with more than 800,000 individuals depending solely on marine fishing to fulfil their daily needs. Many of these individuals choose to live in proximity to the coast, allowing for convenient access to fishing grounds. In these fishing villages, a significant majority of residents have historically earned their living through fishing, creating a deep-rooted connection to the marine environment and its resources. The social structure within these

communities is often intertwined with fishing traditions, further reinforcing the importance of this livelihood to their way of life.

3.6.1 Marine Fishing Villages in Kerala

Marine fishing villages in Kerala are defined as groups of homes or structures utilised by fishermen and officially recognised by the state fisheries department. These villages are often governed by their village panchayats, which manage local affairs. Kerala has a total of 222 marine fishing villages, which are spread across the coastal regions of Kerala. In addition, there are 113 inland fishing villages. Of the fisherfolk in the state, approximately 804,000 people are involved in marine fishing, while around 240,000 are engaged in inland fishing. This sector supports a large number of families and contributes to the food security and economic development of the state. The distribution of these villages and their residents reflects the central importance of the marine fishing industry in the livelihoods of coastal populations.

Table 3.5

Marine Fishing Villages in Kerala

District	Marine Fishing Villages
Thiruvananthapuram	42
Kollam	27
Alappuzha	30
Ernakulam	21
Thrissur	18
Malappuram	23
Kozhikode	34
Kannur	11
Kasaragod	16
Kerala	222

Source: Directorate of Fisheries,2022

Table 3.5 provides an overview of the number of marine fishing villages across different districts in Kerala. Thiruvananthapuram has the highest number with

42 villages, showing a significant concentration of marine fishing activities. Kozhikode follows with 34 villages and Alappuzha has 30 villages. Kollam has 27 villages, while Malappuram has 23. Ernakulam and Kasaragod have 21 and 16 villages, respectively. Thrissur has 18 villages and Kannur has the fewest with 11. In total, there are 222 marine fishing villages in the state. This distribution highlights the varying levels of marine fishing activities across the districts. Districts with more fishing villages, such as Thiruvananthapuram and Kozhikode are likely to have a higher reliance on marine fishing as an economic activity. These areas may have well-established fishing communities and infrastructure to support the industry. Conversely, districts with fewer fishing villages may have less reliance on the marine fishing industry, possibly indicating a more diversified economic base or different primary activities.

Districts with a higher number of marine fishing villages may experience greater economic benefits from the fishing industry, including more job opportunities and increased local income. They also face the challenge of managing resources sustainably to support the livelihoods of these communities. On the other hand, districts with fewer fishing villages may need to develop alternative economic strategies to balance their local economies. Fisher families are gaining attention around the world owing to the uniqueness of their vocation, which combines significant danger, inconsistent income and seasonal subsistence. Fisher families have a lower socio-economic level.

3.6.2 Marine Fisherfolk Families in Kerala

Marine fisherfolk families in Kerala reside primarily in fishing villages along the extensive coastline of the state. These villages are central to their way of life, as they provide close access to the sea, which is crucial for their fishing activities. The marine fisherfolk community relies heavily on this traditional occupation, which shapes their social and economic structures. Living in these coastal villages allows them to engage directly in fishing and related activities like net-making, fish selling and drying. The concentration of marine fisherfolk families in these villages reflects their deep connection to the sea and their dependence on it for their livelihood.

Table 3.6

Marine Fisherfolk Families in Kerala

District	Marine Fisherfolk Families	
	2010	**2016**
Thiruvananthapuram	33,340	30,798
Kollam	12,488	14,242
Alappuzha	20,278	22,871
Ernakulam	9,318	10,467
Thrissur	5,448	4,622
Malappuram	14,940	15,962
Kozhikode	14,157	13,952
Kannur	4,331	4,098
Kasaragod	4,637	4,625
Kerala	1,18,937	1,21,637

Sources: Department of Fisheries & CMFRI,2020; Department of Fisheries & CMFRI,2012

Table 3.6 displays the number of marine fisherfolk households in various districts of Kerala for the years 2010 and 2016. In 2010, Thiruvananthapuram had the highest number of marine fisherfolk households at 33,340, followed by Kollam with 12,488 households and Alappuzha with 20,278 households. In 2016, the number of marine fisherfolk households in Thiruvananthapuram decreased to 30,798, but it remained the highest among the districts. Kollam saw an increase to 14,242 households, while Alappuzha also experienced a rise to 22,871 households. Ernakulam, Thrissur, Malappuram, Kozhikode, Kannur and Kasaragod showed varying changes in household numbers, with some districts seeing increases and others decreasing. Overall, the number of marine fisherfolk households in Kerala increased from 118,937 in 2010 to 121,637 in 2016.

The increase in the number of marine fisherfolk households indicates a growing reliance on marine fishing as a livelihood in the state. Districts like Thiruvananthapuram and Alappuzha continue to play central roles in the fishing industry, while other districts are also seeing changes in household numbers, reflecting shifts in fishing activities or economic conditions. The data suggests that while the overall number of marine fisherfolk households is rising, there are regional

variations that could influence local fishing practices, infrastructure needs and support services. Understanding these trends is essential for developing targeted policies and programs to support the marine fisherfolk community and ensure the sustainability of the fishing industry in Kerala.

3.6.3 Marine Fisherfolk Population in Kerala

The marine fisherfolk population in Kerala for the year 2022-23 provides an insightful look into the current status of individuals involved in marine fishing across the state. This section details the number of people engaged in marine fishing activities, their distribution across various districts and any notable trends or changes in their population compared to previous years. By examining the marine fisherfolk population, this section aims to highlight the significance of marine fishing as a vital livelihood.

Table 3.7

Marine Fisherfolk Population in Kerala 2022-23

District	Marine Fisherfolk Population
Thiruvananthapuram	174681
Kollam	96323
Alappuzha	133049
Ernakulam	75102
Thrissur	57962
Malappuram	93061
Kozhikode	102041
Kannur	39171
Kasargode	44895
Kerala	816285

Source: Kerala State Planning Board, 2024

Table 3.7 exhibits the marine fisherfolk population data for Kerala in 2022-23 revealing the significant role of fishing in the state. Thiruvananthapuram leads with 174,681 marine fishermen, highlighting its key coastal position. Alappuzha follows closely with 133,049 fishermen, known for its extensive backwaters. Kollam and Kozhikode, with 96,323 and 102,041 fishermen respectively, also show a strong

reliance on fishing. Malappuram stands out with 93,061 fishermen, indicating its unexpected prominence in the marine sector despite its inland reputation. Ernakulam and Thrissur have 75,102 and 57,962 fishermen respectively, while Kannur and Kasargod, with 39,171 and 44,895 fishermen, add to the overall coastal livelihood. From 2019-20 to 2022-23, most districts have seen steady growth in their marine fisherfolk populations, underlining the importance of the marine fishing industry of Kerala.

Table 3.8

Marine Fisherfolk Population in Kerala from 2020-21 to 2022-2023

District	Marine Fisherfolk Population		
	2020-21	2021-22	2022-23
Thiruvananthapuram	172949	173813	174681
Kollam	95366	95843	96323
Alappuzha	131731	132388	133049
Ernakulam	74356	74728	75102
Thrissur	57384	57672	57962
Malappuram	92136	92597	93061
Kozhikode	101026	101532	102041
Kannur	38787	38978	39171
Kasargode	44450	44672	44895
Kerala	808185	812223	816285

Sources: Kerala State Planning Board (2024, 2023 &2022)

Table 3.8 shows the trends of marine fisherfolk population from 2019 to 2023. The number of fisherfolk has gradually increased over time in districts like Kollam, Alappuzha, Ernakulam, Kozhikode, Malappuram and Thrissur. The population of fishermen increased in certain districts, such as Kannur and Kasargod, but the numbers stayed relatively low. This may be due to the differing degrees of reliance on fishing or other sources of income in these areas. However, even these districts played a part in the general upward trend in the population of fisherfolk in Kerala. This steady increase in the marine fisherfolk population in our state indicates the importance of the fishing industry to contributing to economic achievements in Kerala and also creating social fabric. The sector contributes food security and

employment opportunities to the fisherfolk community who solely depend upon the marine sector for their living. They face a lot of problems like overfishing and juvenile fishing which leads to the decline of marine fish catch.

3.7 Socio-Economic Conditions of Marine Fisherfolk Community in Kerala

The marine fisherfolk community in Kerala is characterised by distinct socio-economic conditions, marked by differences in demographics, education, religion and ownership of fishing equipment. This community often faces socio-economic disadvantages and isolation due to societal perceptions that fishing is an underrated occupation. Despite the passage of time and changing conditions, these challenges persist, reflecting their enduring marginalisation. Fisherfolk frequently experience poor living conditions, low educational attainment and limited access to basic amenities. They are often trapped in a cycle of poverty, with inadequate income and high levels of debt, driven by unpredictable earnings and scarce marine resources. This section explores the demographic characteristics of the marine fisherfolk community in Kerala and the various issues they face, highlighting the ongoing struggles of this marginalised group.

3.7.1 Religion and Community

Marine fishing has historically been carried out in Kerala by members of particular fishing communities, apart from the majority agrarian groups, who reside close to the coasts. The three main religious groups in this community are Hindus, Muslims and Christians. Caste-based social stratification is less evident than caste-based class stratification in each group, which is based on social stratification based on class and caste. Hindu groups are particularly common in the northern Kollam and Alappuzha regions. These communities are mostly made up of members of the Araya caste. The majority of the state's Muslims live in the northern areas, mainly in Malappuram, Kozhikode, Kannur and Kasaragod. The less fortunate community members frequently struggle with finances because they live in a mercantile neighbourhood. The Christian population is predominantly Latin Catholic in the central and southern regions of Kerala. They remain at the bottom of the socio-economic scale due to their traditional occupation (Mani, 1995).

Table 3.9

Religion of Marine Fisherfolk Community in Kerala

District	Religion			Total
	Hinduism	**Islam**	**Christianity**	
Thiruvananthapuram	362	4,564	25,872	30,798
Kollam	7,035	890	6,317	14,242
Alappuzha	9,422	2,150	11,299	22,871
Ernakulam	5,062	486	4,919	10,467
Thrissur	3,197	1,398	27	4,622
Malappuram	577	15,385	0	15,962
Kozhikode	7,771	6,168	13	13,952
Kannur	2,479	1,324	295	4,098
Kasargod	3,644	941	40	4,625
Total	39,549	33,306	48,782	1,21,637

Source: Department of Fisheries & CMFRI,2020

Table 3.9 illustrates the religious demographics across various districts in Kerala, highlighting the distribution of Hindu, Muslim and Christian populations. Christians dominate in Thiruvananthapuram with 25,872 followers, while Hindus are prominent in Kollam (7,035 followers) and Alappuzha (9,422 followers). In Ernakulam, Hindus lead with 5,062 adherents and in Thrissur, Hindus have the largest following with 3,197 adherents. Malappuram stands out with a majority Muslim population of 15,385, while Kozhikode has a significant Hindu presence with 7,771 followers. Kannur and Kasargod also see Hindus as the largest religion. Overall, while Hindus are the predominant religion in most districts, Christians and Muslims have significant followings, reflecting the diverse religious landscape in Kerala shaped by historical and cultural factors.

3.7.2 Housing condition

Fishermen in traditional villages typically live in simple bamboo or coconut thatch houses. These homes may be devoid of conveniences like water and electrical service. However, many fisherfolk households have upgraded their homes in recent years, with concrete walls and roofs, access to electricity and safe drinking water.

Table 3.10

Housing Condition of Marine Fisherfolk Community in Kerala

District	Pucca	Kutcha	Without toilet	Room less than 3
Thiruvananthapuram	26,630	4,168	3,516	5,101
Kollam	13,570	672	282	1,970
Alappuzha	20,469	2,402	2,791	4,552
Ernakulam	9,527	940	556	1,390
Thrissur	3,756	866	356	1,427
Malappuram	12,255	3,707	836	5,124
Kozhikode	13,418	534	323	1,059
Kannur	3,998	100	269	445
Kasargod	4,407	218	1,024	776

Source: Department of Fisheries & CMFRI,2020

Table 3.10 outlines the housing conditions of the marine fisherfolk community across different districts in Kerala. Thiruvananthapuram has the highest number of well-built (pucca) houses at 26,630, but also a significant number of poorly constructed (kutcha) houses at 4,168. Additionally, 3,516 households in this district lack access to a toilet and 5,101 homes have less than three rooms, indicating overcrowding. Kollam and Alappuzha also show a mix of housing conditions. Kollam has 13,570 pucca houses but 672 kutcha houses and 282 households without toilets. Alappuzha has a higher number of pucca houses (20,469), but 2,402 kutcha houses and 2,791 households without toilets, along with 4,552 homes having less than three rooms, showing that overcrowding is an issue here as well.

Malappuram stands out with 12,255 pucca houses but also has a high number of kutcha houses (3,707) and households with fewer than three rooms (5,124). This suggests that while many homes are well-constructed, there are still significant challenges in housing quality and living space. The data indicates that while many fisherfolk households live in well-built homes, there are still significant issues with poorly constructed houses, lack of sanitation and overcrowding. These challenges

are particularly exposed in districts like Malappuram and Alappuzha, pointing to the need for targeted interventions to improve housing and basic amenities for these communities.

3.7.3 Family size and Sex Ratio of the Fisherfolk

Family size reflects the average number of individuals living in a household, providing insights into typical household compositions, which generally include parents and children. Variations in family size across districts can indicate differences in cultural practices, economic conditions and social dynamics. The sex ratio, which represents the number of females per 1,000 males, offers a glimpse into the gender balance within these populations. A sex ratio close to 1,000 suggests an almost equal proportion of males and females, while a lower ratio indicates a higher number of males compared to females. Understanding these demographic factors helps to identify regional differences in household structures and gender distribution, which can have broader implications for community dynamics and resource allocation.

Table 3.11

District-wise details of the Family Size and Sex ratio of Marine fisherfolk

District	**Average family size**	**Sex Ratio (Females per 1000 males)**
Thiruvananthapuram	4	924
Kollam	4	932
Alappuzha	4	956
Ernakulam	4	964
Thrissur	5	947
Malappuram	6	980
Kozhikode	5	974
Kannur	5	933
Kasargod	5	984
Total	5	953

Source: Department of Fisheries & CMFRI,2020

Table 3.11 provides the average family size and sex ratio among marine fisherfolk households across various districts in Kerala. Most districts, including Thiruvananthapuram, Kollam, Alappuzha and Ernakulam, have an average family size of four members, suggesting that these households typically consist of parents and one or two children. However, in districts like Thrissur, Malappuram, Kozhikode, Kannur and Kasargod, the average family size is larger, ranging from five to six members, with Malappuram having the highest average of six. This indicates a tendency toward larger families in these areas, which could be influenced by cultural practices, economic conditions or other social factors.

The sex ratio, which shows the number of females per 1,000 males, varies across districts. Most districts have a sex ratio close to 1,000, reflecting a relatively balanced gender distribution. For instance, Alappuzha, Ernakulam, Thrissur, Kozhikode and Kasargod have sex ratios ranging from 956 to 984, suggesting nearly equal proportions of males and females. However, Thiruvananthapuram and Kollam have lower sex ratios of 924 and 932, respectively, demonstrating a higher number of males compared to females. This disparity could be due to factors such as male-dominated migration patterns or differences in life expectancy between genders. Overall, the table highlights that while family sizes are generally consistent across districts, certain areas exhibit larger household sizes. The sex ratio data suggest a mostly balanced gender distribution, though some districts have more pronounced differences, which may impact community dynamics and resource distribution.

3.7.4 Educational Status of Marine Fisherfolk in Kerala

The educational status of marine fisherfolk in Kerala reflects a significant shift towards empowerment and self-improvement within these coastal communities. In a state renowned for its high literacy rates and emphasis on education, the fisherfolk, traditionally reliant on fishing as a livelihood, are increasingly recognising the value of education as a means to improve their socio-economic standing. Among the fisherfolk, a substantial number approximately 1,83,627 individuals have completed their elementary education. This foundational level of education equips them with basic literacy and numeracy skills, which are crucial for

navigating daily life, understanding and complying with regulations that affect their profession and engaging effectively with government authorities and community organisations.

Education, in this context, serves as a critical tool not only for personal empowerment but also for broader community development. As more members of the fisherfolk community attain higher levels of education, there is potential for increased participation in decision-making processes, better access to alternative livelihoods and an overall improvement in the quality of life within these communities. This section will explore how education is influencing the lives of marine fisherfolk in Kerala, examining both the progress made and the challenges that remain.

Table 3.12

Educational Status of Marine Fisherfolk in Kerala

District	Primary		Higher secondary		Above higher secondary		Graduation and above	
	Male	Female	Male	Female	Male	Female	Male	Female
Thiruvananthapuram	23,922	22,243	14,997	12,677	3,545	3,001	1,890	2,346
Kollam	9,045	8,300	12,374	11,629	4,172	3,505	1,519	1,852
Alappuzha	18,152	17,612	17,397	15,186	4,093	3,453	1,584	2,149
Ernakulam	7,279	7,089	8,788	7,383	1,986	1,952	745	1,281
Thrissur	3,580	3,325	4,642	3,934	683	837	161	352
Malappuram	13,504	12,749	20,651	20,411	2,426	2,258	383	357
Kozhikode	11,949	10,249	15,137	14,868	3,261	3,726	666	1,112
Kannur	3,148	2,710	3,459	3,378	711	739	215	331
Kasaragod	4,372	4,399	4,775	4,441	777	688	219	269
Kerala	94,951	88,676	1,02,220	93,907	21,654	20,159	7,382	10,049

Source: Department of Fisheries & CMFRI,2020

Table 3.12 compares educational attainment levels across Kerala's districts, categorised into primary, higher secondary, above higher secondary and graduation and above. Thiruvananthapuram leads in primary education with 23,922 males and 22,243 females, while districts like Thrissur and Kannur report the lowest figures. At

the higher secondary level, participation increases across most districts, with Malappuram recording the highest numbers (20,651 males and 20,411 females), while Kannur and Kasaragod remain at the lower end. For education above higher secondary, the figures drop significantly statewide, with Thiruvananthapuram still leading, but districts like Malappuram, Kasaragod and Kannur show much lower participation. In graduation and above, a shift occurs as females (10,049) surpass males (7,382), with Thiruvananthapuram and Alappuzha reporting higher participation, while Malappuram records the lowest figures.

Malappuram shows a mixed trend in education compared to other districts in Kerala. It leads in higher secondary education with 20,651 males and 20,411 females, indicating strong engagement and minimal gender disparity. However, the district faces a sharp decline in higher education, with only 2,426 males and 2,258 females in above higher secondary education and 383 males and 357 females in graduation and above, the lowest in the state. This decline suggests barriers such as socio-economic challenges and limited facilities. Despite strong secondary education, low higher education participation in the state highlights the essential for targeted efforts to improve access for both genders.

3.7.5 Occupational Profile of Marine Fisherfolk

The main component which leads to the socio-economic development of any person is occupation and income. The occupational profile of marine fisherfolk provides a broad understanding of their professional roles, responsibilities and challenges within the fishing industry. Marine fisherfolk are primarily engaged in the harvesting of fish and other aquatic resources from the sea. Their work includes various tasks such as fishing, net making and repair, boat maintenance and marketing of the catch. In coastal regions like Kerala, marine fisherfolk play a critical role in the local economy, contributing significantly to the food supply and livelihoods of many communities. Despite their crucial role, they often face numerous challenges, including economic instability, fluctuating fish prices and environmental issues such as overfishing and habitat degradation.

3.7.5.1 Active Marine Fisherfolk

Active marine fisherfolk are those individuals actively engaged in fishing activities within a specific district. This group is crucial for sustaining the fishing industry, which serves as a primary source of income and nutrition for many coastal communities. The distribution of active fisherfolk varies across districts in Kerala, reflecting regional differences in reliance on fishing. For instance, Thiruvananthapuram and Malappuram report higher numbers of active fishermen, emphasising their significant role in these areas. In contrast, districts like Thrissur and Ernakulam have lower proportions. Notably, the number of active fishermen in Malappuram has been decreasing since 2020, indicating potential shifts in the fishing industry or challenges faced by the local fishing community.

Table 3.13

Active Marine Fisherfolk in Kerala

District	Number of Active Fishermen
Thiruvananthapuram	57265
Kollam	19256
Alappuzha	27506
Ernakulam	12253
Thrissur	5748
Malappuram	33594
Kozhikode	19832
Kannur	5093
Kasargode	10469
Kerala	191016

Source: Kerala State Planning Board,2024

Table 3.13 shows active fishermen across various districts in Kerala. It reveals significant regional disparities in the distribution of those engaged in fishing. Thiruvananthapuram leads with 57,265 active fishermen, underlining its key role in the fishing industry. Malappuram also has a substantial number, with 33,594 active fishermen, indicating its importance within the sector. In contrast, districts like Thrissur and Kannur have notably lower figures, with 5,748 and 5,093 active

fishermen, respectively. The overall number of active fishermen in Kerala stands at 191,016.

The high concentration of active fishermen in districts like Thiruvananthapuram and Malappuram highlights the critical reliance of these regions on fishing for livelihoods and economic stability. Conversely, the lower numbers in districts like Thrissur and Kannur could point to a reduced dependence on or capacity for marine fishing. The trend of decreasing active fishermen in Malappuram from 2020 may reflect broader challenges facing the industry, such as environmental changes and economic pressures. It may affect the livelihood and sustainability of fishing communities in these regions. Understanding these variations is essential for targeted policy interventions and support measures to ensure the resilience and development of the fishing sector across Kerala.

Table 3.14

Active Marine Fisherfolk from 2020-21 to 2022-23

District	Actine Marine Fisherfolk		
	2020-21	2021-22	2022-23
Thiruvananthapuram	55993	57049	57265
Kollam	19040	19424	19256
Alappuzha	27023	27591	27506
Ernakulam	13029	12257	12253
Thrissur	5581	5639	5748
Malappuram	32718	32684	33594
Kozhikode	20259	19972	19832
Kannur	4987	5058	5093
Kasargode	10390	10354	10469
Kerala	189200	190028	191016

Sources: Kerala State Planning Board, 2024; Directorate of Fisheries, 2022 & Directorate of Fisheries, 2021

Table 3.14 shows some captivating trends when examining the district-wise number of active marine fishermen in Kerala from 2020-21 to 2022–2023. Overall, the number of active fishermen in the state during this time frame appears to be steadily or slightly rising. Thiruvananthapuram exhibits a consistent increase in the

number of active fishermen. In certain districts, even with a slight variation, suggesting continued participation in marine fishing activities. Kollam and Alappuzha exhibit figures that are relatively stable as well, with minor fluctuations that may be attributed to variations in fishing practices or local economic factors. Ernakulam shows a slight, but not significant, decline, indicating possible obstacles or changes in the fishing industry of the state. On the other hand, Thrissur exhibits a significant rise in the number of active fishermen, which could be attributed to many factors, including better infrastructure and policy interventions that assist the fishing community. Malappuram still has a sizable number of active fishermen, despite a decline from the previous year, demonstrating the continued reliance on the coastal livelihoods of the region. The figures for Kozhikode and Kasaragod are comparatively stable, suggesting a steady level of participation in marine fishing operations. Overall, the trend points to a robust fishing industry in Kerala, with variations likely influenced by various policy-related, environmental and economic factors, even though there are fluctuations in individual districts.

3.7.6 Fishermen Per Capita Income in Kerala

Per capita income among fishermen in Kerala provides a critical measure of the economic well-being and financial health of individuals engaged in the fishing industry. This metric reflects the average income earned by fishermen, offering insights into their standard of living and economic stability. Given that fishing is a primary livelihood for many in Kerala, understanding their per capita income is essential for assessing the overall economic impact of the sector and identifying areas for improvement. In Kerala, where the fisheries sector plays a significant role in both the local economy and cultural practices. The per capita income of fishermen can reveal disparities in earnings and highlight the challenges faced by this community. Factors such as fluctuating fish prices, varying levels of investment in fishing technology and regional economic conditions can influence income levels. Analysing per capita income helps in evaluating the effectiveness of current policies, determining the need for support programs and developing strategies to enhance the financial well-being of fishermen, ultimately contributing to a more sustainable and equitable fishing industry.

Table 3.15

Fishermen Per Capita Income as a Percentage of State Per Capita Income

Year	State Per Capita Income (Rs)	Fishermen Per Capita Income (Rs)	Fishermen Per Capita Income as % of State Per capita
2014-15	150824	69183	45.87
2015-16	164554	81497	49.53
2016-17	184979	94610	51.15
2017-18	203399	108224	53.21
2018-19	227397	101408	44.59
2019-20	233338	101237	43.39
2020-21(P)	220196	101519	46.10

Source: Directorate of Fisheries ,2022

Table 3.15 presents the per capita income of fishermen in Kerala as a percentage of the state's per capita income over various years. It compares the annual per capita income of fishermen to the overall state per capita income, demonstrating their economic standing relative to the broader population. From 2014-15 to 2020-21, fishermen's per capita income in Kerala fluctuated as a percentage of the state's per capita income. It increased from 45.87% in 2014-15 to a peak of 53.21% in 2017-18, reflecting relative economic improvement. However, the percentage dropped to 44.59% in 2018-19 and 43.39% in 2019-20, despite slight increases in absolute income. By 2020-21, it recovered to 46.10%. These variations highlight disparities in income growth between the state economy and the fisheries sector. This fluctuation reflects both improvements and challenges in the economic conditions of the fishing sector.

The data suggest that while fishermen's income relative to the state average has shown periods of improvement, it remains lower compared to the state average throughout the years. The fluctuations could be influenced by factors such as changes in fish prices, variations in fishing yields and economic policies affecting the sector. Understanding these trends is crucial for designing targeted economic support and policy interventions to enhance the financial stability and growth of the fishing community in Kerala. The fisherfolk community lags behind mainstream

society in every socio-economic aspect when we compare it with the majority. Landholding patterns and living conditions of the fishing community are generally placed on a narrow strip of land along the coastline. Every fisherman wishes to live on the seafront near to the point where he lands his crafts and he can easily go to job. So, the population density was very high in fishing villages when compared to other parts of Kerala. The bulk of the dwellings were thatched or tile roof buildings, which may be threatened by the monsoon, because during the monsoon season, the majority of the fisherfolk houses crumble due to heavy waves.

3.7.8 Fishing Craft: Marine Fishery Sector in Kerala

The Artisanal fishing industry in Kerala exhibits regional differences due to different factors such as advancements in technology and changes in consumer demand. Kattamarans are the preferred boat in southern Travancore, they work well in the deep, surf-filled waters. The central Cochin coast is home to plank-built canoes due to the calm waters that prevail in the region. The Northern Malabar Coast prefers dugout canoes, due to a more traditional method of fishing. In 1988, the government implemented a ban on trawling as a means of protecting the livelihoods of customary fishermen and encouraging scientific fishing methods to protect the rich fishery of Kerala. Considerable technological advancements have shaped the way that fishing methods have changed over time. Mechanisation started in the 1950s and by the 1960s, nylon webbing had largely replaced cotton. Commercial purse seining began in the late 1970s and fishing boats began to motorise more in the 1980s. Drastic changes occurred in the 1990s, with the emergence of multiday fishing trips and targeted fishing for in-demand species such as cuttlefish, squids and prawns. During this time, artisanal gear underwent significant changes as well. Country crafts were equipped with outboard engines to enhance their mobility and traditional boat seines were replaced with more effective ring seines. Furthermore, innovations like the development of fiberglass boats have improved the ability of fishing vessels to withstand choppy seas. Thus, the incorporation of life-saving gear and electronic devices has greatly raised the bar for safety for fishermen working in the coastal waters of Kerala. These advancements highlight how innovation and tradition interact dynamically in Kerala's thriving artisanal fishing industry (Ammini, et al. 2010).

Table 3.16

Fishing Craft in the Marine Fishery Sector in Kerala

District	Mechanized	Motorized	Non- Motorized	Total
Thiruvananthapuram	0	3,569	1,137	4,706
Kollam	1,165	1,732	556	3,453
Alappuzha	36	2,147	1,775	3,958
Ernakulam	1,379	505	250	2,134
Thrissur	159	633	138	930
Malappuram	292	1,588	11	1,891
Kozhikode	470	1,944	23	2,437
Kannur	162	751	86	999
Kasaragod	137	999	40	1,176
Total	3,800	13,868	4,016	21,684

Source: Department of Fisheries & CMFRI,2020

Table 3.16 provides details about the fishing crafts in the marine fishing industry. The marine fishery sector is mainly divided into three: the mechanised, motorised and non-motorised sectors. Trawlers, driftnet/gillnetters and purse seiners were the primary mechanised resource extraction vessels in 1985. Motorised vessels, such as guvalloms and plank-built canoes, were utilised mostly, while non-motorised vessels including valloms, Kattamarans and canoes were used comparatively less. Coastal waters were utilised for the operation of various types of gear, including purse seines, driftnets/gillnets, bottom-set gillnets, hooks and lines and boat seines. The mechanised craft is propelled and used for fishing with engines that have a maximum capacity of 190 horsepower. Trawlnets, driftnet/gillnets, purse seines, hooks and lines and ring seines are among the crucial tools used in the mechanised sector. Between 1985 and 2004, the mechanized sector accounted for 43% of all landings, followed by the motorised sector (51%) and the non-motorised sector (6%). In the early 1980s, fishermen from the districts of Alappuzha, Ernakulam and Kollam started motorising country crafts on a large scale in Kerala. Currently, fishing is done with boat seines, ring seines, driftnet/gillnets, hooks and lines and mini trawlnets on country craft with outboard and inboard engines under 50 HP. In Kerala, the motorised sector accounted for over half of all marine fish landings. Driftnets or gillnets, boat seines, ring seines and mini trawlnets were the primary

gears used in this industry. Kerala fishermen evolved a variety of non-motorised fishing techniques and equipment to capture pelagic, mesopelagic and bottom-dwelling fish throughout the coastal region of the state. There were passive gears like traps and driftnets/gillnets and active gears like seine nets and trawl-type nets (Ammini, et al 2010).

3.8 The Stages of Transition: Fisheries Sector in Kerala

The marine fisheries sector has undergone drastic change during the period 1950-2014 owing to the impact of globalisation measures. The introduction of mechanised trawlers and outboard motors opening up the sea for multinational corporations and joint ventures were the major changes which had reverberated in the marine fisheries sector of Kerala (Rajasenan, 2001). The fisheries sector has gone through three distinct stages of evolution. The phases were pre modernisation phase (1950), the modernisation phase (1950-1990) and post post-modernisation phase. In the pre-modernisation phase, fishing was the only source of income with the entire community dependent on it. The coastal community was generally vulnerable with limited access to other livelihood assets, which unfavourably affected their overall well-being. Until 1950, fishing consisted of nets made of hemp and rope and canoes using mats and oars. Although the fishing methods were not modern, the annual production exceeded one lakh. In the modernisation phase (1950-1990) policy framed development interventions to develop and improve the socio-economic conditions of coastal dwellers, an Indo-Norwegian Project (INP) conceived during the post-independence era.

The INP replaced the manually operating traditional craft with more nylon nets. Two decades later another technological innovation, the bottom trawler was introduced into the fishery industry. And in 1980- outboard motorised technology was introduced in the artisanal sector by a team technocrat. They introduced appropriate technology to help the fisherfolk. It ultimately enhanced the earnings and the younger generation received a better education, allowing them to opt for the diving profession. The post-modernisation phase suggests an improved status of the livelihood of fisherfolk. The General Agreement on Trade and Tariffs (GATT), allowed for a greater inflow of foreign currency through fish exports and some new

deep-sea policies that were developed by the Union Government in 1981. These are the two factors that, according to an overall assessment of the post-modernisation period, improved the status of the livelihood indicators for the fishing community. Citizens of India were granted permits under the Foreign Vessels Act of 1981, which regulated fishing, to charter foreign vessels for deep-sea fishing in Indian waters. Additionally, the act mandated that Indian residents hold a 60% equity stake in joint venture enterprises and must teach Indian fishermen. Ultimately this will lead to overexploitation of marine resources and conflict between the traditional fisherfolk and commercial sector. The giant industrial fishing agency caught a huge number of fish from the deep sea also and that will lead to overexploitation. The traditional fisherfolk who are engaged in fishing activities face lots of problems like lack of fish catch, lack of income and poverty due to this overexploitation and juvenile fishing (Rajan & Pillai, 2020).

3.9 Survival Through Migration: Strategies of Marine Fisherfolk

Mechanised fishing vessels, trawling and modern fisheries management were taught to us by the Indo-Norwegian project starting in the 1950s as a continuation of the tripartite agreement between India, Norway and the United Nations. In the 1960s Nylon nets came into vogue which greatly increased fishing efficiency and in the mid-60s country's main product became shrimp but the trawlers used for it were not owned by the fishermen and this led to conflicts between the serial fishermen and the trawl boats. In continuation of all this, the Kerala Marine Fishing Regulation Act was implemented in Kerala for the first time in India. As part of that, the 1988 monsoon trawling ban was introduced. The Indo-Norwegian project and the introduction of large-scale motorisation of the country craft increased fish production in Kerala. Although the increase in fish production has led to an increase in income and employment opportunities. However, overfishing, juvenile fishing and decline in fisheries resources are the consequences of such changes. From the twenty-five species report that was released in 2021, only 52% of the species are sustainable and 24 percent of species are victims of overfishing (Sunil, 2021). Such destructive fishing techniques not only caused an economic loss in the short term but also jeopardised the long-term livelihood prospectus of fishing communities.

Fishermen's struggle to earn a decent livelihood has become acute. Coastal communities face the basic question of finding the best survival strategy.

As marine fishery and resources in inshore areas become over-exploited, both artisanal and mechanised fishermen venture further into the deep sea to fish. However, due to a lack of fishery resources in the sea and sustainability issues, fishermen didn't attain a minimum income and even they failed to meet the cost of fishing. But the positive effect of the modernisation was the fisherfolk got a higher income due to innovation and that helped them to achieve a better standard of living. But the long-term effect of modernisation will lead to fishing becoming costlier and a lack of sustainable income. By adapting technologically advanced gears and craft in the modernisation phase into a reduction of marine resources and subsequently a reduction in income. It has been challenging to achieve sustainability in fisheries. Catch rates and global landings have been trending downward for decades due to heavy extraction, which has been made worse by local (habitat loss and degradation, pollution, diseases, fishers conduct), as well as global (increase in demand and prices, market globalization and climate change) causes (Mclachlan & Anton,2018).

The introduction of mechanised fishing, trawling and modern fisheries management in the 1950s under the Indo-Norwegian project initially boosted fish production in Kerala. However, these advancements also led to overfishing, resource depletion and conflicts between traditional and mechanised fishermen. The resultant economic strain, combined with environmental challenges like climate change, has made it increasingly difficult for fisherfolk to sustain their livelihoods. As a consequence, many in the fisherfolk community have been compelled to seek alternative employment opportunities, often outside the fishing industry. They are characterised by low per capita income, high dependency ratio, indebtedness, exploitation by middlemen in the market and less financial capability. Lack of alternative occupation, lack of skill about alternative occupation, low educational status and the low financial capability in planning, budgeting, saving and spending of the irregular and seasonal income make the fishery sector a high-risk prone sector (Sunitha,2019).

Many coastal communities experience socio-economic challenges and the expected revenue from access fees and local employment opportunities has not materialised. Migration in search of better livelihoods may become more pressing as local fisheries decline and communities experience economic hardships (Alder & Sumaila,2004). Overfishing and the depletion of local fish stocks have led to increased poverty and a lack of employment opportunities in these communities (Jonnson, 2019). Many young people feel compelled to migrate to Europe in search of better prospects, viewing this as a necessary escape from their dire circumstances. And migration is often seen not just as a personal choice but as a familial obligation. Families may invest in the migration of their young members, hoping that they will find work abroad and send remittances back home to support the family. This creates a cycle where the youth feel a duty to leave, despite the dangers involved in the journey

The livelihoods of fishermen have been severely impacted by climate change, which has forced them to migrate in order to survive. Fishing communities are now forced to fish more for diminishing resources due to changing currents and rising seawater temperatures that have affected fish stocks. Cyclones, storms and extreme weather events have increased in frequency, disrupting fishing operations and causing damage to important infrastructures. Furthermore, the loss of habitat and increased salinity in coastal areas brought on by rising sea levels further reduce the viability of fishing as a source of income. Social and political marginalisation exacerbates the economic pressures brought on by these shifts by restricting access to resources for adaptation and necessary services. Many fishermen feel forced to migrate to cities or other regions in search of more stable livelihoods as traditional knowledge and practices disappear. The need to protect their future in an increasingly uncertain environment is what is driving this migration (Salim .et al, 2013). Migration can lead to temporary or permanent relocation, as fisherfolk seek better opportunities, thereby impacting local resource management and community dynamics (Badjeck.et al, 2010)

As a result of local pressure, the scarcity of fish, a depleted seabed, rising operational costs, increased dangers at sea and the resultant loss of income, more

fishermen have thought it prudent to migrate to foreign shores in particular to gulf countries (Rajan, 2021). The fisherfolk were obliged to change jobs due to the prevalence of disguised unemployment, severe reduction of fish stocks and a lack of earnings. The Kerala marine fisherfolk community has undergone significant changes in recent years, including occupational diversification and migration. In recent years there has been an increasing tendency among the marine fisherfolk community to migrate especially to the Middle Eastern countries, gulf countries offer several skilled and semi-skilled jobs. Construction, hospitality and service sectors are among the main job openings available in the Middle East. Many Kerala fishermen migrate to the Middle East to take up jobs that provide better packages and working conditions than those available in Kerala.

3.10 Kerala to the Gulf: An Overview of Historical and Contemporary Migration

Migration to the Gulf region has a long history, dating back to the nineteenth century when the pearling industry demanded migrant labours. During British rule, which controlled much of the gulf countries except Saudi Arabia, migration flows were systematically regulated. Britain played a key role in establishing the sponsorship system, still in use today and preferred Asian migrants, particularly from the Indian subcontinent, over Arabs to maintain economic and political stability. In Saudi Arabia, the oil company Aramco was central to forming a modern working class from the 1930s, drawing skilled workers from the USA and Europe, while unskilled labour came from local Saudi populations. Over time, Saudi workers were integrated into the state, enjoying job security, while migrant workers, initially Arabs and later Asians, took over other sectors of the economy. Migration to the Gulf surged from the 1970s, driven by development projects, making the region a top destination for temporary migrant workers. Indian labour migration, in particular, increased as political concerns reduced Arab migration. By 2013, Indian migrants in the Gulf numbered over 6.8 million, rising to more than 9 million by 2018. Indian migrants now form a significant portion of the workforce of gulf countries, especially in Oman, where they constitute nearly 60% of the migrant population (Yalsin,2019).

Emigration to the gulf countries from India has predominantly attracted workers from the Southern states, including Kerala, Tamil Nadu, Andhra Pradesh and Karnataka. Nearly 50% of emigration clearances for work were issued to individuals from these four states (ICOE 2009). Despite this, Kerala continues to dominate as the leading source of migrant workers among them. Over the past four decades, Kerala has consistently topped the list of states sending emigrants. This large-scale emigration has brought significant economic gains to Kerala and has had a considerable impact on the economy of the state (Khan,2019). There are three main phases to the history of the Keralites who migrated in the 20th century. The first wave of international migration arrived in places like Karachi, Ceylon, Malaya and Burma. Nearly all of the migrants were forced to migrate by colonial forces and the majority of them worked on plantations and in other semi-skilled fields. Between 1945 and 1960, a second wave of immigrants reached Singapore, Malaysia and many Indian cities, including Bombay, Delhi, Calcutta and Madras. Both internal and international migration resulted in a significant transformation of every aspect of life. The surge in the price of petroleum products at the beginning of the 1970s marked the beginning of the third global migration wave. The income of the Middle Eastern countries increased dramatically as a result of this phenomenon, which had a big impact on the infrastructure of gulf countries and other development areas. (Cheethanapuravan, 2019)

The emigration from Kerala to the gulf countries is a usual trend in the modern era. At present, about two million Keralites are in the gulf countries. Among them, the Muslim population, especially from Malappuram district, has a larger predominance. The changing educational profile among the young generation or among youth attaining a higher professional course such as engineering, medicine, electronic media, designing and technology courses has the major determination of change in the destination of Keralites in the future (Rajan & Zachariah,2019).

Table 3.17

Estimated Emigrants from Kerala

District	Estimated Emigrants				
	1998	**2003**	**2008**	**2013**	**2018**
Thiruvananthapuram	130705	168046	308481	241727	137007
Kollam	102977	148457	207516	199933	240527
Pathanamthitta	97505	133720	120990	141343	109836
Alappuzha	62870	75036	131719	93096	136857
Kottayam	35494	106569	89351	107931	16625
Idukki	7390	7880	5792	23967	32893
Ernakulam	103750	121237	120979	191373	53418
Thrissur	161102	178867	284068	230081	241150
Palakkad	116026	177876	189815	70506	89065
Malappuram	296710	271787	334572	455696	406054
Kozhikode	116026	167436	199163	226499	160691
Wayanad	4552	7704	13996	22568	30650
Kannur	88065	202414	119119	291321	249834
Kasaragod	38747	71449	67851	104334	67281
Kerala	1361919	1838478	2193412	2400375	2121887

Source: Rajan & Zachariah,2019

Table 3.17 presents data on the number of emigrants from various districts in Kerala over five selected years: 1998, 2003, 2008, 2013 and 2018. Malappuram district consistently emerges as the district with the highest number of emigrants, with a peak of 455,696 in 2013 before slightly declining to 406,054 in 2018. This trend establishes the crucial role of Malappuram district in the migration landscape of Kerala, likely due to strong historical and socio-economic ties with the gulf countries. Thiruvananthapuram also shows notable emigration figures, with significant growth up to 2008, peaking at 308,481, before declining to 137,007 in 2018. This decline could indicate changing migration patterns and improved local opportunities. Thrissur follows a similar pattern, with its emigrant population peaking at 284,068 in 2008 and remaining relatively stable afterward. In contrast, districts like Idukki and Wayanad consistently report lower numbers of emigrants, reflecting either their smaller populations or a lower propensity for migration.

Alappuzha and Kottayam show significant fluctuations, with peaks and troughs suggesting varying socio-economic conditions over the years. Overall, while districts like Malappuram and Thiruvananthapuram have a dominant presence in the emigration scenario of Kerala, other districts display diverse trends. These fluctuations and differences highlight the varying socio-economic factors, opportunities and challenges across Kerala that influence migration patterns.

Table 3.18

Rate of Emigrants in 2018

District	Rate of Emigrants in 2018
Thiruvananthapuram	15.2
Kollam	32.8
Pathanamthitta	31.9
Alappuzha	23.6
Kottayam	31.3
Idukki	11.3
Ernakulam	5.8
Thrissur	27.9
Palakkad	12.1
Malappuram	42.1
Kozhikode	19.7
Wayanad	14.5
Kannur	38.8
Kasaragod	21.3
Kerala	24.4

Source: Rajan & Zachariah,2019

Table 3.18 presents the rate of emigrants across districts in Kerala in 2018, highlighting regional variations. Malappuram recorded the highest emigration rate at 42.1 percent, followed by Kannur at 38.8 percent and Kollam at 32.8 percent. Pathanamthitta (31.9 percent) and Kottayam (31.3 percent) also showed high emigration rates, indicating significant migration trends in these districts. In contrast, Ernakulam reported the lowest emigration rate at 5.8 percent, followed by Idukki (11.3 percent) and Palakkad (12.1 percent). The state average emigration rate was

24.4 percent, reflecting considerable interstate disparities. Malappuram stands out with its exceptionally high rate, highlighting its role as a major hub of emigration activity in Kerala.

Table 3.19

Destination of Migrant in Kerala

Destination	Percentage		
	Male	Female	Total
Gulf	92.0	74.2	89.2
Australia	0.6	2.5	0.9
Canada	0.6	1.4	0.7
Singapore	0.5	1.2	0.6
United Kingdom	1.2	5.1	1.8
America	1.5	5.6	2.2
Others	3.5	10.0	4.6
Total	100	100	100

Source: Rajan & Zachariah,2019

Table 3.19 illustrates the distribution of migrants from Kerala based on their destination countries, categorised by gender. The majority of migrants, both male and female, head to the Gulf countries, with 92 percent of male migrants and 74.2 percent of female migrants choosing this destination. Overall, 89.2 percent of all migrants from Kerala go to the Gulf. Other destinations include the United Kingdom (1.8 percent), the United States (2.2 percent) and smaller percentages for countries like Australia (0.9 percent), Canada (0.7 percent) and Singapore (0.6 percent). The Others category, which includes various other destinations, accounts for 4.6 percent of the total migrant population. The table underscores the Gulf as the primary destination for migration among the population.

Table 3.20

Household Remittances by District, 2013 and 2018

District	2018 in crores	2013 in crores	Per cent Increase	Per cent 2013	Per cent 2018
Thiruvananthapuram	2904	1847	57.2	9.5	7.6
Kollam	4602	2168	112.3	15.0	8.9
Pathanamthitta	2220	1478	50.2	7.2	6.2
Alappuzha	1795	2065	-13.1	5.8	8.5
Kottayam	1062	699	52.0	3.5	2.9
Idukki	277	228	21.7	0.9	0.9
Ernakulam	435	3210	-86.5	1.4	13.2
Thrissur	3350	2527	32.6	10.9	10.4
Palakkad	1270	1009	25.9	4.1	4.2
Malappuram	6326	3510	80.2	20.6	14.4
Kozhikode	2662	1967	35.3	8.7	8.2
Wayanad	432	303	42.7	1.4	1.2
Kannur	2320	1976	17.4	7.6	8.2
Kasaragod	1061	1294	-18.0	3.5	5.3
Kerala	30717	24374	26.0	100.0	100.0

Source: Rajan & Zachariah,2019

Table 3.20 provides the amount of remittances in Kerala, the district-wise analysis of remittances between 2013 and 2018 reveals significant variations. Malappuram District stands out with the highest remittance in 2018 at ₹ 6326 crores, an 80.2% increase from 3510 crores in 2013. This substantial growth highlights the importance of the Malappuram district as a hub for migrant workers, contributing 20.6% of the total remittances of the state in 2013, which slightly decreased to 14.4% in 2018. Other districts, such as Kollam and Thiruvananthapuram, also showed significant increases, with 112.3% and 57.2% growth, respectively. In

contrast, Ernakulam and Kasaragod experienced a decline in remittances, highlighting regional disparities. The overall increase in the remittances of Kerala by 26% emphasises the critical role of migrant workers in the economy of the state, with Malappuram playing a particularly vital role due to its large migrant population.

3.11 Socio-Economic Effects of Gulf Migration on Kerala

Kerala has experienced substantial and varied effects from gulf migration, which have resulted in notable shifts in the economy of the state since the mid-1970s. It has made it possible for a large number of migrant households to attain greater income, consumption and asset acquisition levels. Migration significantly lowers poverty rates, especially for the poorest households. Remittances from Keralites employed in the gulf now make up roughly 22% of Kerala's net domestic product, making them an essential component of the economy of the state. In addition to lowering unemployment, this remittance inflow has increased wages in the construction industry by creating a shortage of workers. Remittances have helped the economic circumstances of many people, but they have also contributed to inflation, raising the cost of consumer goods, land, building materials and services like healthcare and education. This harms non-migrant households, particularly those in the lower and middle classes. Not all parts of the state are equally affected by migration; those with higher migration densities have seen more notable shifts in the economy.

Remittances have also boosted savings and investment in the local economy, advancing development in an area that was previously thought to be backward. Gulf migration, then, has been a double-edged sword for Kerala, helping to reduce poverty and promote economic growth for many while also posing issues like inflation and regional imbalances (Prakash, 1998). In addition, since many men migrate in search of employment, migration has changed social dynamics and family structures, leading to an increase in woman-headed households. Additionally, the phenomenon has affected career mobility and educational opportunities, especially for diverse community groups. One of the main factors influencing the migration

patterns of the state is Kerala's rapid decline in mortality rates and subsequent demographic expansion, which have created migration pressures (Zachariah, et al, 2001). Migration has played a significant role in shaping the socio-economic landscape in Kerala. For decades, the state has seen a substantial outflow of people, particularly to gulf countries, driven by the search for better employment opportunities and improved living standards. Malappuram, with its strong historical and cultural ties to the gulf region, has emerged as a key district contributing to this migration trend. The large migrant population of the district has consistently sent back significant remittances, which have boosted the local economy and supported household-level development. This trend highlights the importance of migration as a survival and growth strategy, especially in regions like Malappuram.

3.12 Conclusion

Gulf migration has significantly influenced the economy, with remittances acting as a crucial driver for local development, poverty alleviation and the enhancement of living standards across various communities. The influx of remittances has proven particularly transformative for districts characterised by high rates of emigration, as it substantially contributes to economic growth and improves the overall quality of life for numerous residents. The marine fisherfolk community, in particular, faces a unique set of challenges that compel many individuals to seek better opportunities abroad. These challenges include declining fish stocks due to overfishing, environmental degradation caused by pollution and climate change and increasing operational costs associated with fishing activities.

Marine fisherfolk and migration play interconnected roles in shaping socio-economic dynamics, particularly in districts like Malappuram. The marine fisherfolk community faces unique challenges, including socio-economic backwardness, environmental degradation, declining fish stocks and rising operational costs, which push many individuals to seek better opportunities abroad. Migration, on the other hand, serves as a crucial livelihood strategy, providing essential remittances that uplift families and support community development. In Malappuram, where migration is a predominant survival mechanism, understanding its implications for

marine fisherfolk is critical. This study bridges these aspects, highlighting how migration influences the socio-economic conditions of fisherfolk, offering insights to address their vulnerabilities and enhance their resilience in an ever-evolving economic landscape. Understanding the impact of migration on the socio-economic conditions of marine fisherfolk is crucial for several reasons. While migration generates essential income through remittances that can uplift families and communities, it also presents significant challenges, such as regional economic imbalances and shifts in family dynamics. These factors greatly affect the socio-economic characteristics of the marine fisherfolk community, especially in districts with elevated emigration rates like Malappuram, where migration serves as a key livelihood strategy.

Non-migrant households, particularly those situated in lower and middle-income brackets, often find themselves grappling with increased consumer prices and service costs. These economic pressures can deepen existing inequalities and strain family resources, making it difficult for them to maintain their livelihoods. Migration has resulted in notable changes in family structures, such as a rise in households headed by women, which reflects the broader social changes occurring within these communities. Such shifts also influence educational and career opportunities for those family members who remain behind, potentially limiting their prospects for social mobility and economic advancement. This research endeavours to explore these complex dynamics, delving into the motivations behind migration and its impacts on the socio-economic conditions of marine fisherfolk. It also aims to analyse the disparities in income and expenditure patterns between migrant and non-migrant fisherfolk households, highlighting the impact of migration on their overall well-being.

The study seeks to highlight how migration transcends mere economic activity and operates as an essential survival strategy for marine fisherfolk. The findings are expected to offer valuable insights into how migration can help alleviate some of the vulnerabilities faced by this community. This knowledge will inform the development of targeted policies and support systems that are critical for addressing

the unique challenges faced by marine fisherfolk. These strategies will be essential for maximising the benefits of migration while simultaneously minimising its negative impacts. Therefore, this research is poised to play an important role in shaping sustainable development policies aimed at supporting marine fisherfolk communities and enhancing their overall socio-economic well-being. The study contributes to a deeper understanding of the intricate interconnections between migration and the socio-economic conditions of marginalised communities, fostering a more equitable and sustainable future for all involved. By addressing these critical issues, the research aims to provide a comprehensive framework for policymakers and stakeholders to develop effective interventions that enhance the resilience, sustainability, adaptability and well-being of marine fisherfolk.

CHAPTER 4

SOCIO-ECONOMIC PROFILE OF MARINE FISHERFOLK IN MALAPPURAM DISTRICT

- *Introduction*
- *Classification of Marine Fisherfolk Households*
- *Socio-Economic Profile of Marine Fisherfolk*
- *Conclusion*

4.1 Introduction

The life of marine fisherfolk is shaped by the rhythm of the tides and the persistent struggle for stability. Accompanied by the uncertainties of the sea, migration acts as a lifeline, providing a means of survival and a pathway to improved opportunities. Malappuram, with its 70 kilometers of coastline, is one of the key fishing districts in Kerala, home to a large population of marine fishermen and their families. The district is known for its high concentration of marine fisherfolk and emigrants, with migration, especially to gulf countries, being a common strategy to alleviate economic pressures. The socio-economic conditions of marine fisherfolk in the Malappuram district are shaped by various factors, including income levels, educational attainment, housing conditions and access to basic services.

While fishing remains the primary livelihood for many, the economic instability in the sector, coupled with the challenges of seasonal income fluctuations and environmental uncertainties, worsens the vulnerabilities of the community. Despite its significant contribution to the fishing industry of the state, the socio-economic conditions of marine fisherfolk in the district are marked by economic vulnerability and social marginalisation. Migration has emerged as a coping mechanism, with many fishermen seeking employment in the gulf countries to improve their economic conditions. Remittances from these migrant workers have contributed to improvements in household incomes, but the benefits are not evenly distributed. Significant disparities persist between migrant and non-migrant households. This chapter examines the socio-economic profile of marine fisherfolk in Malappuram district. Utilising percentages, graphs and various indices, the analysis highlights the differences and similarities in their economic status.

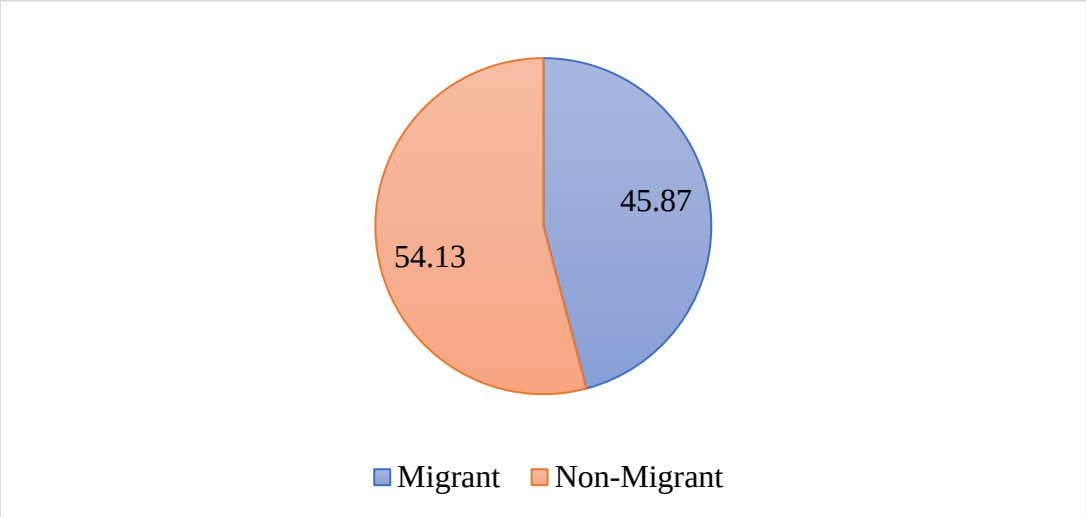
4.2 Classification of Marine Fisherfolk Households

The socio-economic profile of marine fisherfolk in the Malappuram district reflects a different range of experiences and challenges. Classification of households within this community helps provide a clearer understanding of the differences in their economic situations. By organising households based on factors such as

income, education and access to resources, we gain insights into how migration and environmental factors impact their daily lives. This grouping highlights the varying degrees of vulnerability and resilience among marine fisherfolk households, offering a framework for addressing the unique socio-economic needs of each group.

Figure 4.1

Respondent Households: Migrant and Non-Migrant Marine Fisherfolk



Source: Primary Survey,2024

Figure 4.1 illustrates that 172 (45.87%) respondent households are categorised as migrant households, while 203 (54.13%) are non-migrant. This notable proportion of migrant households highlights the pivotal role migration plays as a livelihood strategy, providing many within this community an opportunity to seek economic advancement beyond traditional fishing practices. Migration serves as a means for fisherfolk to escape the financial challenges often associated with the fishing industry, offering access to more stable employment opportunities. Migrant households, where at least one member has migrated outside India especially to Middle East for employment, generally experience higher income levels, improved living standards and better access to essential services such as education, healthcare and modern amenities. Migrants often send remittances that help alleviate poverty and diversify family income, contributing to improved household resilience.

In contrast, non-migrant, which rely entirely on fishing and related activities, face greater financial instability due to fluctuating fish yields, market uncertainties

and environmental risks such as coastal erosion and climate change. However, non-migrant families also play a vital role in preserving traditional fishing practices and maintaining the cultural heritage of the marine fisherfolk community. This study examines the socio-economic conditions of marine fisherfolk households, which include both migrant and non-migrant marine fisherfolk. By comparing these two groups, distinct socio-economic disparities emerge, highlighting differences in factors such as income, living conditions and access to resource.

4.3 Socio-Economic Profile of Marine Fisherfolk

The analysis focuses on demographic characteristics that distinguish migrant from non-migrant marine fisherfolk, as well as the household level characteristics. Notably, the entire sample of fisherfolk in Malappuram is Muslim, which is a significant aspect of the demographic profile of the region. This religious uniformity can be attributed to the historical and cultural roots of fishing communities in Kerala, mainly in Malappuram, where Islam has been the dominant religion among coastal communities for generations. The Muslim fisherfolk in this district maintain a distinct socio-cultural identity and have historically been involved in marine fishing, with many families passing down fishing as a traditional occupation. The socio-economic profile of migrant and non-migrant marine fisherfolk is explained in the subsequent sections, showcasing how migration influences their livelihoods and household dynamics.

4.3.1 Age Distribution

Age is a key demographic factor that provides insight into population and dependency dynamics in the marine fishing community. By analysing the age distribution of migrant and non-migrant marine fisherfolk, we can understand workforce composition, generational gaps and economic conditions. Migrant marine fisherfolk may have more working-age members, leading to greater financial stability through remittances, while non-migrant marine fisherfolk may face economic strain due to a higher proportion of dependents and reliance on traditional fishing. Analysing these patterns helps illuminate the socio-economic challenges and opportunities within the community.

Table 4.1

Age Distribution of Migrant and Non-Migrant Marine Fisherfolk

Age	Migrant	Non-Migrant
Mean	37.88	44.75
Median	36.23	44.53
Mode	45	40
Std.Deviation	10.620	10.16

Source: Primary Survey, 2024

Table 4.1 presents the age distribution of respondents, revealing that migrant marine fisherfolk tend to have a younger population, with an average age of 37.88 years, compared to 44.75 years in non-migrant marine fisherfolk. The median age for migrants is 36.23 years, further highlighting the presence of younger individuals, while in non-migrants, it is 44.53 years. While the lower average and median ages in migrant marine fisherfolk, a significant portion of the population is 45 years old, as indicated by the mode. In contrast, the most common age in non-migrant marine fisherfolk is 40 years. The standard deviations, 10.62 for migrant marine fisherfolk and 10.16 for non-migrant marine fisherfolk, suggest that age variability is similar in both groups, with a steady distribution of ages around the mean.

The younger working population in migrant marine fisherfolk may lead to higher productivity and increased remittances, boosting living standards. However, this also creates a higher dependency among older non-migrant members, who often remain in the traditional fishing industry due to heritage or lack of alternative opportunities. While remittances and new ideas brought by migrants can modernise the community, they may broaden the generational gap, making it challenging for older non-migrants to adapt to changing practices and shifting socio-economic dynamics in the marine fisherfolk community.

4.3.2 Gender Distribution

Analysing the function of each gender in various socio-economic contexts, including employment, migration trends and household structure, is beneficial. Understanding gender distribution in the context of marine fisherfolk is crucial to comprehend how men and women contribute to livelihoods and how migration uniquely affects each group.

Table 4.2

Gender Distribution of Migrant and Non-Migrant Marine Fisherfolk

Gender	Migrant		Non-Migrant	
	Number	Percentage	Number	Percentage
Male	168	97.67	203	100
Female	4	2.33	0	0
Total	172	100	203	100

Source: Primary Survey, 2024

Table 4.2 shows the gender distribution among migrant and non-migrant marine fisherfolk. In migrant communities, 168 individuals (97.67%) are male, while 4 individuals (2.33%) are female. In non-migrant communities, all 203 individuals (100%) are male, with no females actively engaged in fishing. While women's participation in employment is limited, they play a vital role in managing household responsibilities. Their involvement is significant, especially given cultural restrictions and limited access to education, which hinder their engagement in the workforce. Additionally, they contribute to family welfare through effective household management and support for other family members.

4.3.3 Marital Status

The marital status of a community is a crucial element in its demographic composition, frequently combined with family size to demonstrate the changing social dynamics within the community. In addition to affecting interpersonal relationships, it also has an influence on larger societal structures, changing family structures and community demographics. When people move from being single to

being married, their roles in the family change, which may result in the creation of new homes and the rise of nuclear families.

Table 4.3

Marital Status of Migrant and Non-Migrant Marine Fisherfolk

Marital Status	Migrant		Non-Migrant	
	Number	Percentage	Number	Percentage
Married	142	82.56	186	91.63
Unmarried	26	15.12	10	4.93
Widowed	2	1.16	5	2.46
Divorced	2	1.16	2	0.98
Total	172	100	203	100

Source: Primary Survey, 2024

Table 4.3 explains the marital status distribution of migrant and non-migrant marine fisherfolk. It depicts that the majority of non-migrant people (91.63%) are married, with widowed, single and divorced people (2.46%,4.93% and 0.98%) making up smaller percentages. On the other hand, migrant populations have marriage rate of 82.56%, which is slightly lower than that of non-migrant populations. Additionally, a substantial percentage of respondents, specifically 15.12%, are reported as single. Only 1.16% are divorced and the same percentage (1.16%) are widowed among the migrant populations. The high rate of marriage among both migrant and non-migrant groups reflects a cultural preference for early marriage, deeply rooted in the community's traditions.

Among them, the 'kuri kalyanam' system, a unique fundraising practice, remains a significant tradition. In this system, people contribute money to families hosting weddings, fostering mutual support and strengthening social bonds. This custom enhances community cohesion by providing financial assistance during important life events and encouraging collective responsibility. In the northern districts of Kerala, kuri kalyanam is observed as a mutual aid festival where a fisherman in need of funds invites friends and relatives to a gathering. Participants contribute according to their ability and while these contributions are not treated as

loans, the recipient is morally obligated to reciprocate in future events (Achari,1999). This traditional arrangement of community support continues to thrive in specific areas, largely due to the relative economic equality among participants.

4.3.4 Family Size

Family size is a critical component in characterising the demographics of any community and it is especially important when attempting to understand the socio-cultural changes that are occurring within the marine fishing community. Kerala has long been recognised for its joint family system, in which large families share resources and duties while residing under one roof. There has been a observable move in favour of nuclear families in recent years, which are distinguished by smaller household sizes. This transformation has significant implications for the community and reflects larger socio-economic shifts. This transition from joint to nuclear families is noticeable in the marine fishing community. In the past, joint families offered social and economic stability as several generations cohabitated and contributed to household income, especially in labour intensive jobs like fishing. However, many families now have nuclear families due to modernisation, increased urbanisation and everchanging economic opportunities.

Table 4.4

Family Size of Migrant and Non-Migrant Marine Fisherfolk

Family Size	Migrant		Non-Migrant	
	Number	Percentage	Number	Percentage
Below 5	110	63.95	129	63.5
6-10 members	60	34.88	64	31.5
11-15 members	1	0.58	10	4.9
Above 15	1	0.58	0	0
Total	172	100	203	100

Source: Primary Survey,2024

Table 4.4 reveals the family size of both migrant and non-migrant marine fisherfolk. This information provides an idea about the changing demographics of the region, especially about the prevalence of nuclear families and their effects on marine fisherfolk households that are both migrant and non-migrant. It was found that 63.95% of migrant households and 63.5% of non-migrant households consist of fewer than five members, indicating that the majority of both migrant and non-migrant households have smaller family sizes. Households with six to ten members account for 34.88% of migrant households and 31.5% of non-migrant households. This indicates a general trend toward smaller family units among both migrant and non-migrant households in the community. However, there are significant variations in the distribution of larger family sizes. For both migrant and non-migrant households, the percentage of larger families (11 to 15 members) is relatively low, with very few families exceeding 15 members. This suggests that, regardless of migration status, family sizes are becoming smaller.

These results may highlight the ongoing shift in the marine fishing community from traditional joint family systems to nuclear family arrangements. Smaller family sizes are more common, which points to a shift away from the historical norm of multigenerational cohabitation among migrant and non-migrant households. Smaller family sizes may have more financial implications for both migrant and non-migrant households. There may be additional financial strain when there are fewer earners per household as people have to support their families on smaller incomes. This may affect their capacity to pay for necessities and raise their risk of financial instability. Traditionally, joint families provided strong support networks, with multiple generations sharing responsibilities. However, the shift to nuclear families may weaken these support systems, leading to reduced social cohesion. This change could particularly isolate migrant families, as they may lack the support networks available to non-migrant households.

4.3.5 Ownership of Ration Card

A ration card is an essential tool for evaluating living conditions in households. Different colours of ration cards indicate different levels of eligibility

and benefits, according to a system implemented by the Kerala government. Ration cards in Kerala differentiate households based on their economic status. Yellow cards are issued under the Antyodaya Anna Yojana for the most vulnerable groups, including landless workers and widows. Households falling below the poverty line (BPL) are given pink cards, which are provided to priority sections, offering free food grains and additional subsidies. Blue cards are for non-priority households (APL), offering subsidised rice, while white cards are for economically better-off families with minimal benefits. Beyond providing indispensable items at reduced prices, ration cards also serve as identity proof, playing an important role in ensuring food security and contributing to the overall stability and well-being of households, primarily those in economically vulnerable positions.

Table 4.5

Ownership of Ration Card: Migrant vs Non-Migrant Marine Fisherfolk

Migration Status	**Ration Card**	**Frequency (Percentage)**
Non-Migrant	No	4(2)
	Yes	199(98)
	Total	**203(100)**
Migrant	No	4(2.3)
	Yes	168(97.7)
	Total	**172(100)**

Source: Primary Survey,2024

Table 4.5 displays the ownership of ration cards for respondent households, including both migrant and non-migrant families. Ownership of ration cards is high among both migrants (97.7%) and non-migrants (98%). This widespread possession of ration cards among marine fisherfolk highlights its importance as a key resource for these communities. Ration cards enable access to subsidised food and essential supplies, which are essential for sustaining their livelihoods, especially given the economic challenges they often face. The small difference in ownership between migrant and non-migrant households indicates that, irrespective of their migration

status, having a ration card is essential for guaranteeing food security and reducing economic vulnerability within these communities.

Table 4.6

Type of Ration Card: Migrant vs Non-Migrant Marine Fisherfolk

Type of Ration Card	Non-Migrant		Non-Migrant	
	Number	Percentage	Number	Percentage
No card	4	2.3	4	2
Yellow	10	5.8	18	8.9
Pink	103	59.9	160	78.8
Blue	35	20.3	13	6.4
White	20	11.6	8	3.9
Total	172	100	203	100

Source: Primary Survey,2024

Table 4.6 illustrates the distribution of ration card types among respondent households in the marine fisherfolk community. Among non-migrant households, a significant majority hold pink ration cards (78.8 %) indicating substantial government subsidies. Additionally, 8.9 percent have yellow cards, while fewer households possess blue (6.4%) and white cards (3.9%). Conversely, migrant households exhibit a different pattern, majority (59.9 %) hold pink cards, 5.8 per cent hold yellow cards, but a notably higher percentage have blue cards (20.3 percent) and white cards (11.6 %). These blue and white cards, categorised under APL, suggest that migrant households are more likely to receive lower levels of government subsidies compared to non-migrant households. The higher prevalence of APL cards among migrants implies a variation in the level of economic support or eligibility criteria between the two groups. This disparity highlights possible differences in economic conditions and government support, reflecting the varied levels of assistance available to migrant versus non-migrant marine fisherfolk.

4.3.6 Cooking Fuel Practices

Cooking fuel is an inevitable aspect of household well-being, influencing both health and quality of life. Access to efficient and clean cooking methods, such

as LPG (liquefied petroleum gas) and electricity, plays an significant role in reducing health risks associated with traditional fuels like wood, which can produce harmful smoke and pollutants. The use of safe and reliable cooking fuels are essential for maintaining hygiene and preventing disease.

Table 4.7

Fuel used for Cooking: Migrant and Non-Migrant Marine Fisherfolk

Cooking Fuel	Migrant		Non-Migrant	
	Number	Percentage	Number	Percentage
Wood	168	97.67	203	100
LPG	172	100	200	98.8
Electric cooking method	9	5.2	0	0

Source: Primary Survey, 2024

Table 4.7 provides a detailed comparison of cooking fuel usage among non-migrant and migrant marine fisherfolk. For non-migrant households, every family exclusively uses wood for cooking and also using LPG. Notably, none of the non-migrant households have electric machines for cooking. In contrast, migrant households show a more varied use of cooking fuels. A small percentage of migrant households do not use wood for cooking. Additionally, a small number of migrant households use electric machines, although a small portion does not. This indicates that while wood remains the primary cooking fuel for both non-migrant and migrant households, migrant households exhibit a greater adoption of electric cooking methods compared to non-migrants.

This suggests that migrants may have better access to or preference for modern and efficient cooking technologies, reflecting a shift towards cleaner and additional contemporary cooking methods among this group. Moreover, borewell and well are the major sources of water facilities among them. However, the salt content in the well water is a significant concern for both non-migrant and migrant households, impacting their overall access to safe and clean water. This highlights a critical challenge faced by marine fisherfolk communities in maintaining a reliable

and uncontaminated water supply, further influencing their choice of cooking methods and overall quality of life.

4.3.7 Land Holding

Land holding is a vital factor in determining the socio-economic status of both migrant and non-migrant marine fisherfolk. Ownership of land is often synonymous with wealth and economic security, providing families with tangible assets that can be used for various purposes such as housing, agriculture and other income-generating activities. For marine fisherfolk, land may also serve practical purposes, such as storing fishing equipment or engaging in small-scale farming to diversify their income sources. Owning land enables livelihood diversification, especially for migrant households who use remittances to invest in property, build homes and start new ventures.

Table 4.8

Land Holding: Migrant vs Non-Migrant Marine Fisherfolk

Land Holding	Migrant		Non-Migrant	
	Number	Percentage	Number	Percentage
No land	5	2.91	11	5.42
Below 5 cents	8	4.65	5	2.46
5 – 10 cents	124	72.09	143	70.44
11-15 cents	15	8.72	24	11.82
16-20 cents	14	8.14	17	8.37
Above 20 cents	6	3.49	3	1.48
Total	172	100	203	100

Source: Primary Survey,2024

Table 4.8 explains the land ownership distribution among migrant and non-migrant marine fisherfolk. The majority of both groups possess land between 5 and 10 cents, with 72.09% of migrant fishermen and 70.44% of non-migrant fishermen falling into this category. A small percentage of non-migrants (5.42%) do not own

any land, while only 2.91% of migrants report the same. Notably, a small percentage of migrant fishermen (8.14%) and non-migrant fishermen (8.37%) possess land in the 16-20 cent category, demonstrating that while the majority own smaller plots, there are still opportunities for diversification in their livelihoods for those with larger landholdings.

Fishermen with more land can diversify their livelihoods through various initiatives, with aquaculture as a key option. Fish farming, such as setting up ponds for species like tilapia or shrimp, allows for controlled breeding and a steady income. Incorporating agricultural practices, like crop cultivation and livestock rearing, can further enhance income and food security. Government support plays a crucial role in these endeavours, offering subsidies, grants and training programs to help fishermen develop their aquaculture and agricultural skills. Forming cooperative societies can facilitate collective investments in these ventures, allowing for shared resources and expertise. By adopting these strategies, fishermen can improve their economic resilience and reduce reliance on traditional fishing practices.

4.3.8 House Ownership

Ownership of a house is a crucial factor that defines the living conditions and socio-economic status of marine fisherfolk. It provides a sense of security and stability, safeguarding that families have a permanent residence and are less vulnerable to displacement or homelessness. Economically, house ownership often reflects the financial strength of the households. Ownership of a house typically indicates better financial stability, allowing for investment in a stable asset. For marine fisherfolk, owning a house provides a protected place to store fishing gear and supports their livelihood. It also enables improvements that can enhance fishing activities. Socially, owning a home promotes a family's community standing, symbolising economic attainment and stability. Thus, house ownership replicates economic well-being and social status.

Table 4.9

House Ownership: Migrant vs Non-Migrant Marine Fisherfolk

House Ownership	Migrant		Non-Migrant	
	Number	Percentage	Number	Percentage
Own House	160	93.02	186	91.63
Rent/Lease	12	6.97	17	8.37
Total	172	100	203	100

Source: Primary Survey,2024

Table 4.9 shows that both migrant and non-migrant fisherfolk have high rates of home ownership, with 93.02% of migrants and 91.63% of non-migrants owning their homes. This indicates that owning a home is a strong preference and is common among both groups. Only a small percentage, 6.97% of migrants and 8.37% of non-migrants live in rented or leased homes. These patterns highlight that there are differences in the types of houses occupied by migrants and non-migrants, with potential disparities in the quality or size of the homes. This could be influenced by several factors such as stability in residence, investment opportunities and cultural norms favouring property ownership.

4.3.9 Type of House

The vulnerability of livelihoods of marine fisherfolk underlines the importance of examining their living conditions, including housing types, land distribution and home ownership. Evaluating the kinds of housing that are common among marine fisherfolk offers information about the security of their homes and the quality of their shelter. Living near the sea has a charming appeal, but for marine fishermen's households, it is crucial for their livelihoods, not just a preference. For fishing purposes, having easy access to the sea is crucial because it enables them to continue their livelihood and maintain their occupation. Traditionally, marine fishermen lived in kutcha houses with coconut leaf roofs and partitioned rooms, often built on sand or mud foundations. This simple, practical style is suited to coastal living. However, over time, concrete buildings replaced thatched roofs, reflecting a shift toward more durable and modern housing.

Table 4.10

Type of Housing: Migrant vs Non-Migrant Marine Fisherfolk

Type of Housing		Migration Status		Total
		Migrant	Non-Migrant	
Luxury	N	47	2	49
	%	27.32	1.48	13.07
Very Good	N	104	17	121
	%	60.46	8.37	32.27
Good	N	11	119	130
	%	6.39	58.62	34.67
Poor	N	8	54	62
	%	4.67	26.60	16.53
Kutcha	N	2	11	13
	%	1.16	5.42	3.46
Total	N	172	203	375
	%	45.87	54.13	100
Pearson Chi-square Test	(Chi square:231.025, df: 4, P=0.001)			

Source: Primary Survey, 2024

Table 4.10 displays that migrant marine fisherfolk typically have better housing than non-migrants. Results show that the majority (94.17%) of migrants reside in homes ranging from Good to luxurious, indicating generally stable and secure living circumstances. On the other hand, 32.02 percent of non-migrants live in impoverished and kutcha houses, signifying a more unstable and vulnerable lifestyle. Since the sea is their primary source of income, most marine fisherfolk reside close to the coast. However, this proximity exposes them to risks, especially during the monsoon when high waves and severe weather can destroy their homes. Living in simple or poor-quality housing makes them more vulnerable to these natural forces. The monsoon season poses a serious threat to fishermen communities, especially non-migrant, who live in poor-quality kutcha houses. Data shows that 32.02% of non-migrant fisherfolk live in poor-quality kutcha houses. Damage from strong waves and severe weather leads to costly repairs and

maintenance, straining their limited finances. Their reliance on the sea for income worsens the financial burden of reconstruction.

Even though they typically live in better housing, migrant fisherfolk are still subject to these dangers. They still face the risk of being destroyed during severe weather, even though a smaller percentage of them reside in kutcha (1.16%) and poor (4.67%) houses. Providing for those who experience losses can affect the financial stability of migrant communities, leading to broader financial hardship. Climate change accelerates these issues by increasing the frequency and severity of natural disasters. Even well-built homes are at risk from rising sea levels and stronger storms, with costs for repairs and reconstruction rising. This ongoing threat forces fisherfolk to spend on rebuilding rather than improving their living conditions. The Chi-square test is used to check the association between migration status and the type of house owned. The result shows a statistically significant association (P=0.001), indicating that house type is likely related to whether a household is a migrant or non-migrant. Specifically, migrant households tend to live in better-quality houses, while non-migrant households are more likely to reside in poorer-quality homes.

4.3.10 Educational Attainment

Education is essential for human development, as it opens doors to opportunities, broadens horizons and enhances career prospects. Kerala exemplifies this in India, boasting a high literacy rate and a strong commitment to providing quality education for all, irrespective of gender or socioeconomic status. This focus on education has been pivotal in shaping the socio-economic progress of the state. A recent trend within the fishing community in Kerala reveals a shift towards gender equality in education, with women increasingly achieving educational levels comparable to men.

Table 4.11

Educational Attainment: Migrant vs Non-Migrant Marine Fisherfolk

Education		Migration Status		Total
		Migrant	Non-Migrant	
Literate Without School Education	N	2	9	11
	%	1.16	4.43	2.93
SSLC and below	N	104	182	286
	%	60.47	89.66	76.27
Plus Two	N	45	9	54
	%	26.16	4.43	14.4
Degree	N	12	3	15
	%	6.98	1.48	4
PG	N	2	0	2
	%	1.6	0	0.53
Others	N	7	0	7
	%	4.07	0	1.87
Total	N	172	203	375
	%	45.87	54.13	100
Pearson Chi-square Test		(Chi-square: 61.998, df: 5, P :0.001)		

Source: Primary Survey, 2024

Table 4.11 compares educational attainment between migrant and non-migrant marine fisherfolk. The majority of both groups have education levels of SSLC or below, with 60.47% of migrants and 89.67% of non-migrants falling into this category. However, a higher proportion of migrants have attained higher educational qualifications compared to non-migrants. Specifically, 26.16% of migrants have completed Plus Two, 6.98% hold a degree and 1.6% have post-graduate education. In contrast, only 4.43% of non-migrants have completed Plus Two, 1.48% hold a degree and no non-migrants have post-graduate degrees. Additionally, 4.07% of migrants possess other qualifications, while no non-migrants have these qualifications. The Pearson Chi-Square test results (P = 0.001) confirm a statistically significant relationship between education level and migration status. These findings suggest that migration is associated with higher educational attainment, potentially reflecting the role of education in facilitating better job

opportunities abroad. Education appears to be an important factor in migration decisions, with migrants generally achieving higher educational levels than non-migrants.

4.3.11 Livelihood Diversification

The Livelihood Diversification Index measures the extent to which the residents of an area are involved in a variety of economic activities. For this study, the economic activities are categorised into five primary income sources: fishing, allied activities, driver, shopkeeper and others. The occupational diversification within each group can be understood by analysing the involvement in these activities for both migrant and non-migrant fisherfolk communities. In the analysis of livelihood diversification, the Ogive Index and Simpson Index are used. A higher Ogive Index denotes an uneven distribution of sectoral activities within a community, indicating a concentration in certain economic sectors. Conversely, the Simpson to measure the livelihood diversification of the coastal people. Together, these indices provide insights into the economic dynamics of communities, highlighting patterns of occupational concentration and diversity among different groups within marine fisherfolk communities (Biswas & Mallick, 2021).

Table 4.12

Livelihood Diversification: Migrant vs Non-Migrant Marine Fisherfolk

Index	Migrant	Non-Migrant
Ogive Index	0.125	0.64
Simpson Index	0.78	0.19

Source: Primary Survey,2024

Table 4.12 compares livelihood diversification between Migrant and Non-Migrant fisherfolk households using the Ogive and Simpson Indices. Non-migrants have a higher Ogive Index (0.64), meaning their livelihoods are concentrated in fewer occupations, showing less diversity. In contrast, migrants have a lower Ogive Index (0.125), indicating a more varied range of economic sectors. The Simpson Index further supports this, with non-migrants having a lower index (0.19), reflecting fewer dominant job types, while migrants have a higher index (0.78),

indicating greater occupational diversity. Overall, migrants engage in a wider variety of jobs, likely due to their mobility and diverse skill sets, while non-migrants tend to stick to a narrower range of occupations.

4.3.12 Occupational Status

Marine fishing is the main livelihood for fisherfolk in Malappuram district. This occupation involves venturing into the unpredictable sea using various types of fishing vessels from mechanised boats with inboard engines to non-mechanised or sail-powered boats and outboard motorised boats. The occupational status of marine households in Kerala, particularly in Malappuram district varies significantly between migrant and non-migrant families. For non-migrant households, fishing serves as the primary livelihood, where fishermen navigate the unpredictable sea using various vessels, including mechanised and traditional boats.

Table 4.13

Occupational Status: Migrant vs Non-Migrant Marine Fisherfolk

Occupation		**Migration Status**		**Total**
		Migrant	**Non-Migrant**	
Fishing	N	43	182	225
	%	25	89.7	60
Allied activities	N	14	21	35
	%	8.1	10.34	9.33
Driver	N	27	0	27
	%	15.7	0	7.2
Shopkeeper	N	43	0	43
	%	25	0	11.47
Others	N	45	0	45
	%	26.2	0	12
Total	N	172	203	375
	%	45.87	54.13	100
Pearson Chi-square Test		(Chi-square: 199.271, df:4, P:0.001)		

Source: Primary Survey, 2024

Table 4.13 shows the occupational status of migrant and non-migrant marine fisherfolk in the fishing community. It reveals that 25% of migrant workers in the

gulf continue to work in fishing, indicating that they maintain ties to the fishing industry even while abroad. A major part of the fisherfolk in the Malappuram district migrated to gulf countries and continues to work in the fishing sector due to several favourable factors. The higher income potential from fishing in the gulf countries, driven by greater fish resources, allows them to earn significantly more compared to fishing in their local regions. In addition to this, the lower costs of fishing operations in gulf countries, combined with better law and order conditions, provide a more secure and stable working environment. Safety nets, such as government protections and support systems in the gulf countries, further enhance their economic security, making migration to these countries a desirable option for fisherfolk seeking improved livelihoods.

Both migrant and non-migrant populations contribute to allied activities that support the fishing industry, with nearly equal numbers working in roles such as fish marketing and seafood processing. Additionally, migrants engage in a wide range of other jobs, such as driver, shopkeeper, fitness trainer, business, construction work, engineer, household worker and cook. In contrast, non-migrants tend to have a narrower range of occupations, which may indicate a stronger dependence on fishing as their primary source of income within their local communities. However, the number of skilled jobs in gulf countries among them remains relatively low, reflecting limited access to higher education and specialised training.

The Chi-square test evaluates whether there is a statistically significant association between two categorical variables of occupation and migration status. The test result shows a strong association between occupation and migration status (P=0.001), meaning that the type of occupation is closely linked to whether a household is migrant or non-migrant. A larger proportion of migrants are engaged in occupations like driver, shopkeeper and other non-fishing-related activities like fitness trainer, mechanic, engineer and construction work, while non-migrants predominantly remain in fishing and allied activities. The limited participation of women in skilled, semi-skilled and high-paying jobs hinders the socio-economic progress of the marine fisherfolk community. Women empowerment through skill development, training and entrepreneurship have been proposed, but their adoption

remains limited due to factors such as societal norms, lack of awareness and limited access to resources. Additionally, cultural constraints and the primary reliance on traditional roles in the fishing industry prevent women from fully participating in alternative livelihood opportunities.

To overcome these challenges, it is essential to strengthen policy enforcement, create awareness programs and improve access to financial support and modern infrastructure for women. Promoting higher education and vocational training for the younger generation, along with broader economic diversification initiatives will help foster gender equality in employment. Government initiatives designed to support both migrant and non-migrant households through targeted subsidies and sustainable fishing practices can enhance overall economic security. These measures, if effectively implemented, will contribute to the socio-economic growth of the entire marine fisherfolk community.

4.3.13 Income Pattern

The livelihoods of marine fishermen depend on fish availability. However, the risky nature of fishing, seasonal changes and fluctuating fish stocks often lead to unstable incomes, trapping many in poverty. Climate change disrupts fish habitats by altering sea temperatures and currents, making fishing more unpredictable. Unsustainable practices like juvenile and overfishing further reduce fish stocks, worsening the situation. This instability affects not just income but also access to essentials like food, shelter, education and healthcare, deepening poverty and marginalisation in fishing communities.

Table 4.14

Income Pattern: Migrant vs. Non-Migrant Fisherfolk Households

Income	Migrant	Non-Migrant
Mean	32488.37	20635.47
Mode	30000	20000
Median	30000	15000
Std. Deviation	10075.44	7545.58

Source: Primary Survey,2024

Table 4.14 provides a detailed comparison of income distributions between migrant and non-migrant households from all the sources. Migrant households report an average income of rupees 32,488.37, with both the mode and median at rupees 30,000, indicating that this income level is common and that the income distribution is relatively symmetrical. The standard deviation of rupees 10,075.44 highlights considerable variability in migrant incomes, suggesting diverse financial outcomes among them. The standard error mean of rupees 529.596 reflects a high precision of the average income estimate, indicating confidence in this figure as representative of the migrant population. In contrast, non-migrant households have a lower average income of rupees 20,635.47, with mode and median incomes of rupees 20,000 and rupees 15,000, respectively, indicating a distribution centered around these lower income levels. The standard deviation for non-migrants stands at rupees 7,545.58, also reflecting significant income variability but slightly less than that observed in migrant incomes. The standard error mean of rupees 768.245 suggests a less precise estimate of average income for non-migrants.

These findings imply that migration significantly enhances income potential, as evidenced by the higher average income among migrants. This is primarily driven by the diverse opportunities available to migrants, including high-paying jobs abroad and the inflow of remittances. Remittances play a crucial role in supplementing household incomes, enabling migrants to support their families and invest in local economic activities. On the other hand, non-migrants show relatively lower and more concentrated income levels, relying largely on local economic activities. This highlights a dependence on limited income sources within their local communities. The substantial variability in migrant incomes emphasises the diverse experiences and opportunities available through migration, ranging from skilled and semi - skilled labour to entrepreneurship and other sectors in the host countries. Analysing these income dynamics is crucial for policymakers aiming to improve the socio-economic conditions of both groups, particularly in addressing the income disparities that may influence access to resources and opportunities.

4.3. 14 Expenditure Pattern

Expenditure plays a key role in the quality of life for marine fisherfolk. They spend money on essential needs like food, shelter and clothing to ensure their survival. They invest in education and healthcare, which are vital for improving their future and maintaining health despite the challenges of their occupation and limited healthcare access. Educational spending helps children from fishing families achieve better opportunities and break free from poverty, while healthcare spending addresses their medical needs and supports their well-being. Other expenses include transportation, communication and social commitments. Examining their spending patterns highlights the need for better financial education, sustainable livelihood strategies and improved access to essential services to enhance their overall prosperity and resilience.

Table 4.15

Expenditure Pattern: Migrant vs Non-Migrant Fisherfolk Households

Expenditure	**Migrant**	**Non-Migrant**
Mean	27883.72	25300.49
Median	27000	26000
Mode	35000	27000
St. Deviation	7427.110	6075.910

Source: PrimarySurvey,2024

Table 4.15 provides a comparative analysis of expenditure patterns among migrant and non-migrant marine fisherfolk households. The data highlights differences in how these groups allocate their financial resources. Migrant households have a higher average expenditure of rupees 27,883 compared to rupees 25,300.49 for non-migrant households, indicating that migrants generally spend more to meet their needs. The median expenditure is rupees 26,000 for non-migrant households, slightly below the median of rupees 27,000 for migrant households, showing consistency in spending within each group. The mode reveals that the most

common expenditure among migrants is rupees 35,000, while for non-migrants, it is rupees 27,000. The result further shows that the standard deviation is higher for migrant households (rupees 7,427.11) compared to rupees 6,075.91 for non-migrants, suggesting greater variability in spending among migrants. Migrant households generally have higher spending power, indicating that migration improves financial resources and living standards. However, the variability in their spending suggests unequal financial gains. Non-migrant households show more consistent but lower spending, reflecting limited financial growth. These patterns highlight the role of migration in enhancing financial flexibility while revealing uneven outcomes among migrants.

4.3. 15 Savings Habit

Fisherfolk living in coastal or remote areas face significant financial challenges due to irregular income streams, limited access to formal financial services and vulnerability to environmental fluctuations. These difficulties make savings a rare practice among non-migrant fisherfolk, who often struggle to accumulate savings due to their unpredictable earnings and lack of financial literacy and banking infrastructure. In contrast, migrant fisherfolk demonstrate a marked increase in saving behaviours. This shift is largely due to improved job opportunities in their new locations, the availability of remittances from family members and financial education provided by support organisations. Exploring the saving behaviours of both migrant and non-migrant fisherfolk provides key takeaways into the factors influencing financial resilience and inclusion in these communities.

Table 4.16

Saving Habit: Migrant vs Non-Migrant Marine Fisherfolk

Saving		Migration Status		Total
		Migrant	Non-Migrant	
No	N	90	189	279
	%	52.33	93.10	74.4
Yes	N	82	14	96
	%	47.67	6.90	25.6
Total	N	172	203	375
	%	100	100	100
Pearson Chi-square Test	(Chi square:81.289,df:1, P :0.001)			

Source: Primary Survey,2024.

Table 4.16 compares the saving habit between migrant and non-migrant marine fisherfolk. Among 203 non-migrants, most (93.10%) do not save at all and only 6.90 percent of non-migrants have a saving habit. This shows that non-migrants are less likely to save, possibly due to factors like income levels and access to financial resources. For the 172 migrants, saving is more common and 47.67 percent of people have a saving habit. The data reveals a strong connection between migration and saving habits, with a Pearson Chi-square test showing a highly significant p-value of 0.001. This suggests that migration is linked to better saving behaviours, influenced by improved job opportunities, employment stability, access to financial services and different saving attitudes.

4.3.16 Debt Status

Debt is a critical issue for marine fisherfolk, significantly affecting their financial stability and well-being. Their unique socio-economic conditions, such as irregular income from fishing, seasonal work patterns and the inherent risks of their occupation contribute to their debt problems. Fishing income is often unpredictable due to factors like weather, market changes and fish stock variations. During times of low fish availability, fisherfolk face income shortages and must rely on credit to meet basic needs, such as food, education and healthcare, leading to a cycle of debt.

Moreover, the absence of formal banking services in remote coastal areas forces fisherfolk to depend on informal lenders who impose high interest rates and strict repayment terms. This dependence on costly credit aggravates their debt situation and makes it difficult to achieve financial stability. Addressing the debt burden among marine fisherfolk requires a thorough approach that addresses both the underlying causes of their financial struggles and the consequences of their debt.

Table 4.17

Debt Status: Migrant vs Non-Migrant Marine Fisherfolk

Debt Status		**Migration Status**		**Total**
		Migrant	**Non-Migrant**	
No Debt	N	87	38	125
	%	50.58	18.72	33.33
Indebted	N	85	165	250
	%	49.41	81.28	66.67
Total	N	172	203	375
	%	100	100	100
Pearson Chi-square Test	(Chi square:41.164, df:1, P:0.001)			

Source: Primary Survey, 2024

Table 4.17 shows the debt status of migrant and non-migrant fisherfolk. Among 203 non-migrant fisherfolk, most (81.28%) have debt, while only 18.72% are debt-free. In contrast, among 172 migrant fisherfolk, half have debt and half do not. The Chi-square test results (Pearson Chi-square value of 41.164 with a p-value of 0.001) indicate a strong connection between migration status and debt, suggesting that the relationship is significant and not random. This analysis highlights a clear difference in debt levels between the two groups. Non-migrant fisherfolk are more likely to have debt, while migrant fisherfolk are more balanced in their debt situation. This may mean that migration helps fisherfolk manage their finances better, perhaps due to more stable income sources. The findings emphasise the need for specific support for both groups. Non-migrant fisherfolk could benefit from

better financial education, access to formal banking services and opportunities to diversify their income to reduce their debt and improve financial stability.

Table 4.18

Reasons for Debt :Migrant vs Non-Migrant Marine Fisherfolk

Reasons for Debt	Migrant		Non-Migrant	
	Number	Percentage	Number	Percentage
House construction	70	40.69	50	24.63
Marriage Purpose	35	20.35	69	33.99
Migration Expenses	12	6.97	0	0
Children Education	8	4.65	6	2.96
Purchase Land	40	23.25	22	10.83
Medical Expenses	6	3.5	3	1.48
Day to day expenses	0	0	46	22.66
Others	1	0.58	7	3.44
Total	172	100	203	100

Source: Primary Survey,2024

Table 4.18 presents the reasons for debt among migrant and non-migrant marine fisherfolk, highlighting differences in financial priorities. Among migrants, the primary reason for debt is house construction, accounting for 40.69%, reflecting a strong focus on property investment. In contrast, non-migrants allocate 24.63% of their debt to this purpose. Marriage purposes are significant for both groups, constituting 20.35% of migrant debt and 33.99% for non-migrants, indicating the financial burden of cultural and social obligations. Migration expenses account for 6.97% of migrant debt, emphasising the cost of relocation, while this category is absent for non-migrants.

Purchasing land is another key reason, with migrants allocating 23.25% of debt and non-migrants 10.83%. For children's education, migrants and non-migrants allocate 4.65% and 2.96%, respectively. Medical expenses account for 3.5% of debt among migrants and 1.48% for non-migrants. Interestingly, day-to-day expenses constitute 22.66% of non-migrant debt but are not a factor for migrants, suggesting

differing financial strategies. The others category includes minimal allocations, with migrants at 0.58% and non-migrants at 3.44%. The table illustrates the distinct financial challenges and priorities between the two groups, highlighting the need for tailored financial support mechanisms.

4.3.17 Asset Holding

Asset holding reflects the capacity of households to accumulate and maintain valuable items that contribute to their quality of life and financial security. In the context of marine fisherfolk, examining asset holdings provides an idea about the economic conditions and their ability to manage and sustain their livelihoods. Analysing asset ownership among migrant and non-migrant fisherfolk households can reveal significant differences in their economic situations. Migrant fisherfolk, who often work abroad, might have different patterns of asset accumulation compared to their non-migrant counterparts. This comparison helps to understand how migration influences asset holding and, consequently, financial stability and quality of life within these communities.

Table 4.19

Asset Holding among Migrant and Non-Migrant Marine Fisherfolk

Asset	Migrant		Non-migrant		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Motorcar	18	85.71	3	14.29	21	100
Auto rickshaw	5	31.25	11	68.75	16	100
Scooter	127	46.35	147	53.65	274	100
TV	136	50.75	132	49.25	268	100
Fridge	164	54.56	148	47.44	312	100
Washing machine	88	72.73	33	27.27	121	100
AC	42	89.36	5	10.64	41	100

Source: Primary Survey,2024

Table 4.19 reveals key differences in asset ownership between migrant and non-migrant fisherfolk households. Migrants have significantly higher ownership of motorcars (85.71%) compared to non-migrants (14.29%), indicating greater wealth

or mobility needs. Conversely, non-migrants lead in owning auto rickshaws (68.75%) and scooters (53.65%), reflecting their reliance on these vehicles for local transportation. In terms of household appliances, migrants have higher ownership rates for fridges (54.56%), washing machines (72.73%) and air conditioners (89.36%). This suggests that migrants may have higher incomes or specific needs for food storage and comfort. Overall, migrants tend to own more high-value appliances, while non-migrants favour vehicles suited for their local environment. This pattern highlights how asset ownership is influenced by differing lifestyle needs and economic conditions between the two groups.

4.4 Conclusion

The socio-economic profile of marine fisherfolk in Malappuram district reveals significant insights into the demographic characteristics of the fisherfolk community. Migration, especially to Gulf countries, has become a prominent strategy for economic advancement among marine fisherfolk, as traditional fishing practices often result in financial instability. The community is primarily Muslim, with a substantial portion of households relying on fishing as their livelihood. However, the socio-economic disparities between migrant and non-migrant marine fisherfolk are evident. Migrant households tend to experience higher income levels, better access to education and healthcare and a more diverse household structure. Non-migrants, on the other hand, remain heavily dependent on fishing, which exposes them to environmental uncertainties and market fluctuations. Family size and marital status also play an important role in shaping the socio-economic conditions of the community.

The shift from joint families to nuclear families reflects broader socio-economic changes, including migration and modernisation. While marriage remains culturally significant, with a high rate of marriage in both migrant and non-migrant households, they maintain strong cultural ties, particularly through early marriage and traditional practices. These practices and customs enhance community cohesion by providing financial assistance during important life events and encouraging collective responsibility. In the northern districts of Kerala, Kuri kalyanam, a mutual

financial aid festival is observed among fishermen in need of fund rising from relatives and friends. Participants contribute according to their ability and while these contributions are not treated as loans, the recipient is morally obligated to reciprocate in future events (Achari,1999). This suggests that while migration may influence cultural norms, it does not entirely disrupt traditional practices; instead, it reflects an adaptation to evolving economic conditions.

The analysis further reveals that migrant households generally enjoy better housing conditions than non-migrants, with a larger proportion residing in higher-quality homes. This disparity shows the positive impact of migration on living standards. Both groups have high homeownership rates, yet the quality of housing is notably superior among migrants. They also tend to own larger or more valuable land parcels, contributing to their financial stability. The analysis of ration card ownership shows that migrants are more likely to possess Above Poverty Line (APL) cards, indicating greater economic security. In contrast, non-migrants primarily hold Below Poverty Line (BPL) cards, highlighting migration's critical role in improving access to better resources. Migrant households also demonstrate a greater adoption of modern cooking technologies and diverse water sources. Migrants achieve higher educational levels, frequently attaining higher secondary education and beyond.

The Chi-Square test confirms a significant correlation between migration and educational attainment, this indicates that higher education is a crucial factor in enabling migration and enhancing job prospects abroad. The result reveals that migrants engage in a broader range of occupations beyond traditional fishing activities, suggesting that migration enhances both educational and employment prospects, fostering greater economic diversification. Financially, migrants enjoy higher incomes, varied spending habits and improved saving behaviours. This is reflected in a higher asset index, which includes ownership of valuable items like motorcars and modern household appliances. In stark contrast, non-migrant households experience financial instability, characterised by lower incomes, higher debt levels and limited savings. This discrepancy emphasizes the substantial impact

of migration on financial stability and asset accumulation, while non-migrants continue to face persistent economic challenges.

Overall, the findings illustrate the significant economic and social benefits of migration for marine fisherfolk, leading to improved living standards, enhanced educational opportunities and greater financial stability. Conversely, non-migrant households confront ongoing economic difficulties and limited prospects for growth. This situation underscores the urgent need for targeted support to address these disparities. Examining the socio-economic dynamics of both migrant and non-migrant households is vital for implementing effective interventions aimed at improving the overall well-being of the marine fisherfolk community. Such targeted initiatives could include increasing access to better education, healthcare services and employment opportunities. By uplifting non-migrant households, these measures would help create a more balanced socio-economic environment within the community.

A comprehensive approach addressing both immediate needs and long-term aspirations is essential for fostering a more equitable and sustainable future for all members of the marine fisherfolk community in the Malappuram district. By investing in the socio-economic development of both migrant and non-migrant marine fisherfolk, stakeholders can promote resilience and sustainable growth, ultimately improving the quality of life for the entire community. In conclusion, while migration presents clear benefits for those who migrate, it also shows the disparities faced by non-migrant households. The socio-economic profile reveals that, without targeted interventions, the gap between these groups may continue to widen, leading to increased inequality and social fragmentation. Therefore, it is imperative to create policies and support systems that address the unique challenges of both migrant and non-migrant households, fostering a more inclusive environment that benefits the entire community.

CHAPTER 5

MIGRATION AMONG MARINE FISHERFOLK: DETERMINANTS AND PATTERNS

5.1 Introduction

Migration is an essential livelihood strategy for communities struggling with economic and environmental challenges. In the coastal regions of Kerala, particularly within the marine fishing communities of Malappuram district, migration has become a common response to these challenges. This chapter examines the dynamics of migration in these communities by focusing on three main areas, migration patterns, the determinants of migration and the factors influencing the duration of stay abroad. The first section analyses migration patterns, including key destinations of migrants. The second section investigates why these individuals migrate, focusing on economic struggles, environmental problems and the appeal of better job prospects and higher wages. The third section looks at what affects how long migrants stay abroad. Through diagrams, percentages, cross-tabulations, factor analysis and multiple linear regression, the chapter provides a detailed understanding of the impact of migration on these communities and its role in improving their living conditions and economic stability.

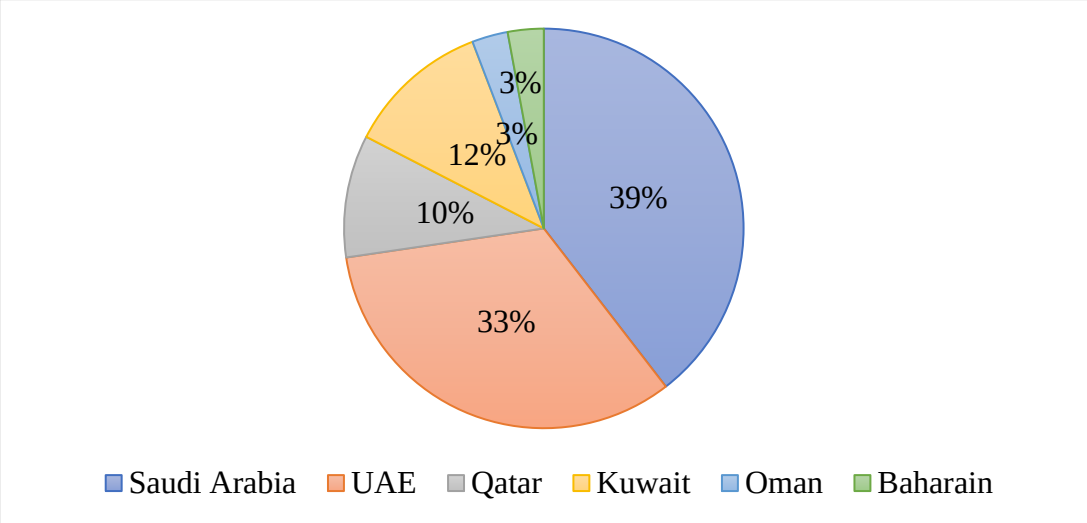
5.2 Pattern of Migration

International migration, particularly to Middle Eastern countries, is a common pattern among marine fisherfolk, reflecting a complex interaction of economic, social and environmental forces. These migrants, mostly emigrants from their home countries, are drawn to the Middle East by the promise of better economic opportunities and livelihoods. Many of them have extensive experience in fishing and related activities and they use their skills to find work abroad. This temporary nature of migration shows the fluidity of mobility patterns of fisherfolks, as they move between their home countries and destination countries in response to changing economic conditions and employment opportunities. The pattern of migration among marine fisherfolk is shaped by the existence of established migration networks and social ties within migrant communities. These networks serve as crucial sources of information, support and solidarity, facilitating the migration process and easing the integration of newcomers into host communities. Cultural and familial considerations play a significant role in shaping migration

patterns, with many fisherfolk following in the footsteps of relatives or community members who have previously migrated to the Middle Eastern countries.

Figure 5.1

Major Destinations of Migrants



Source: Primary Survey, 2024

Figure 5.1 illustrates the destinations of marine fisherfolk across several Middle Eastern countries. Saudi Arabia, with 39%, is the leading destination, likely due to its strong demand for labour and better employment opportunities across various sectors. The UAE follows with 33%, reflecting its long-standing role as a key destination for migrant workers seeking diverse economic opportunities. Qatar, Kuwait, Oman and Bahrain have lower percentages, from 12% to 3%. It indicates that while these countries do host fisherfolk, they attract fewer compared to Saudi Arabia and the UAE. These migration patterns reflect that economic prospects and labour market opportunities are more influential factors than geographical features in determining the distribution of fisherfolk in the region. The migration of fisherfolk from Malappuram to Gulf countries is especially driven by the high demand for low-skilled labour in these regions. Many fisherfolks possess low educational qualifications and limited skill sets, making them ideal candidates for jobs in construction, manual labour and other sectors that require minimal formal training. Gulf nations, mainly Saudi Arabia and the UAE, have a consistent need for

such low-skilled workers, offering better wages compared to what the fisherfolk can earn locally. This strong demand for low-skilled labour, combined with the promise of financial stability and support from existing migrant networks, makes the Gulf countries an attractive destination for these individuals seeking to improve their economic conditions.

Table 5.1

Occupation Before and After Migration

Occupation	Before Migration		After Migration	
	Number	Percentage	Number	Percentage
No Occupation	18	10.47	0	0
Fishing	129	75	43	25
Allied Activities	21	12.20	14	8.1
Driver	0	0	27	15.7
Shopkeeper	0	0	43	25
Others	4	2.33	45	26.2
Total	172	100	172	100

Source: Primary Survey,2024

Table 5.1 presents the occupational distribution of respondents before and after migration, highlighting significant shifts in their employment patterns. Before migration, a majority of the respondents (75%) were engaged in fishing as their primary occupation, reflecting the traditional reliance of marine fisherfolk on fishing for livelihood. Allied activities such as fish marketing and net repairing accounted for 12.20%, while 10.47% reported having no occupation. A negligible proportion (2.33%) were involved in other activities. This pre-migration occupational profile indicates the community's dependence on fishing-related activities for survival. After migration, notable changes in occupational structure are evident. The proportion of respondents engaged in fishing dropped drastically to 25%, suggesting a shift away from traditional livelihoods. Similarly, engagement in allied activities was reduced to 8.1%. Conversely, new occupational opportunities emerged, with

15.7% taking up driving, 25% becoming shopkeepers and 26.2% involved in other professions. Importantly, the category of 'no occupation' disappeared entirely, indicating that migration facilitated employment for those previously without work.

These changes underline the transformative impact of migration on livelihood diversification. The shift from fishing to non-traditional occupations reflects the influence of better job opportunities and higher income prospects in the destination regions. Migration enabled respondents to transition from subsistence-based activities to more stable and profitable employment, thereby enhancing their socio-economic status and reducing their dependence on the fishing sector. This analysis underscores migration as a pivotal livelihood strategy for the marine fisherfolk community.

5.3 Determinants of Migration

The push and pull factors always lead to the migration of a person from their home country to a destination country (Lee,1966). Migration, especially among marine fisherfolk to gulf countries, can be understood through various push and pull factors, obstacles and personal considerations. Push factors include economic hardships caused by declining fish stocks, low market prices, overfishing, pollution and natural disasters like cyclones and coastal erosion. Political restrictions, poverty, limited education and inadequate healthcare further push fishermen to seek better opportunities abroad. Pull factors involve attractive conditions in the destination country, such as higher wages, abundant job opportunities, better living conditions and the ability to send remittances home (Khan et al., 2023). Gulf countries offer economic stability, making them appealing destinations for migrants. However, financial costs, legal hurdles in obtaining work visas, cultural differences and the emotional stress of leaving family can complicate the process. Personal factors like aspirations, skills and social networks in the destination country also play a crucial role in migration.

Table 5.2

Push and Pull Factors Influencing Migration: Responses from Marine Fisherfolk

Factor		Number (Percentage)
Push Factors	Low wage	98(56.97)
	Indebtedness	56(32.56)
	Unemployment	18(10.47)
	Total	172(100)
Pull Factors	Better employment opportunities	131(76.16)
	Presence of Friends and Relatives	41(23.84)
	Total	172(100)

Source: Primary Survey,2024

Table 5.2 presents the responses from marine fisherfolk regarding the push and pull factors that influence their migration to the gulf. The push factors, which are the reasons forcing people to migrate, include low wages (56.97%) mainly due to uncertain fish catch, indebtedness (32.56%) and unemployment (10.47%). These factors highlight the financial struggles faced by the fisherfolk community, driving them to seek better opportunities elsewhere. On the other hand, the pull factors, that attract people to migrate, primarily include better employment opportunities in the Gulf countries (76.16%) and the presence of friends and relatives (23.84%) in the destination region. These pull factors suggest that most migrants are drawn by the prospect of higher-paying jobs in the gulf, while social connections also play a role in encouraging migration. Overall, the result indicates that economic challenges such as low wages and indebtedness are the main reasons pushing marine fisherfolk to migrate while attaining better job prospects in the gulf countries is the dominant pull factor.

5.4 Pre-Migration Characteristics and Determinants for Migration

Migration is a complex socio-economic phenomenon influenced by various pre-migration characteristics, which shape an individual's decisions to seek opportunities elsewhere. Among the marine fisherfolk community, these factors are intricately linked to their unique socio-economic challenges and aspirations. This

section explores how pre-migration characteristics, such as age, marital status, family size, education and occupation, relate to the reasons for migration among marine fisherfolk. Age influences motivations, with younger individuals often driven by the need for employment and older migrants focusing on financial stability for their families. Marital status plays an important role, as married fisherfolk may seek better living conditions to support their family, while unmarried individuals prioritize immediate job opportunities. Family size also impacts financial pressures; smaller families might migrate to enhance economic prospects, whereas larger families often view migration as a means to improve overall stability. The type of pre-migration occupation affects motivations, as those with traditional fishing backgrounds may face economic hardships that compel them to seek better-paying jobs abroad. This section explores the influence of pre-migration characteristics on the migration decisions of marine fisherfolk.

5.4.1 Push Factors and Pre -Migration characteristics

Based on responses from marine fisherfolk, migration is largely driven by push factors such as unemployment, low wages mainly due to declining fish catches and indebtedness. These factors are closely linked to pre-migration characteristics like age, marital status, education, family size and occupation. Younger individuals, those with larger families and those with lower education levels are particularly affected by unemployment and low wages, making them more likely to migrate. Additionally, marital status and occupation influence migration decisions, as individuals in unstable or low-paying jobs are more inclined to seek better opportunities. This section examines how these factors shape migration decisions among the fisherfolk community.

Table 5.3

Age at first visit and Push factors of Migration

Reasons for Migration		Age at first visit				Total
		Between 18-25	Between 26-30	Between 31-35	Above 35	
Low wage	N	74	22	2	0	98
	%	74.75	47.83	12.5	0	56.97
Indebtedness	N	9	23	13	11	56
	%	9.09	50	81.25	100	32.56
Unemployment	N	16	1	1	0	18
	%	16.16	2.17	6.25	0	10.47
Total	N	99	46	16	11	172
	%	57.56	26.74	9.30	6.40	100
Pearson Chi-square Test	(Chi-Square: 123.653, df:6, P:0.001)					

Source: Primary Survey, 2024

Table 5.3 presents the relationship between various push factors of migration and the age at which individuals first migrated. It categorises individuals based on their age at first migration into four groups, between 18-25 years, between 26-30 years, between 31-35 years and above 35 years. From the data, it is evident that low wages were the primary push factor, with the majority (74.75%) of individuals migrating between the ages of 18 and 25, followed by a smaller percentage (47.83%) in the 26-30 age group and 12.5% among age group between 31-35. Indebtedness also shows a significant pattern, particularly among those aged 31-35, where 81.25% reported migrating, showing that as individuals age, financial pressures may become more pronounced. Interestingly, the oldest age group (above 35) still recorded 100% in this category, suggesting that debt is a persistent issue influencing migration decisions.

In contrast, unemployment had a lower overall impact, with only 16.16% of the youngest age group citing it as a reason for migration. The percentage dramatically drops for older age groups, indicating that younger individuals might be more compelled to migrate due to unemployment challenges. The Pearson Chi-Square test result (P= 0.001) indicates a statistically significant association between

the push factors and the age at first migration. This suggests that the reasons for migration are not independent of age, emphasising the complex interplay of socio-economic factors influencing migration decisions across different age groups.

Table 5.4

Pre-Migration Marital Status and Push Factors of Migration

Reasons for Migration		**Marital status**		**Total**
		Married	**Unmarried**	
Low wage	N	77	21	98
	%	53.84	72.41	56.97
Indebtedness	N	53	3	56
	%	37.06	10.34	32.56
Unemployment	N	13	5	18
	%	9.09	17.24	10.47
Total	N	143	29	172
	%	83.14	16.86	100
Pearson Chi-square Test	(Chi-Square: 13.306, df:2, P:0.004)			

Source: Primary Survey, 2024

Table 5.4 illustrates the determinants for migration among the marine fisherfolk community based on their marital status before migrating. Low wages emerge as the primary push factor for both marital statuses, with 53.84% of married individuals and a higher percentage of unmarried individuals (72.41%) citing it as their reason for migration. This suggests that wage-related issues significantly impact both groups, although unmarried individuals may be more sensitive to financial instability, possibly due to less established economic support. Indebtedness is another critical push factor, affecting 37.06% of married individuals compared to only 10.34% of unmarried individuals. This indicates that married individuals may experience greater financial pressures, likely due to family obligations and debts, compelling them to seek migration opportunities. Unemployment shows a lower impact as a push factor overall, with 9.09% of married individuals and 17.24% of unmarried individuals reporting it. This suggests that while unemployment is a concern, it is not as significant as low wages and indebtedness in motivating

migration. The Pearson Chi-Square test result (P = 0.004) reveals a statistically significant association between pre-migration marital status and the identified push factors. These findings indicate that marital status influences the reasons behind migration, underlining the varying socio-economic pressures faced by married and unmarried individuals, with low wages being a significant issue for both groups.

Table 5.5

Family Size Before Migration and Push Factors of Migration

Reasons for Migration		**Family Size**			**Total**
		Below 5 members	**6 to 10 members**	**11 to 15 members**	
Low wage	N	46	47	5	98
	%	46	73.44	62.5	56.97
Indebtedness	N	42	13	1	56
	%	42	20.31	12.5	32.56
Unemployment	N	12	4	2	18
	%	12	6.25	25	10.47
Total	N	100	64	8	172
	%	58.14	37.21	4.65	100
Pearson Chi-square Test	(Chi-Square; 24.773, df:4, P:0.001)				

Source: Primary Survey, 2024

Table 5.5 explores the relationship between family size and the reasons for migration among marine fisherfolk. Low wages emerge as a significant push factor across all family sizes. Among families with fewer than 5 members, 46% identified low wages as their reason for migration, while a striking 73.44% of families with 6 to 10 members cited the same issue. In families with 11 to 15 members, 62.5% also indicated low wages as a motivating factor. This pattern suggests that larger families may be more significantly affected by wage-related issues, potentially due to the increased financial responsibilities associated with supporting more members. Indebtedness is another notable push factor, affecting 42% of families with fewer than 5 members, while only 20.31% of families with 6 to 10 members and just 12.5% of families with 11 to 15 members reported this issue. This indicates that

family size below 5 members and 6 to 10 members might experience higher levels of indebtedness, leading them to consider migration as a strategy to alleviate their financial burdens. Unemployment shows the least impact as a push factor, with only 12% of families below 5 members, 6.25% of families with 6 to 10 members and 25% of families with 11 to 15 members citing it. This suggests that while unemployment is a factor, it is less significant compared to low wages and indebtedness. The Pearson Chi-Square test result (P = 0.001) indicates a statistically significant association between family size and the identified push factors. Family size influences the reasons for migration, suggesting that larger families may be more acutely affected by wage issues, than smaller ones.

Table 5.6

Occupation Before Migration and Push Factors of Migration

Reasons for Migration		**Occupation**				**Total**
		No occupation	**Fishing**	**Allied work**	**others**	
Low wage	N	0	81	15	2	98
	%	0	62.79	71.43	50	56.97
Indebtedness	N	4	45	5	2	56
	%	22.22	34.88	23.81	50	32.56
Unemployment	N	14	3	1	0	18
	%	77.78	2.33	4.76	0	10.47
Total	N	18	129	21	4	172
	%	10.47	75	12.20	2.32	100
Pearson Chi-square Test	(Chi-Square: 152.433, df:6, P:0.001)					

Source: Primary Survey,2024

Table 5.6 examines the influence of various pre-migration occupations on the reasons for migration among marine fisherfolk. Low wages are identified as the most significant push factor, especially for individuals engaged in fishing, with 62.79% of this group citing low wages as their primary reason for migration. Among those involved in allied work, the percentage rises to 71.43%, indicating that financial constraints are particularly acute in this sector. Conversely, only 50% of

respondents in the other category mentioned low wages, signifying that the urgency of wage-related issues varies significantly across occupations. Indebtedness also impacts the push factors, affecting 22.22% of individuals with no occupation, while 34.88% of those in fishing reported being indebted. However, only 23.83% of allied workers and 50% of respondents in the other category identified indebtedness as a factor. This pattern reveals that indebtedness is a pressing concern primarily for those involved in fishing. Unemployment presents a different picture, with a striking 77.88% of individuals with no occupation citing it as a reason for migration, while only 2.33% of those in fishing and 4.76% in allied work reported unemployment as a factor. This indicates that unemployment is predominantly an issue for those without any occupation, while disguised unemployment among those engaged in fishing further underscores the economic challenges faced by this group. The Pearson Chi-Square test result (P = 0.001) indicates a statistically significant association between occupation and the identified push factors. This finding emphasises that the reasons for migration are closely linked to one's occupation, with low wages being a major concern for those in fishing and allied work, while unemployment predominantly affects those without any occupation.

5.4.2 Pre-Migration Characteristics and Pull Factors of Migration

Migration among fisherfolk is significantly influenced by various pull factors, mainly better employment opportunities and the presence of friends and relatives in the destination areas. These factors play a pivotal role in shaping migration decisions, as individuals seek improved livelihoods and enhanced social support systems. The prospect of better employment opportunities attracts younger and skilled individuals, who are eager to secure higher wages and more stable jobs. Moreover, the presence of friends and relatives in the destination locations offers emotional support and valuable information about job prospects, making the transition easier and less daunting. This analysis explores how these pull factors, combined with individual characteristics, drive migration among fisherfolk, highlighting the importance of social networks and economic incentives in their decision-making process.

Table 5.7

Age at first visit and Pull factors of Migration

Pull Factor		Age at first visit				Total
		Between 18-25	Between 26-30	Between 31-35	Above 35	
Better employment opportunities	N	64	43	13	11	131
	%	64.65	93.48	86.67	100	76.16
Presence of friends and relatives	N	35	3	2	0	41
	%	35.35	6.52	13.33	0	23.84
Total	N	99	46	16	11	172
	%	57.56	26.74	9.30	6.40	100
Pearson Chi-square Test	(Chi-Square: 38.232, df:3, P:0.001)					

Source: Primary Survey, 2024

Table 5.7 examines the relationship between age and the pull factors influencing migration among marine fisherfolk. A significant majority of individuals aged between 18 and 25 (64.65%) cite better employment opportunities as their primary motivation for migration. This trend continues across the age groups, with a notably high percentage (93.48%) of those aged 26 to 30 identifying better job prospects as a key factor. Individuals above 35 years prioritise better employment opportunities, emphasising a consistent focus on economic advancement regardless of age. In contrast, the presence of friends and relatives plays a lesser role, particularly among younger individuals. Those aged 18 to 25 (35.35%) quote social connections as a motivation, with this number dramatically dropping among older age groups. Specifically, those aged 26 to 30 (6.52%) and persons aged 31 to 35(13.33%) mention the presence of friends and relatives as significant factors. Notably, no individuals above 35 consider this aspect as a reason for migration. Economic opportunities are the primary motivation for migration across all age groups, while social connections (presence of friends and relatives) tend to matter more for younger individuals and diminish in importance as people age. The Chi-square test (P= 0.001) confirms a significant relationship between age and these pull factors, meaning that age significantly influences which pull factors drive migration decisions.

Table 5.8

Marital Status Before Migration and Pull Factors of Migration

Pull Factor		Marital status		Total
		Married	Unmarried	
Better employment opportunities	N	115	16	131
	%	80.45	55.17	76.16
Presence of friends and relatives	N	28	13	41
	%	19.58	44.83	23.84
Total	N	143	29	172
	%	83.14	16.86	100
Pearson Chi-square Test	(Chi-Square: 18.229, df:1, P:0.001)			

Source: Primary Survey, 2024

Table 5.8 analyses the relationship between marital status and the pull factors influencing migration among marine fisherfolk. A significant majority of married individuals (80.45%) identify better employment opportunities as their primary motivation for migration. This reflects the strong financial obligations that married fisherfolk face, as securing stable employment is often essential for supporting families. The result shows that among unmarried individuals, only 55.17% cite better employment opportunities as a reason for migration. It indicates that while economic factors are still important, they may not be as pressing as they are for married individuals. Regarding the presence of friends and relatives, a greater percentage of unmarried individuals (44.83%) report this as a pull factor compared to their married counterparts, where only 19.58% mention social connections as a reason for migration. This suggests that unmarried individuals may rely more on their social networks when making migration decisions, while married individuals prioritize economic opportunities.

The Pearson chi-square test results (P= 0.001) indicate a statistically significant association between marital status and the identified pull factors. This finding underlines the differing motivations for migration between married and unmarried fisherfolk, with married individuals primarily driven by economic factors, while unmarried individuals are more influenced by social connections. Overall, the

results highlight the complexity of migration motivations, which are shaped by both marital status and economic conditions.

Table 5.9

Family Size Before Migration and Pull Factors of Migration

Pull Factor		Family Size			Total
		Below 5 Members	6 to 10 Members	11 to 15 Members	
Better employment opportunities	N	74	50	7	131
	%	74	78.13	87.5	76.16
Presence of friends and relatives	N	26	14	1	41
	%	26	21.87	12.5	23.84
Total	N	100	64	8	172
	%	58.14	37.21	4.65	100
Pearson Chi-square Test	(Chi-Square: 19.639, df:2, P:0.001)				

Source: Primary Survey, 2024

Table 5.9 examines the relationship between family size and the pull factors influencing migration among marine fisherfolk. A considerable number of individuals from families with fewer than five members (74%) identify better employment opportunities as their primary reason for migration. This trend continues with families of six to ten members, where 78.13% mention better job prospects. In families with eleven to fifteen members, the percentage rises to 87.5%, indicating that even larger families prioritize economic opportunities when considering migration. Conversely, the presence of friends and relatives as a pull factor shows a marked decline with increasing family size. Only 26% of individuals from smaller families mention this social connection as a reason for migration, while this figure drops for families of six to ten members (21.87%) and further declines among families of eleven to fifteen members (12.5%). This pattern suggests that while social networks are a consideration, they become less significant as family

size increases, with larger families focusing more on economic opportunities. The Pearson chi-square test results (P= 0.001) indicate a statistically significant association between family size and the identified pull factors. This suggests that better employment opportunities remain a consistent motivation for migration among marine fisherfolk, while the influence of social connections varies less significantly across different family sizes.

Table 5.10

Occupation Before Migration and Pull Factors of Migration

Pull Factor		**Occupation**				**Total**
		No occupation	**Fishing**	**Allied work**	**Others**	
Better employment opportunities	N	3	106	20	2	131
	%	16.67	82.17	95.24	50	76.16
Presence of friends and relatives	N	15	23	1	2	41
	%	83.33	17.83	4.76	50	23.84
Total	N	18	129	21	4	172
	%	10.47	75	12.20	2.33	100
Pearson Chi-square Test	(Chi-Square: 96.887, df:3, P:0.001)					

Source: Primary Survey, 2024

Table 5.10 examines the link between pre-migration occupation and the pull factors driving migration among marine fisherfolk. Better employment opportunities are the primary pull factor, especially for those in fishing (82.17%) and allied work (95.24%), emphasising the economic focus of these groups. In contrast, only 16.67% of individuals with no occupation and 50% in the others category mentioned job opportunities as a reason. The presence of friends and relatives plays a key role for those with no occupation (83.33%) but is less significant for those in fishing (17.83%) and minimal for those in allied work (4.76%). The Pearson Chi-Square test (P = 0.001) confirms a significant association between pre-migration occupation and pull factors. These results show that economic reasons dominate for those in fishing and allied work, while social ties matter more for individuals without occupation.

5.5 Marine Fisherfolk in Gulf Countries: Factors of Stay Duration

The duration of stay among marine fisherfolk in Gulf countries is shaped by financial and familial factors. Many migrants extend their stay to repay loans taken for migration expenses, household investments and daily living costs. Family responsibilities, including the need to send remittances for education, healthcare and other necessities, further influence their decision to remain abroad. The economic advantages offered in the gulf regions, such as higher incomes and improved living conditions, contribute to prolonged stay. To explore the factors affecting the duration of stay, this study applies an Ordinary Least Squares (OLS) regression model. OLS is a fundamental method in research, commonly used to analyse relationships between predictor variables and a continuous outcome variable. By minimising the sum of squared deviations between observed and predicted values, OLS provides robust estimates for assessing the significance of predictors (Zdaniuk, 2014). In this context, key variables include debt, marital status, age at first visit and family size, capturing both socio-economic and demographic determinants of the duration of stay. These variables offer critical insights into the underlying motivations and constraints influencing the migration patterns of marine fisherfolk.

Table 5.11

OLS Estimates of Factors Influencing the Duration of Stay (Dependent Variable: Years of Total Stay in Gulf Countries)

Predictors	**Coef.**	**t**	**VIF**
Marital status	-2.67751	-2.2	1.71
Age at first visit	-0.29001	-2.51	1.67
Debt	3.984453	3.45	1.15
Family size	0.897686	5	1.17
_cons	8.525061	2.34	1.43
Important Statistics			
Number of Households		172	
Unadjusted R-square		0.3002	
Adjusted R-square		0.2835	
F Statistics (4,167)		17.91	
Breusch-Pagan test for heteroskedasticity		LMV=4.67	(P <0.0001)

(Reference Category: Marital Status: Married, Debt: No Debt)

Table 5.11 presents the OLS regression estimates for the factors influencing the duration of stay in the gulf countries. The results show that marital status has a significant effect, with a coefficient of -2.68 (t = -2.2), indicating that unmarried individuals tend to stay in the gulf for a shorter period compared to married individuals. This suggests that family responsibilities play an important role in lengthening the stay of married individuals. Age at first visit also negatively impacts the duration of stay, with a coefficient of -0.29 (t = -2.51), meaning younger individuals are likely to stay longer in gulf countries. The positive relationship with debt, with a coefficient of 3.984 (t = 3.45), implies that individuals with debt tend to remain longer and are likely to fulfil financial obligations. Family size has a positive effect as well, with a coefficient of 0.897 (t = 5.00), suggesting that individuals from larger families tend to stay longer due to greater financial responsibilities. The intercept value of 8.53 (t = 2.34) represents the baseline duration of stay for individuals with the reference categories for the predictors.

The model explains about 30% of the variability in the duration of stay, as indicated by the unadjusted R-squared value of 0.3002 and 28.35% after adjusting for the number of predictors, with an adjusted R-squared of 0.2835. The F-statistic of 17.91 ($p < 0.0001$) confirms that the overall model is statistically significant. However, the Breusch-Pagan test for heteroskedasticity, with a value of 4.67 ($p < 0.0001$), indicates the presence of heteroskedasticity, suggesting that the variance of the errors is not constant across observations. The most straightforward method of correcting heteroscedasticity is using weighted least squares, for the estimators thus obtained are BLUE (Gujarati & Porter, 2008).

Table 5.12
Weighted Least Square Estimates, Factors Influencing the Duration of Stay (Dependent Variable: Years of Total Stay in Gulf Countries)

Predictors	**Coef.**	**Std. Err.**	**T**	**P>t**
Marital status	-2.88796	0.262384	-11.01	0.000
Age at first visit	-0.26727	0.017646	-15.15	0.000
Debt	3.60642	0.238681	15.11	0.000
Family size	0.912557	0.023324	39.13	0.000
_cons	8.161264	0.596132	13.69	0.000
Important Statistics				
Number of Households		172		
Unadjusted R-square		0.9819		
Adjusted R-square		0.9815		
F Statistics (4,167)		2267.65	(P <0.0001)	

(Reference Category: Marital Status: Married, Debt: No Debt)

Table 5.12 presents the results of the Weighted Least Squares (WLS) regression analysis, which examines the factors influencing the duration of stay in the gulf countries, with the dependent variable being the total number of years spent there. The analysis accounts for heteroskedasticity, as indicated by the robust standard errors provided. The coefficient for marital status is -2.89 ($t = -11.01$, $p < 0.0001$), indicating that unmarried individuals tend to stay for a shorter period in the gulf compared to their married counterparts. The negative coefficient suggests that individuals with fewer family responsibilities are likely to return earlier. Similarly, the age at first visit harms the duration of stay, with a coefficient of -0.27 ($t = -15.15$, $p < 0.0001$), implying that younger individuals tend to stay longer. Debt shows a positive relationship with the duration of stay, with a coefficient of 3.61 ($t = 15.11$, $p < 0.0001$), suggesting that individuals with financial obligations are more likely to remain in the gulf countries to repay debts.

Family size has a strong positive effect, with a coefficient of 0.91 ($t = 39.13$, $p < 0.0001$), indicating that individuals from larger families tend to stay longer due to the greater financial responsibilities they carry. The constant term is 8.16 ($t = 13.69$, $p < 0.0001$), representing the baseline duration of stay for individuals with the

reference categories for marital status, age at first visit, debt and family size. The model explains a high proportion of the variance in the dependent variable, with an unadjusted R-squared of 0.9819 and an adjusted R-squared of 0.9815, indicating a very strong fit. The F-statistic of 2267.65 ($p < 0.0001$) further confirms that the model is statistically significant. To improve the socio-economic outcomes of these workers, policies need to focus on providing debt relief, promoting family support systems and encouraging skill development to potentially reduce the length of stay and improve the overall well-being of migrant workers.

5.6 Conclusion

The migration of marine fisherfolk is a complex phenomenon driven by several push and pull factors that significantly impact their livelihoods and socio-economic conditions. Push factors, such as high unemployment rates, inadequate income from fishing and the burden of debt, create a sense of urgency for individuals to seek alternatives. Factors like local environments, characterised by overfishing, depletion of marine resources and environmental degradation, further worsen the challenges they face, compelling them to consider migration as a viable option for economic survival. Moreover, demographic characteristics such as age, marital status, family size and education profoundly influence the migration decisions of fisherfolk. Younger individuals, often bearing the effect of economic pressures, tend to migrate in search of better job prospects and higher wages. It was observed that older individuals may be motivated by a desire to secure financial stability for their families, which shows the varied motivations within the community. Family dynamics, social networks and cultural factors also play crucial roles in shaping the migration choices of marine fisherfolk, with many relying on the experiences and success stories of those who have previously migrated.

Pull factors associated with migration destinations, mainly in gulf countries, present opportunities that are difficult to ignore. The promise of higher wages, improved working conditions and access to better resources are significant attractions for those contemplating migration. These destinations often offer structured job markets, enhanced social services and the potential for remittances,

which can greatly benefit the households left behind. The attraction of a better quality of life, along with the hope for a brighter future, encourages many to take migration, believing that they can secure not just their livelihoods but also contribute positively to their families and communities back home. By recognising the root causes of migration and the aspirations of marine fisherfolk, stakeholders can devise targeted interventions to address the challenges faced by this vulnerable community. Fostering a supportive environment for those who choose to migrate while simultaneously working to improve local conditions can create a more balanced approach to the migration phenomenon. This dual strategy helps mitigate the adverse effects of push factors and harnesses the benefits of migration for socio-economic development.

The analysis of factors influencing the duration of stay among marine fisherfolk in gulf countries provides valuable insights into both the positive and negative aspects of migration. On the positive side, migration offers economic opportunities that significantly improve the financial stability of the marine fisherfolk community. The financial pressures, particularly from debt, compel many individuals to stay longer, where they can earn higher wages to manage their obligations. This extended stay helps them achieve economic stability, repay debts and fulfil their family needs, including supporting essential expenses such as education and healthcare. The size of the family and marital status plays a vital role in prolonging the stay, as individuals feel an increased responsibility to sustain their families. Migration helps to alleviate financial pressures and highlights the emotional and social costs. The extended absence from home can strain familial and community relationships, as migrants are often away for long periods, missing crucial family moments. The emphasis on economic survival and the need to fulfil financial obligations may overshadow personal well-being, leading to challenges such as isolation and mental stress. Furthermore, the dependence on remittances can create a cycle where families become reliant on income from abroad, leaving them vulnerable to economic instability if the migrant's situation changes.

Supporting marine fisherfolk requires practical and targeted interventions that address both the advantages and challenges of migration. To reduce dependence on migration, policymakers can focus on enhancing local livelihoods through improved access to credit, skill development programs and strengthening fisheries infrastructure. Simultaneously, addressing the challenges faced by migrants is crucial. Initiatives such as community-based support systems, affordable healthcare and counseling services can help mitigate the emotional and social burdens of migration. A pragmatic approach that prioritises sustainable local development while offering the necessary support to migrant families can create a more resilient and empowered fisherfolk community.

CHAPTER 6

INCOME AND EXPENDITURE DISPARITY: MIGRANT AND NON-MIGRANT MARINE FISHERFOLK HOUSEHOLDS

6.1 Introduction

Migration has become a crucial economic strategy for many households, mainly within marginalised communities such as marine fisherfolk. One of the most significant benefits of migration is the remittances sent by migrants, which provide a vital source of income for families. These remittances help improve the living standards of migrant households, supporting essential areas like education, healthcare and housing. However, while migration undoubtedly offers financial opportunities, it also creates disparities, as the benefits are not distributed evenly across all households. Research by Oommen (2014) points out that wealthier households are more likely to have members who migrate, further widening the economic divide. Zachariah and Rajan (2011) support this view, noting that migration from Kerala has disproportionately benefited wealthier households, leaving poorer communities like the non-migrant fisherfolk behind. The exclusion of these economically disadvantaged groups from the financial rewards of migration perpetuates existing socio-economic disparities. Given these disparities, it is vital to examine how migration affects income and expenditure patterns, particularly in vulnerable sections of society.

This chapter aims to examine income and expenditure disparities between migrant and non-migrant marine fisherfolk households in the Malappuram district. It will explore how migration has impacted income distribution using tools like the Lorenz curve and Gini coefficient, compare the spending patterns of both groups using t-tests and employ regression analysis to understand the factors influencing expenditure. Through this analysis, the study aims to demonstrate the growing inequality within the fisherfolk community.

6.2 Income Disparity: Migrant vs Non-Migrant Households

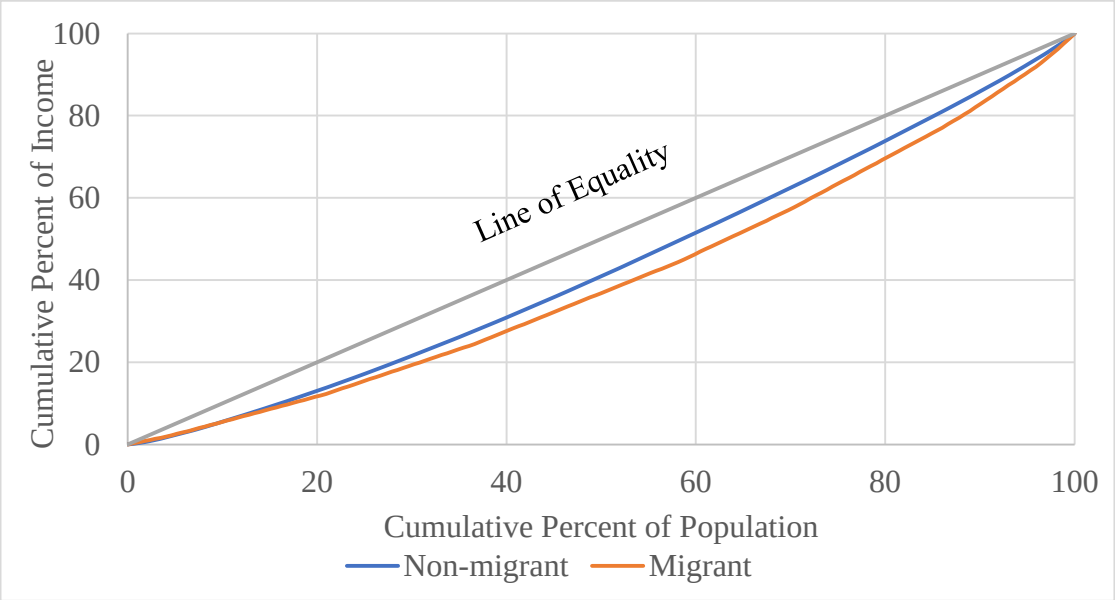
Income inequality measures how far the income of individuals or households deviates from the average income in a society (Kuznet, 1995). Migration plays an important role in shaping the socio-economic conditions of marine fisherfolk, providing opportunities for improved incomes. However, not all households benefit

equally from migration, leading to significant concerns regarding income inequality, particularly among non-migrant fisherfolk, who face limited opportunities to enhance their financial status. While migration is often viewed as a strategy for socio-economic development, it introduces challenges related to inequality. Many marine fisherfolk migrate to gulf countries in search of better job prospects, primarily in sectors like construction and hospitality. This migration results in increased remittances and improved living standards for the families of those who migrate. However, the impact of these remittances on income inequality is a matter of constant debate. Research by Stark et al. (1988) and Taylor (1992) suggests that remittances can help to reduce inequality by supporting families and boosting local economies. Conversely, Barham and Boucher (1998) argue that only wealthier households can afford to migrate, which reinforces existing disparities and limits the overall benefits of migration for poorer communities. This mixed impact of migration on inequality depends largely on the wealth distribution within the society. Docquier and Rapoport (2003) highlight that in highly unequal societies, migration can worsen income divides, while in more equal societies, it may contribute to a more balanced distribution of resources. In the case of marine fisherfolk, successful migrants typically those with better education and resources tend to benefit more from migration. However, as noted by Moller and Meyer (2014), not all migrants experience the same level of success.

Figure 6.1 presents the results, demonstrating the unequal income distribution among migrant households and highlighting the relatively stable yet low-income distribution among non-migrant households. Through this analysis, it is aimed to understand the impact of migration on income inequality and identify potential areas for intervention to support both migrant and non-migrant households.

Figure 6.1

Income Disparity: Migrant vs Non-Migrant Fisherfolk Households



Source: Primary Survey,2024

Figure 6.1 illustrates the income distribution of both migrant and non-migrant households using a Lorenz curve, which visually compares the actual income distribution with a scenario where income is equally shared among all households. The curve for migrant households shows a clear deviation from the line of equality, indicating a higher level of income inequality within this group. This suggests that there is a larger variation in income among migrant households. In contrast, the curve for non-migrant households is closer to the equality line, pointing to a more balanced and equitable income distribution in this group. This difference in the curves highlights the economic disparities that exist between migrant and non-migrant households, with migration contributing to increased income variability. To quantify this inequality, we use the Gini coefficient, a commonly used statistical measure that ranges from 0 to 1. A Gini coefficient of 0 indicates perfect equality, where all households have similar income, while a coefficient of 1 signifies maximum inequality, where all income is concentrated in a single household.

Table 6.1

Gini Coefficient of Migrant and Non- Migrant Fisherfolk

Migration Status	Gini Coefficient
Migrant	0.18
Non –Migrant	0.13

Source: Primary Survey, 2024

Table 6.1 presents the Gini coefficient values for both migrant and non-migrant households, revealing a moderate level of income inequality within both groups. However, the Gini coefficient for migrant households is 0.18, which is higher than the value of 0.13 for non-migrant households. This indicates that while there are some disparities in income among migrants, they are not excessively pronounced. In contrast, the lower Gini coefficient of 0.13 for non-migrant households signifies a more equitable income distribution within this group. This suggests that non-migrant households experience less variability in their income levels. The possible reason for this greater equality is that most non-migrant households are engaged in similar occupations, predominantly related to fishing and associated activities. As a result, their income levels tend to be more stable, leading to a reduced level of income inequality compared to their migrant counterparts.

The primary reason for this inequality among migrant households stems from the wide range of occupations that migrants undertake in their host countries. These jobs span from low-skilled roles, such as fishing and labouring, to higher-skilled positions like accountants, engineers and mechanics. The diversity in job types leads to varying income levels, with more skilled workers earning substantially higher wages than those in manual or less skilled occupations. The unequal access to high-paying jobs abroad creates income disparities among migrant households, contributing to the overall inequality observed in the community. Factors such as educational background, professional networks and prior work experience play significant roles in determining the types of jobs migrants can access, further widening the income gap between households. This trend is reflected in the ANOVA

tables (6.2), which demonstrate notable differences in income based on education and occupation. The null hypothesis (H0) for the test is that there is a significant difference in the mean income among migrants based on their educational qualifications and occupations.

Table 6.2

Income Differences by Education and Occupation among Migrants

ANOVA **Income and Education**					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3434650077.519	4	858662519.380	10.298	0.001
Within Groups	13924326666.667	167	83379201.597		
Total	17358976744.186	171			
ANOVA **Income and Occupation**					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2368976190.476	4	592244047.619	6.598	0.001
Within Groups	14990000553.710	167			
Total	17358976744.186	171			

Source: Primary Survey,2024

Table 6.2 presents the findings from the ANOVA analysis, which explores the relationship between income, education and occupation among migrant households. The analysis reveals significant disparities in income levels among migrants, primarily driven by differences in educational attainment and the types of occupations they hold. In terms of education, the results show that migrants with higher educational qualifications, such as degrees and professional certifications, tend to earn considerably more than those with lower educational backgrounds (F= 10.298) and variation in income based on education is statistically significant (P= 0.001). When examining income in relation to occupation occupation, the ANOVA results also show a significant difference (F= 6.598, P= 0.001). This indicates that the type of occupation plays a crucial role in determining income levels among

migrants. Those engaged in diverse and higher-paying occupations, such as in the professional or technical fields, tend to experience much higher income levels compared to those primarily involved in low-paying jobs.

The findings emphasise that education and occupation are crucial factors influencing income disparity among migrants. Individuals with higher educational qualifications possess the essential skills necessary to access better-paying jobs, while a diverse range of occupations further impacts income levels. While education and occupation are key determinants, it is important to recognise that income within specific occupations can also be influenced by additional factors such as work experience, skills and the particular industry in which migrants are employed. These attributes may further affect income levels, especially in occupations where tenure and specialised expertise are highly valued. Moreover, the irregularity of remittance flows significantly affects income inequality. Households dependent on consistent remittances tend to experience more stable incomes, while those receiving sporadic remittances often encounter financial instability, leading to greater disparities among migrant households.

To effectively address these disparities, targeted interventions must focus on improving educational opportunities for both migrant and non-migrant households. By enhancing access to quality education, children in households can acquire the skills needed to secure better employment in the future. In addition to this, vocational training programs can provide adults with practical skills, improving job prospects and ultimately increasing household income. Policies that promote educational attainment can empower individuals within these communities to engage in higher-paying occupations. Supporting initiatives that provide access to quality education and vocational training can lead to skill diversification, enabling individuals to adapt to changing economic conditions.

6.3 Expenditure Disparity: Migrant vs Non-Migrant Fisherfolk Households

The expenditure patterns provide insights into how individuals allocate their resources, reflecting their priorities, lifestyle choices and economic circumstances.

For migrants, especially those receiving remittances, expenditure patterns often reflect a mix of maintaining their livelihood abroad and supporting their families back home. This financial support can stabilise and uplift living standards, providing access to better healthcare, education and housing opportunities. Similarly, non-migrants tend to allocate their incomes differently, often focusing more on immediate and local needs without the substantial inflow of remittance funds. Their expenditure patterns may be more constrained by local economic conditions and employment opportunities, impacting their ability to invest in long-term improvements to their standard of living. To analyse the expenditure disparities between migrant and non-migrant fisherfolk communities, an independent sample t-test is employed. The results of this test are shown in Table 6.3 The null hypothesis for this test is that there is no significant disparity in expenditure between migrant and non-migrant households.

Table 6.3

Expenditure Pattern: Migrant vs Non-Migrant Fisherfolk Households

Group Statistics									
Migration Status			**Mean**			**Std. Deviation**		**Std. Error Mean**	
Migrant			27883.7209			7427.10164		566.31119	
Non-Migrant			25300.4926			6075.91		426.44528	
Independent Sample T Test									
Expenditure	Levene's Test for Equality of Variances		T-test for Equality of Means					95% confidence interval of the difference	
	F	Sig	T	Df	Sig	Mean differences	Std. error differences	Lower	Upper
Equal variances assumed	6.416	0. 012	3.704	373	0.001	2583.23	697.37	1211.96	3954.49
Equal variances are not assumed.			3.644	330.07	0.001	2583.23	708.91	1188.66	3977.79

Source: Primary Survey,2024

Results show that migrant households spend an average of rupees 27,883.72, noticeably higher than the average expenditure of non-migrant households (rupees.

25,300.49). This higher expenditure among migrants indicates a shift in financial behaviour due to migration. Migrant households display greater expenditure variability, with a standard deviation of rupees 7,427.10 compared to rupees 6,075.91 for non-migrants. The t-test analysis supports the statistical significance of this difference, with a t-value of 3.704 and a p-value of 0.001. Thus, it is advisable to reject the null hypothesis which states that there is no significant disparity in expenditure between migrant and non-migrant households. Levene's Test for Equality of Variances (F = 6.416, P = 0.012) shows a significant difference in expenditure variance between the two groups. The 95% confidence interval for the mean difference between migrant and non-migrant households ranges from 1,211.96 to 3,954.49, indicating a substantial and statistically significant disparity. These findings highlight that migration significantly impacts household expenditure, with migrant marine fisherfolk households spending more when compared to non-migrant households. The significant increase in expenditure among migrant households reflects the enhanced financial capacity and altered spending behaviours due to migration.

6.3.1 Determinants of Expenditure among Marine Fisherfolk Households

Household expenditure patterns are shaped by various socio-economic factors, including income levels, household composition and access to resources. Migration, particularly to economically advanced regions, often leads to changes in household income, which in turn may influence spending patterns. Migrant households typically experience shifts in their economic circumstances due to remittances and other income sources, potentially changing their expenditure behaviours compared to non-migrant households. This study employs regression analysis to explore the determinants of monthly household expenditure, among marine fisherfolk households. Table 6.4 presents the Ordinary Least Squares (OLS) regression estimates, while Table 6.5 displays the Weighted Least Squares (WLS) estimates, which adjust for heteroskedasticity. These analyses help to identify the key factors, such as migration status, income, head of the household age and family size that shape the expenditure behaviours of these households.

Table 6.4

OLS Estimates of Determinants of Expenditure
(Dependent Variable: Monthly Expenditure)

Predictors	**Coef.**	**t**	**VIF**
Migration Status	1188.148	2.28	1.61
Age	24.0681	1.21	1.12
Income	0.1183774	4.38	1.96
Family Size	1693.098	16.6	1.36
_cons	11493.08	9.81	1.52
Important Statistics			
Number of Households		375	
Unadjusted R-square		0.5738	
Adjusted R-square		0.5692	
F Statistics (4,370)		124.55	
Breusch-Pagan test for heteroskedasticity		LMV=15.47	(P <0.0001)

(Reference Category: Migration Status: Non-Migrant)

Table 6.4 presents the Ordinary Least Squares (OLS) regression estimates of the determinants of monthly household expenditure among fisherfolk. The dependent variable in this model is the monthly expenditure and the predictors include migration status, age, income and family size. The coefficient for migration status is 1188.148, which indicates that migrant households, on average, spend approximately 1188.15 more per month than non-migrant households, holding all other factors constant. This suggests that migration status has a significant positive effect on expenditure. The coefficient for age (24.0681) implies a positive relationship between age and expenditure, though it is not as substantial as the effect of migration status. The income coefficient (0.1183774) shows a positive and statistically significant relationship between income and expenditure. It means that higher income leads to an increase in expenditure, with the relationship being relatively strong given the t-value of 4.38. Family size, with a coefficient of 1693.098, indicates that larger households tend to have higher expenditures, reflecting the need for more resources to support a greater number of family members.

The model also reports the unadjusted R-square of 0.5738, signifying that approximately 57.38% of the variance in monthly expenditure is explained by the included predictors. The adjusted R-square of 0.5692 provides a more accurate measure, accounting for the number of predictors in the model. The F-statistic (124.55) shows that the model as a whole is statistically significant. The Breusch-Pagan test for heteroskedasticity has a p-value of less than 0.0001, confirming the presence of heteroskedasticity in the model, which indicates that the variance of the residuals is not constant across all levels of the predictors. The results emphasise that migration status, income and family size are significant factors influencing household expenditure.

Table 6.5

Weighted Least Square Estimates of Determinants of Expenditure (Dependent Variable: Monthly Expenditure)

Predictors	**Coef.**	**Std. Err.**	**t**	**P>t**
Migration Status	1190.014	22.94498	51.86	0.000
Age	20.18407	1.917071	10.53	0.000
Income	0.116272	0.001534	75.8	0.000
Family Size	1669.511	10.61632	157.26	0.000
_cons	11856.33	154.4392	76.77	0.000
Important Statistics				
Number of Households		375		
Unadjusted R-square		0.9965		
Adjusted R-square		0.9965		
F Statistics (4,370)		26281.98	(P <0.0001)	

(Reference Category: Migration Status: Non-Migrant)

Table 6.5 presents the Weighted Least Squares (WLS) estimates for the determinants of household expenditure among fisherfolk, with monthly expenditure as the dependent variable. The results indicate that migration status, age, income and family size all have a significant impact on household expenditure. The coefficient for migration status is 1190.014, which implies that, on average, migrant households spend 1190.014 units more than non-migrant households, holding other variables

constant. The coefficient for age is 20.18407, indicating that with each additional year of age, the monthly expenditure increases by 20.18 units. The coefficient for income is 0.116272, suggesting that for each additional unit of income, household expenditure increases by 0.12 units. Family size has a significant positive coefficient of 1669.511, indicating that larger families tend to have higher monthly expenditures.

The constant term is 11856.33, which represents the estimated expenditure of fisherfolk households when all other predictors are set to zero. All coefficients are statistically significant, with p-values of 0.000, indicating that the variables in the model have a strong relationship with the dependent variable. The unadjusted and adjusted R-squared values are both very high (0.9965), suggesting that the model explains nearly 99.65% of the variance in household expenditure. The F-statistic of 26281.98, with a p-value of less than 0.0001, indicates that the model as a whole is highly significant. This means that the predictors included in the model collectively explain a substantial portion of the variation in monthly expenditure across households. Overall, the results of the weighted least squares regression confirm the significant impact of migration status, income, age and family size on household expenditure patterns, with all variables showing statistically significant effects. The high R-squared values indicate a strong fit of the model to the data, suggesting that the predictors account for most of the variation in monthly expenditure.

The findings reveal that increased income from migration enhances household expenditure, stimulating local economies. Studies (Makina, 2024; Mishra et al., 2022) emphasise the importance of remittances in improving economic resilience, indicating that enhancing remittance channels and lowering transaction costs can strengthen economic stability for families. This insight supports investments in community development projects that utilise remittances for local growth, including infrastructure improvements and community services. The positive link between family size and expenditure highlights the need for targeted social services that cater to larger households, such as subsidies or support programs. These implications present actionable strategies for policymakers and community leaders to capitalise on the economic benefits of migration and assist vulnerable populations in maximising their household expenditure and resilience.

6.4 Expenditure Patterns on Food, Non-Food and Essential Spending

This section examines the expenditure patterns of marine fisherfolk households, focusing on the differences in food, non-food, medical and other essential expenditures such as medical and educational expenditures. Analysing these patterns is critical for understanding how both migrant and non-migrant households allocate their income and how migration influences these spending habits. The comparison between food and non-food expenditures provides insights into household priorities, while a specific focus on medical and other expenses reveals the financial pressures faced by these communities. By exploring these expenditure categories, this section aims to identify the socio-economic conditions of marine fisherfolk households and how migration plays a role in shaping their consumption behaviour.

Table 6.6

Food, Non-Food and other Expenditure Pattern among Fisherfolk Households

Expenditure	Mean	Standard Deviation
Expenditure for Food	11696.00	3067.574
Non-food expenditure	6514.67	7233.255
Medical expenditure	613.33	1785.214
Education	2653.33	2159.999
Other	4631.47	1523.794
Total Expenditure	25682.6667	6017.51839

Source: Primary Survey,2024

Table 6.6 highlights the expenditure patterns of fisherfolk households, showing distinct spending categories with varying averages. The largest share of household expenses is dedicated to food (rupees 11,696) reflecting its priority in daily needs. However, the variation in food expenditure (rupees 3,067) indicates differences in household sizes and income levels. Non-food expenditure, such as clothing and utilities like electricity, water, gas, phone bills and internet (rupees 6,514) shows significant variation (rupees 7,233), suggesting that some households may struggle to manage these costs or have more diverse spending needs. Medical expenses (rupees 613), while relatively low on average, exhibit wide variation

(rupees 1,785), which may imply that some households face occasional, high medical costs, potentially straining their finances. Education spending (rupees 2,653), averaging, highlights the commitment of households to schooling, though the variation (rupees 2,159) suggests unequal access or investment in education. Other expenses such as entertainment and transportation (rupees 4,631) with less variation represent necessary but smaller costs that households must manage.

Table 6.7

Monthly Expenditure: Migrant vs Non-Migrant Fisherfolk Households

Expenditure	Migration Status	N	Mean	Std. Dev.	Std. Error Mean	t-test
Food	Migrant	172	11401.16	3161.649	241.073	t (373) = 1.718, P= 0.087
	Non-Migrant	203	11945.81	2970.485	208.487	
Non-Food	Migrant	172	7639.53	10398.95	792.913	t (373) = 2.797, P= 0.005
	Non-Migrant	203	5561.58	1826.619	128.204	
Education	Migrant	172	5071.51	1506.730	114.887	t (373) = 5.333, P= 0.001
	Non-Migrant	203	4258.62	1439.665	101.045	
Medical	Migrant	172	540.70	964.926	73.575	t (373) = -0.725, P= 0.469
	Non-Migrant	203	674.88	2259.241	158.568	
Others	Migrant	172	5269.19	1545.843	117.869	t(373)=6.548,P=0.001
	Non-Migrant	203	4258.62	1439.665	101.045	
Total expenditure	Migrant	172	27883.72	7427.10	566.311	t (373)= 3.704 P= 0.001
	Non-Migrant	203	25300.492	6075.910	426.4452	

Source: Primary Survey,2024

Table 6.7 compares expenditure patterns between migrant and non-migrant fisherfolk households across various categories, including food, non-food, education, medical and other expenditures. Migrant households spent an average of 11,401.16 on food, slightly less than non-migrants at 11,945.81, but this difference was not statistically significant (p = 0.087). In contrast, migrants spent significantly more on non-food items (7,639.53) compared to non-migrants (5,561.58, P = 0.005), indicating greater financial flexibility possibly due to remittances. Significant

differences were also observed in education expenditures, with migrants spending 5,071.51 versus 4,258.62 for non-migrants (P= 0.001). This reflects a stronger commitment to investing in the future of children among migrant families. Medical expenditures were similar between groups, suggesting both may face comparable healthcare challenges (P= 0.469). Migrant households spent an average of 5,269.19 on other expenditures compared to 4,258.62 for non-migrants (P = 0.001), indicating enhanced financial capacity.

These expenditure patterns suggest that while food remains a top priority, significant disparities exist in non-food spending. The wide variation in medical and education costs points to financial vulnerabilities, demonstrating a need for support in these areas, especially for households that face unpredictable expenses.Overall, total expenditures for migrant households were higher (P= 0.001), suggesting migration positively impacts their economic well-being. These findings imply that migration contributes significantly to improved financial resources and investment in education among fisherfolk families, highlighting the need for policies that support migrant households while addressing potential healthcare access disparities.

6.5 Conclusion

This chapter has provided a comprehensive analysis of the income and expenditure disparities between migrant and non-migrant marine fisherfolk households in the Malappuram district. The findings reveal that while migration to gulf countries offers substantial economic benefits to certain segments of the marine fisherfolk community, it simultaneously worsens existing disparities within this group. Migrant households tend to experience higher incomes, largely due to remittances from overseas employment, which significantly enhance their living standards and financial stability. The analysis also indicates that these benefits are not evenly distributed. Wealthier households are more likely to have members who migrate, leading to a concentration of resources and further widening the economic gap between migrant and non-migrant households. The application of the Lorenz curve and Gini coefficient has illustrated the stark contrasts in income distribution

between the two groups, with migrant households showing a more pronounced income inequality. Non-migrant households, who remain primarily dependent on traditional fishing activities, struggle with consistent but lower income levels, which limit their financial mobility and exacerbate their vulnerability. This situation is reflective of broader trends in Kerala, where migration has mostly benefited the more affluent members of society, leaving poorer communities behind.

The ANOVA analysis establishes a clear connection between income, education and occupation within the migrant households. The analysis shows that education provides essential skills that enable individuals to access higher-paying occupations, reinforcing the idea that educational attainment is a vital determinant of economic success. The findings indicate that the type of occupation held by migrants significantly affects their income levels. Those employed in professional or technical fields tend to earn substantially more compared to individuals in low-paying jobs. Education and occupation are significant determinants of income, it is essential to acknowledge that income levels within specific occupations are also shaped by factors such as work experience, skill set and the industry in which migrants are employed. These additional attributes play a crucial role in determining income, especially in occupations that place a high value on tenure and specialized expertise. The irregularity of remittance flows significantly affects income inequality. Household's dependent on consistent remittances tend to experience more stable incomes, while those receiving sporadic remittances often encounter financial instability, leading to greater disparities among migrant households.

The analysis of expenditure disparities between migrant and non-migrant fisherfolk households reveals significant insights into their consumption behaviours. Migrant households, benefiting from remittances, have higher average expenditures and greater variability. It allows them to allocate resources across healthcare, education and housing. Statistical analysis confirms significant differences in spending patterns, indicating that migration profoundly influences financial behaviour, enabling investments in a better quality of life. Non-migrant households, constrained by local economic conditions, often prioritise immediate needs and may

struggle to improve living standards without remittances. Multiple regression analysis shows that income, family size and migration status are key determinants of expenditure variability, with income being the primary driver. Migrant households allocate more funds toward non-food and education expenditures, reflecting enhanced financial capability and commitment to their children's future. These findings highlight the need for policies that support migrant households while addressing the economic vulnerabilities of non-migrant fisherfolk, especially regarding healthcare access and essential expenditure management.

The disparities in income and expenditure between migrant and non-migrant fisherfolk underline the significant advantages that migration can offer, particularly in terms of access to better job opportunities and increased financial stability. This also highlights the need for targeted financial interventions to address the inequalities that arise within the migrant community. Programs aimed at managing remittance flows, promoting savings and encouraging diversification of income sources can play an important role in reducing financial disparities and enhancing economic stability. For non-migrant households, while the lower level of income inequality is promising, the economic challenges they face due to their limited occupational diversity call for strategies to diversify local economies. Among the various approaches to mitigating income inequality, enhancing education and skills development emerges as the most effective strategy for marine fisherfolk communities. Given the community's dependence on traditional fishing practices, expanding access to both formal education and vocational training can equip individuals with the necessary skills to diversify their income sources. This includes training in sustainable fishing techniques, boat maintenance and other complementary activities such as fish processing and marketing. Promoting financial inclusion through initiatives like microfinance access and savings programs can provide fisherfolk with the resources needed to invest in business ventures, thereby improving their financial stability. By prioritising education and financial empowerment, marine fisherfolk can enhance their earning potential, reduce their reliance on conventional fishing and cultivate greater economic resilience.

Addressing the income and expenditure disparities is crucial for fostering economic development and improving the socio-economic conditions of both migrant and non-migrant fisherfolk communities. Effective policies and interventions can pave the way for a more equitable distribution of resources, ultimately benefiting the broader community.

CHAPTER 7

IMPACT OF MIGRATION ON THE SOCIO-ECONOMIC STATUS OF MARINE FISHERFOLK

7.1 Introduction

Migration has become a defining chapter in the lives of marine fisherfolk, offering both hope and challenges as they navigate the waves of change. For many, the decision to leave behind the familiar shores of their coastal homes is driven by the dream of a better future, a chance to escape the cycle of economic hardships that has long defined their community. Migration brings opportunities for higher incomes, improved living standards and the possibility of breaking free from the vulnerabilities tied to traditional fishing practices. This chapter investigates the impact of migration on the socio-economic status of the fisherfolk community. The analysis is structured into two sections, the first section investigates the socio-economic impact of migration between migrant and non-migrant households (Inter-Analysis) using Ordered Probit and Sustainable Livelihood Index (SLI). Here the socio-economic status is the dependent variable and migration status, type of house, income, education and occupation are the independent variables. The second section explores the socio-economic impact of migration within migrant households (Intra-Analysis). Statistical tools such as cross-tabulation, t-tests and multiple linear regression are utilised. This approach intends to uncover how migration and remittances influence economic stability and well-being of the marine fisherfolk.

7.2 Sustainable Livelihood Index: Migrant vs Non-Migrant Marine Fisherfolk

Sustainable livelihoods are defined as the capacity of individuals and households to secure their essential needs and enhance their quality of life in a manner that is both resilient to external shocks and adaptive to changing conditions while preserving the natural resources upon which they depend (Nasrnia & Ashktorab, 2021). In the context of the socio-economic impact of migration, the Sustainable Livelihood Approach (SLA) serves as a key framework for assessing how different forms of capital influence the well-being of households. These forms of capital include Human Capital (Level of education & General family health), Social Capital (Participation in non-governmental cooperation & Political Participation), Natural Capital (Land & Livestock), Physical Capital (Type of House & Fishing boat owned) and Financial Capital (Income, Remittances& Saving).

Migration is viewed as a strategic response to economic and environmental vulnerabilities. Migrant households often benefit from increased financial capital due to remittances, which allows for further investments in physical capital (such as improved housing and infrastructure) and human capital (Better access to education and Healthcare services). Conversely, non-migrant households may experience more limited access to these resources, reducing the long-term sustainability of their livelihoods.

Table 7.1

Sustainable Livelihood Index (SLI) of Marine Fisherfolk

SLI Category		**Migration Status**		**Total**
		Migrant	**Non-Migrant**	
Low	N	73	183	256
	%	42.44	90.14	68.27
Medium	N	86	20	106
	%	50	9.86	28.27
High	N	13	0	13
	%	7.56	0	3.46
Total	N	172	203	375
	%	45.87	54.13	100
Pearson Chi-square Test	(Chi-Square: 99.47, df: 2, P: 0.001)			

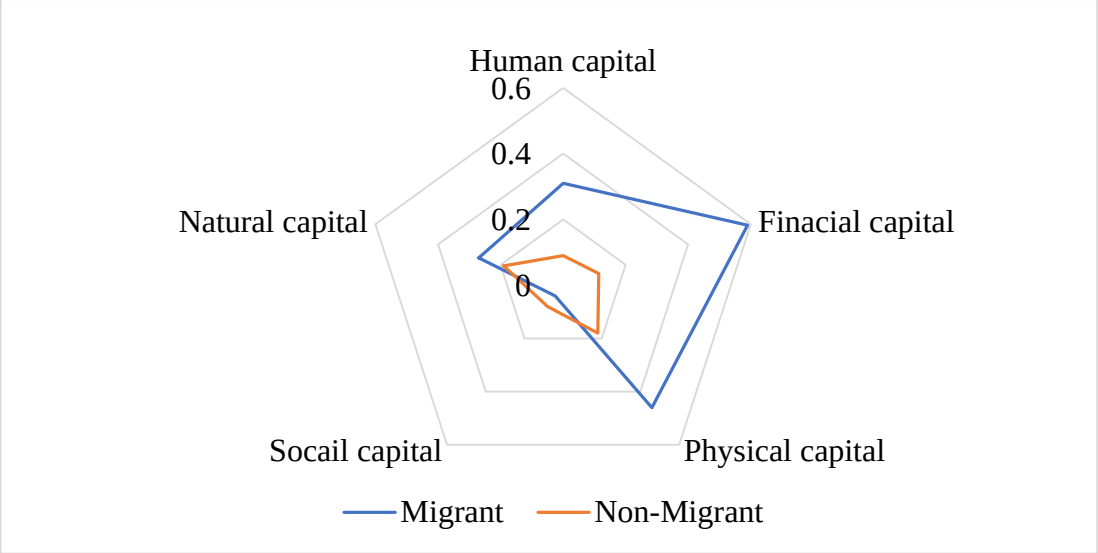
Source: Primary Survey,2024

Table 7.1 illustrates the distribution of the Sustainable Livelihood Index (SLI**)** among marine fisherfolk. The result shows that 42.44 % fall under the low sustainability category, while the majority (50%) are classified as medium sustainability and 7.56% achieve high sustainability. Non-migrant households show an overwhelming concentration in the low sustainability category, with 90.14% classified as such and only 9.86% falling under the medium category. Notably, none of the non-migrant households reached the high sustainability level. These findings underscore the pronounced vulnerability of non-migrant households, which likely face significant challenges in securing essential resources and improving their livelihoods compared to migrant households. The Pearson Chi-Square test(P=0.001)

confirms a statistically significant association between migration status and SLI categories, indicating that migration plays a crucial role in shaping livelihood sustainability within this community.

Figure 7.1

Livelihood Capitals: Migrant vs Non-Migrant Households



Source: Primary Survey,2024

Figure 7.1 on livelihood capital reveals significant differences between migrant and non-migrant households. Migrant households demonstrate a higher accumulation of human capital, with a score of 0.31 compared to 0.09 for non-migrants. This indicates that migrants often possess better skills and education. Financial capital is substantially greater among migrants (0.59) than non-migrants (0.114), suggesting that migration contributes to increased income and savings, enabling better investments in their livelihoods. Physical capital, which includes assets such as housing and equipment, is higher in migrant households (0.46) versus non-migrant households (0.18), reflecting greater access to resources. Social capital is slightly lower among migrants (0.04) compared to non-migrants (0.08), possibly indicating that while migrants may have stronger economic ties, their social networks are less robust in their local communities (Haan & Zoomers, 2005). Lastly, natural capital, which refers to resources such as land and livestock, shows a slight

advantage for migrants (0.27) over non-migrants (0.19). It implies that migrants might have better access to natural resources for their livelihoods. These findings illustrate that migration significantly enhances various forms of livelihood capital, contributing to improved socio-economic conditions for migrant households.

7.3 Impact of Migration on Socio-Economic Status: An Inter-Analysis

Socio-economic status (SES) is defined by an individual's access to financial, social and human capital, which is influenced by factors such as family income, educational attainment and parental occupation (Cowan et al.,2012). Marine fisherfolk, who rely on the ocean for their livelihoods, often face significant challenges due to the dangerous nature of their work and limited educational opportunities. To mitigate these challenges, migration is used as a survival strategy. Remittances from migrants play a crucial role in supporting their families by funding education, healthcare and housing. An Ordered Probit model is employed to assess the impact of migration, along with other factors such as education, income, housing type and occupation, for both migrant and non-migrant households. The results of this test are presented in the following tables (7.2, 7.3 and 7.4). The model highlights migration's impact on the economic well-being of marine fisherfolk households.

Table 7 .2

Impact of Migration and Contributing Elements on Socio-Economic Status

Socio-Economic Status		**Model 1 Base Model**	**Model 2 Full model**
Migration Status (Baseline = Non-Migrant)			
Migration Status: Migrant		2.93***(0.226)	1.75***(0.424)
Education (Baseline = Literate Without School Education)			
SSLC and Below			0.992 (0.535)
Plus Two			1.352 *(0.568)
Degree			1.362 *(0.666)
PG			1.440 (1.183)
Others			1.797(0.995
Income			0.000058***(0.0001)
Type of Housing (Baseline=Kutcha House)			
Luxury			1.919***(0.493)
Very good			1.127* (0.465)
Good			0.139 (0.320)
Poor			-0.338 (0.313)
Occupation (Baseline =Others)			
Fishing			0.289 (0.292)
Allied work			0.411 (0.375)
Driver			0.117 (0.341)
Shopkeeper			-0.395 (0.287)
Cut 1		0.731(0.969)	3.164 (0.710)
Cut 2		2.649(0.219)	5.874 (0.831)
Chi-square value	**0.001**	**Pseudo R2**	**0.4101**

Parenthesis indicate standard error.

Note: *** indicates 1% level significance; **Indicates 5% level significance; *Indicates 10 % level significance

Table 7.2 presents the results of an ordered probit regression analysis evaluating the impact of migration and various factors on socio-economic status. In the base model, migration status shows a highly significant positive effect with a coefficient of 2.93 (P=0.001), indicating that migrants have a considerably higher socio-economic status compared to non-migrants. In model 2, this coefficient decreases to 1.75 (P = 0.001), suggesting that while migration still significantly affects socio-economic status, the inclusion of additional variables moderates its impact. Education also plays a crucial role in determining socio-economic status. Compared to the reference category of literate without school education, those with educational qualifications like plus two (P= 0.017) and holding a degree (P = 0.041) are significantly associated with higher socio-economic status. Other educational levels such as SSLC & below and PG, show positive coefficients, but these are not statistically significant. Income is another significant factor, with a very small yet highly significant positive coefficient (P= 0.001), highlighting that even marginal increases in income can lead to a higher socio-economic status.

The type of house is another crucial determinant. Compared to the reference category of living in a kutcha house, those living in a luxury house (P=0.001) or a very good house (P = 0.015) significantly improved their socio-economic status. Although the results are less consistent, occupation also influences socio-economic status. For instance, the coefficients for being a fisherman or engaging in allied activities are not statistically significant when compared to the reference category of others. However, being a shopkeeper has a marginal effect on socio-economic status. The model's cut points (Cut 1 = 3.164, SE = 0.710, Cut 2 = 5.8736, SE = 0.831) define the boundaries between low, middle and high socio-economic statuses. The significant chi-square value (P= 0.001) and a Pseudo R^2 of 0.4101 indicate that the model explains approximately 41% of the variance in socio-economic status, highlighting the substantial influence of the included predictors.

Table 7.3

Marginal Effects of Migration, Education, Type of Housing, Income and Occupation on the Socio-Economic Status

Socio-economic status		Marginal Effect	Std.Error	Z	P	95% CI
Migration Status						
Migration Status	Low Middle High	-0.42921 0.27071 0.1585	0.101588 0.080389 0.054440	-4.23 3.37 2.91	0.000 0.001 0.004	[-0.6283, -0.230] [0.1131, 0.4283] [0.05179, 0.2652]
Education						
SSLC and below	Low Middle High	-0.34804 0.313100 0.03494	0.210379 0.205331 0.016343	-1.65 1.52 2.14	0.098 0.127 0.033	[-0.7603, 0.0643] [-0.0893, 0.7155] [0.0029, -0.0669]
Plus Two	Low Middle High	-0.4256 0.3501 0.0754	0.2112 0.2053 0.0403	-2.01 1.71 1.87	0.044 0.087 0.062	[-0.8400, -0.0119] [-0.0503, 0.7506] [-0.0036, 0.1545]
Degree	Low Middle High	-0.4274 0.3504 0.0770	0.2200 0.2043 0.0403	-1.94 1.71 1.20	0.050 0.087 0.229	[-0.8587, 0.0040] [-0.0506, 0.7514] [-0.0486, 0.2025]
PG	Low Middle High	-0.4338 0.3509 0.0828	0.2712 0.2045 0.1684	-1.60 1.72 0.49	0.110 0.086 0.623	[-0.9652, 0.0977] [-0.4982, 0.7517] [-0.2471, 0.4128]
Others	Low Middle High	-0.4825 0.2198 0.1627	0.2234 0.2452 0.2144	-2.16 1.30 0.76	0.031 0.192 0.448	[-0.9202, -0.0447] [-0.1608, 0.8004] [-0.2575,0.5826]
Type of House						
Luxury	Low Middle High	-0.3497 0.2724 0.3224	0.1253 0.1101 0.0967	-2.79 0.25 3.33	0.005 0.005 0.001	[-0.5953, -0.1040] [-0.1885, 0.2430] [0.1329, 0.5120]
Very Good	Low Middle high	-0.2920 0.1915 0.1006	0.1330 0.1081 0.480	-2.20 1.77 2.09	0.028 0.077 0.036	[-0.5526, -0.0314] [-0.0205, 0.4034] [0.0064, 0.1947]

Good	Low Middle High	-0.5091 0.0468 0.0041	0.1187 0.1102 0.0091	-0.43 0.42 0.45	0.668 0.671 0.651	[-0.2835, 0.1817] [-0.1691, 0.2627] [-0.0137, 0.02195]
Poor	Low Middle High	0.1323 -0.1265 -0.0057	0.1191 0.1126 0.0082	1.11 -1.12 -0.70	0.267 0.261 0.486	[-.10116, 0.3657] [-0.3471, 0.0941] [-0.0219, 0.1040]
Occupation						
Fishing	Low Middle High	-0.7180 0.0460 0.0259	0.0776 0.0547 0.0249	-0.92 0.84 1.04	0.355 0.401 0.298	[-0.2239, 0.0804] [-0.0613, 0.1230] [-0.02285, 0.0747]
Allied Activity	Low Middle High	-0.0960 0.0549 0.0411	0.0861 0.0521 0.0442	-1.11 1.05 0.93	0.265 0.292 0.353	[-0.2647, 0.0728] [-0.0472, 0.1571] [-0.0455, 0.1276]
Driver	Low Middle High	-0.0314 0.0225 0.0089	0.0908 0.0644 0.0271	-0.35 0.35 0.33	0.729 0.727 0.742	[-0.2995, 0.1466] [-0.1038, 0.1488] [-0.0442, 0.0620]
Shopkeeper	Low Middle High	0.1282 -0.1096 -0.0186	0.0938 0.0815 0.0172	1.37 -1.34 -1.08	0.172 0.179 0.279	[-0.5559,0.3121] [-0.2694, 0.0502] [-0.0524, 0.0151]
Income						
Income	Low Middle High	-0.0001 8.9700 5.2500	3.1400 2.2900 1.9500	-4.53 3.91 2.70	0.000 0.000 0.007	[-0.00002, -8.0600] [4.4800,0.0001] [1.4300, 9.0700]

Note: Reference category: (Education: Others) (Type of House: Kutcha House), (Occupation: Others)

Table 7.3 presents the marginal effects of migration status, type of house, income education and occupation on the socio-economic status of the marine fisherfolk community. The results indicate that migration significantly increases the probability of achieving a higher socio-economic status across all levels. Specifically, the coefficient (β = -0.42921) suggests that migration decreases the likelihood of remaining in the low socio-economic status group. The coefficient (β = 0.27071) shows that migration increases the probability of moving to or staying in

the middle socio-economic status group. Similarly, the coefficient (β = 0.1585) demonstrates that migration also raises the probability of reaching or remaining in the high socio-economic status group. These findings collectively suggest that migration plays a crucial role in enhancing socio-economic status within this population. Education levels also play a significant role in achieving high socio-economic status, especially for individuals with varying levels of education. For individuals with SSLC & below education, the marginal effects are negative in low (-0.348), middle (0.313) and high (0.034) socio-economic categories. Similarly, individuals with Plus Two and Degree education levels show negative impacts in low categories, but positive effects are seen in middle and high categories. PG level education exhibits mixed results, with slight negative impacts in low and high socio-economic statuses, though this result is not statistically significant.

The analysis of house type reveals significant effects on socio-economic status. For luxury houses, the marginal effect on high socio-economic status is positive and significant (β =0.3224, P= 0.001), while low and middle statuses are also affected (β = -0.3497 for low, β = 0.2724 for middle). For very good houses, high socio-economic status shows a significant positive effect (β =0.1006, P= 0.036) and low status is significantly negatively affected (β = -0.2920, P= 0.028). This suggests that better housing conditions are associated with higher socio-economic status. The occupation of marine fisherfolk has a considerable impact on their socio-economic status. Fishing remains the primary livelihood, but it shows negative marginal effects across all socio-economic categories, indicating limited economic opportunities. Allied activities contribute positively to socio-economic outcomes, especially at middle and high levels. Occupations like driver and shopkeeper also show varying impacts, with shopkeeper occupation providing more significant benefits at lower socio-economic levels. Overall, engaging in diverse occupations can enhance socio-economic conditions, though the extent of impact varies depending on the type of occupation.

However, income emerged as a highly significant factor, with increases in income strongly correlating with higher socio-economic status (β = 5.2500, P =

0.007). This highlights the crucial role played by income in improving socio-economic conditions. Migration and income are key drivers of socio-economic advancement in the fisherfolk community. The findings display that migration and income are essential for improving the socio-economic status of marine fisherfolk. Migration provides access to better job opportunities and living conditions and higher income directly enhances economic outcomes. Investments in education and improvements in housing quality are also crucial for boosting socio-economic status, emphasising the need for policies that support educational access and affordable, quality housing. Although the specific type of occupation has a less significant impact, focusing on enhancing migration opportunities, increasing income through employment and vocational training and upgrading housing conditions can collectively drive substantial economic advancement for the marine fisherfolk community.

7.4 SLI and Socio-Economic Status of Fisherfolk Households

Migration is often considered a strategic move by households to improve their economic standing and living conditions. This analysis aims to explore how different socio-economic groups experience varying standards of living and the role migration plays in enhancing both the SES and SLI of households in coastal communities.

Table 7.4

SLI and Socio-Economic Status of Marine Fisherfolk

SLI		Socio-Economic Status			Total
		Low	Middle	High	
Low	N	190	66	0	256
	%	89.62	43.14	0	68.27
Medium	N	22	81	3	106
	%	10.38	52.94	30	28.27
High	N	0	6	7	13
	%	0	3.92	70	3.46
Total	N	212	153	10	375
	%	56.53	40.8	2.67	100
Pearson Chi-square Test	(Chi-Square: 227.244, df: 4, P:0.001)				

Source: Primary Survey, 2024

Table 7.4 shows the connection between the Sustainable Livelihood Index (SLI) and Socio-Economic Status (SES) across households. The households are categorised into low, medium and high for both SLI and SES. The majority of households (68.27%) fall into the low SLI category, with 190 of these having a low socio-economic status (89.62%), indicating that most households with a low SLI experience lower socio-economic conditions. For the medium SLI group, there are 106 households, where 81 of them (52.94%) belong to the medium SES, showing a moderate link between medium SLI and middle SES. A smaller portion, 22 households (10.38%), still have low SES and a few (3) have high SES (30%). In the high SLI group, there are only 13 households, with 7 of them (70%) having a high socio-economic status. This highlights that households with a higher standard of living tend to have a higher SES, although they are fewer in number.

These findings highlight that households with higher SLIs tend to belong to higher socio-economic categories, while those with lower SLIs are predominantly in lower groups. The strong association between SLI and socio-economic status underscores the role of sustainable livelihood factors in shaping the socio-economic status of marine fisherfolk households. Migration emerges as a pivotal factor, as migrant households with higher SLIs often experience improved socio-economic conditions. By enhancing income, employment opportunities and access to resources, migration contributes significantly to better living conditions and the overall development of the marine fisherfolk community

7.5 Impact of Migration on Socio-Economic Status: An Intra-Analysis

In this section, an analysis is carried out to identify the impact brought by the migration within the migrant fisherfolk community. In the context of marine fisherfolk communities, the influence of migration on socio-economic conditions is noticeable, with migrants generally experiencing superior outcomes compared to non-migrants. Therefore, it is crucial to conduct a thorough assessment of the socio-economic conditions within migrant households. By focusing on these households, policymakers and researchers can identify targeted interventions that support the socio-economic advancement of the fisherfolk community.

7.5.1 Type of Housing during Pre and Post-Migration

Migration and the receipt of remittances significantly influence housing conditions and land ownership. When migrants leave their communities for better economic opportunities elsewhere, the remittances they send back often lead to improved living standards within their households. This can be evident in upgraded housing infrastructure, better access to basic amenities and increased ownership of land or property.

Table 7.5

Type of Housing: Pre and Post-Migration

Type of Housing	Pre-Migration		Post-Migration	
	Number	Percentage	Number	Percentage
No House	8	4.7	0	0
Luxurious	1	0.6	47	27.32
Very good	11	6.4	104	60.46
Good House	65	37.8	11	6.39
Poor House	83	48.3	8	4.67
Kutcha House	4	2.3	2	1.16
Total	172	100	172	100

Source: Primary Survey,2024

Table 7.5 shows that during pre-migration, the majority of households (48.3%) resided in poor-quality houses, while smaller percentages lived in good-quality houses (37.8%), very good (6.4%), luxurious (0.6%) and kutcha houses (2.3%). This distribution highlights the significant socio-economic challenges faced by these communities during pre- migration. However, post-migration witnessed a substantial increase in households living in luxurious houses (27.32%) and very good houses (60.46%), while the proportions residing in good houses (6.39%), poor houses (4.67%) and kutcha houses (1.16%) decreased significantly. This shift reflects a significant improvement in living conditions among migrant households, possibly due to the economic opportunities and remittances associated with migration. These changes emphasise the socio-economic benefits that migration can bring to marine fisherfolk communities, contributing to overall development and quality of life improvements.

7.5.2 Total Land Holding of Migrant Household: Pre and Post-Migration

The total Land holding is a significant indicator of socio-economic status. It includes the control and use of land, which influences livelihood opportunities, economic stability and overall wealth. Typically, land can be utilised for agricultural purposes, housing and other investments, making it a crucial asset. Migration can impact land ownership patterns, reflecting broader shifts in economic conditions. For instance, migration often results in increased financial resources for households, which can lead to greater land acquisition or investment in property. To examine the total land holding during pre and post-migration, a paired t-test was employed and the results are shown in Table 7.6. The null hypothesis for this test states that there is no significant improvement in land holding due to migration.

Table 7.6

Total Land Holding of Migrant Household: Pre and Post Migration

Paired Sample Statistics								
	Mean		Std.Deviation			Std. Error Mean		
Land: Pre-migration	8.3140		5.65429			.43114		
Land: Post-migration	9.2907		6.33262			.48286		
Paired Sample Correlations								
Land: Pre and Post migration.			0.870			Sig:0.001		
Paired Sample Test								
	Paired differences			T	Df	Sig:	95% confidence interval of the differences	
	Mean	Std.Deviation	Std. Error Mean				Lower	Upper
Land during post-migration- Land during after migration	.97674	3.1212	0.23799	4.104	171	0.001	0.5069	1.4465

Source: Primary Survey,2024

Table 7.6 reveals that before migration, the average land holding was 8.31 acres, with a high degree of variability (SD = 5.65 acres). After migration, the average land holding increased to 9.29 acres, with slightly higher variability (SD = 6.33 acres). This increase suggests that, on average, households acquire more land after migration, likely due to the economic gains or investment opportunities associated with migration. Additionally, the strong positive correlation coefficient of 0.870 (P= 0.001) between land ownership, during pre- and post-migration**, i**ndicates a robust relationship, households that owned more land before migration generally continued to have higher land ownership after migration. This correlation implies that initial land holdings may influence subsequent land acquisition patterns among migrant households. The paired t-test shows a mean difference of 0.97674 acres (t = 4.104, df = 171, P= 0.001). Thus, it is advisable to reject the null hypothesis which states that there is no significant improvement in land holding due to migration.

Migration is associated with a notable increase in land among households, reflecting an overall enhancement in land assets post-migration. These findings imply that while migration often leads to increased land ownership among marine fisherfolk households, the extent of the increase varies. This variation is moderated by factors such as initial land endowments, economic opportunities available at the migration destinations and potential changes in land use patterns or community dynamics.

7.5.3 Savings Habit: Pre- and Post-Migration

Savings are a crucial determinant in understanding how migration influences the economic status of marine fisherfolk households. It serves as a positive and indicator of financial stability and economic growth. The transition in savings behaviour, evident both before and after migration, highlights significant economic advancements within these communities

Table 7.7

Savings Habit during Pre- and Post-Migration

Savings Habit	Pre-Migration		Post-Migration	
	Number	Percentage	Number	Percentage
No	170	98.83	90	52.33
Yes	2	1.16	82	47.67
Total	172	100	172	100

Source: Primary Survey,2024

Table 7.7 shows data on the savings behaviour of migrant marine fisherfolk households during pre and post-migration. Before migration, the majority of households (98.83%) reported having no savings, while only a small fraction (1.16%) had savings. This distribution indicates a high level of financial insecurity and limited economic resilience among the community members before migration. However, the situation appears to change markedly after migration. The percentage of households with savings increases dramatically to 52.33% while the proportion of households without savings decreases to 47.67%. This shift signifies a substantial improvement in financial stability and economic capacity among migrant households. These findings suggest that migration has a positive impact on the savings behaviour of marine fisherfolk households. The increased ability to save may be attributed to higher income levels and better economic opportunities available to migrants, enabling them to build financial reserves.

7.5.4 Debt Status: Pre- and Post-Migration

Migration often brings significant financial changes, impacting household debt in various ways. This section explores the pattern of debt among marine fisherfolk households before and after migration. By comparing debt during pre and post-migration, it is clear how migration influences financial stability and debt management. This analysis helps to understand the economic adjustments that households undergo when migrating for better opportunities and how these changes affect their overall financial health.

Table 7.8

Debt Status during Pre- and Post-Migration

Debt	Pre-Migration		Post-Migration	
	Number	Percentage	Number	Percentage
No	9	5.2	87	50.58
Yes	163	94.8	85	49.42
Total	172	100	172	100

Source: Primary Survey, 2024

Table 7.8 shows data on household debt among marine fisherfolk before and after migration revealing significant changes in their financial obligations. Before migration, the majority of households (94.8%) were in debt, with only a small fraction, (5.2%) being debt-free. This high level of indebtedness highlights the financial struggles and economic vulnerability faced by these communities prior to migration. After migration, the scenario improves markedly, with the percentage of households in debt decreasing to and those without debt increasing significantly to 50.58%. This shift suggests that migration has a substantial positive impact on reducing household debt. The reduction in debt levels is a critical indicator of enhanced economic stability and reduced financial stress for these households. It implies that migration enables households to repay existing debts and avoid accumulating new ones, thereby achieving greater financial freedom and security.

7.5.5 Durable Assets: Pre- and Post-Migration

Durable assets, such as land, vehicles and household appliances, are significant indicators of economic stability and wealth accumulation. Migration can lead to significant changes in asset ownership as households adjust their financial strategies to manage new opportunities and challenges. This analysis offers insights into how migration influences asset accumulation and economic advancement before and after migration. It also highlights the broader impact of migration on financial well-being and long-term security.

Table 7.9

Durable Asset Holdings during Pre- and Post- Migration

Durable asset	Pre-migration		Post-migration	
	Number	Percentage	Number	Percentage
Fan	170	98.3	172	100
Mixi	95	54.9	169	98.3
Table	153	88.4	168	97.7
Mattresses	167	96.5	172	100
TV	48	27.7	136	79.1
Fridge	47	27.32	164	95.3
Washing machine	5	2.96	88	51.2
AC	0	0	42	24.42

Source: Primary Survey,2024

Table 7.9 illustrates the changes in durable asset ownership among marine fisherfolk households before and after migration. Before migration, the majority of households owned essential items such as fans (98.3%), tables (88.4%) and mattresses (96.5%). A few households had mixi (54.9%), TVs (27.7%), fridges (27.32%), washing machines (2.96%) and no households had air conditioners. After migration, there was a notable increase in the ownership of durable assets. All households now own fans and ownership of mixis, tables and mattresses remains high. The percentage of households with TVs rose significantly to 79.1%, fridges to 95.3%, washing machines to 51.2% and 29.07% now have air conditioners. This increase in durable asset holdings indicates that migration has improved the financial stability and quality of life for these migrant households. These changes in asset ownership demonstrate that migration has led to considerable improvements in the socio-economic status of marine fisherfolk households, providing them with better living conditions and access to modern conveniences.

7.5.6 Impact of Remittances on Income of the Migrant Fisherfolk Households

Migration often plays a pivotal role in transforming the socio-economic status of migrant fisherfolk families, resulting in improved social and economic standing. This shift can largely be attributed to the impact of remittances sent back

home by migrant family members. Remittances, defined as monetary transfers sent by migrants to their families in their country of origin, serve as a critical lifeline that contributes significantly to the economic welfare of households left behind. To comprehensively assess the economic implications of these remittances, a simple correlation was employed.

Table 7.10

Correlations between Income and Remittances

Correlations		Income	Remittances
Income	Pearson Correlation	1	.262**
	Sig. (2-tailed)		0.001
	N	172	172
Remittances	Pearson Correlation	.262**	1
	Sig. (2-tailed)	0.001	
	N	172	172

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7.10 summarises the descriptive statistics and correlations for the variables Income and Remittance. The correlation analysis reveals a significant positive relationship between income and remittance (P= 0.001). This indicates that households with higher remittances tend to have higher incomes, suggesting that migration, which often leads to an increase in remittances, is associated with better economic outcomes for these households. In other words, households receiving more remittances are likely to experience an increase in income, supporting the notion that migration has a positive impact on household financial status. Thus, the findings imply that migration and remittances contribute to the economic improvement of households, with higher remittances being linked to higher income levels.

Table 7.11

SLI and Socio-Economic Status of Migrant Households

SLI		Socio Economic Status			Total
		Low	Medium	High	
Low	N	13	60	0	73
	%	86.67	40.82	0	42.44
Medium	N	2	81	3	86
	%	13.33	55.10	30	50
High	N	0	6	7	13
	%	0	4.08	70	7.56
Total	N	15	147	10	172
	%	8.72	85.47	5.81	100
Pearson Chi-square Test	(Chi-square: 71.918, df: 4, P:0.001)				

Source: Primary Survey, 2024

Table 7.11 highlights the connection between the Sustainable Livelihood Index(SLI) and the Socio-Economic Status (SES) of migrant households. Among those with low SLI (42.44%), a significant percentage (86.67) have a low SES, while 40.82% fall into the medium SES category and none achieve a high SES. In the medium SLI group (50%), the majority have a medium SES(55.10%), with a smaller portion (13.33%) still in the low SES category. In the high SLI group (7.56%), the majority enjoy a high SES(70%) and medium SES(4.08%), with no households in the low SES category. The chi-square value (P= 0.001) indicates a statistically significant link between SLI and SES, showing that migrant households with better livelihood index are more likely to have higher socio-economic status. This demonstrates the positive impact of migration on improving both living conditions and economic stability. This emphasises the importance of supporting migration as a viable livelihood strategy, which can lead to better socio-economic outcomes. Policymakers may consider developing programs that facilitate remittances and support reintegration for returning migrants. Local development initiatives aimed at non-migrant households can help bridge the gap and enhance their standard of living, ultimately promoting overall community well-being.

7.6 Conclusion

This chapter has provided a comprehensive analysis of the socio-economic impact of migration on the marine fisherfolk in the Malappuram district. The analysis highlights that migrant households achieve notably higher SLI scores compared to non-migrant households. This elevation in SLI is primarily driven by enhanced financial stability through remittances, which allow migrant families to invest in education, healthcare and improved living conditions. The access to additional income streams empowers these households to diversify their livelihoods, reducing dependency on traditional fishing practices that are often economically vulnerable. The SLI framework reveals that migration contributes positively to various dimensions of livelihood like natural, financial, human and physical capital. Social capital is slightly lower among migrants compared to non-migrants, possibly indicating that while migrants may have stronger economic ties, their social networks are less robust in their local communities (Haan & Zoomers, 2005). Migrant families tend to possess better financial assets, enabling them to invest in durable goods, educational opportunities and health services. This financial uplift is essential in enhancing their human capital. Non-migrant households face constraints that limit their ability to make similar investments, leading to lower SLI scores and persistent socio-economic challenges.

The ordered probit model confirms that migration status significantly influences socio-economic status, with migrant households more likely to achieve higher socio-economic categories. Education and occupation significantly influence the socio-economic status of marine fisherfolk households. Education contributes positively to socio-economic advancement, with higher education levels showing greater impacts. Occupation plays a mixed role, with fishing linked to lower socio-economic outcomes, while other occupations show moderate effects. Income strongly correlates with improved socio-economic status, highlighting the combined importance of these factors in shaping livelihoods. The type of house is also a significant factor influencing socio-economic status. Households with better housing conditions, such as luxury and very good houses, exhibit positive effects on higher

socio-economic categories, indicating a direct correlation between improved living conditions and socio-economic advancement. Conversely, poorer housing conditions are associated with lower socio-economic outcomes.

The disparity in educational attainment, health outcomes and overall quality of life is stark, as non-migrant households struggle with limited resources and opportunities. Households with a higher SLI tend to belong to higher socio-economic categories, while those with a lower SLI are mainly in the lower socio-economic groups. The significant association between SLI and socio-economic status highlights the crucial role of sustainable livelihood factors in determining the socio-economic standing of marine fisherfolk households. These results suggest that migration plays a pivotal role in improving the livelihoods of marine fisherfolk households with a higher SLI tend to belong to higher socio-economic categories, while those with a lower SLI are predominantly in the lower socio-economic groups. Socio-economic status among marine fisherfolk households is shaped by multiple factors, including migration, education, occupation and housing quality. These variables collectively enhance household well-being, with migration and education playing pivotal roles in driving economic stability and improved living conditions

Intra-analysis of the socio-economic impact of migration on marine fisherfolk households reveals profound transformations in their living conditions and financial stability. The examination highlights that migration serves as an essential strategy for improving the overall quality of life for these communities. The shift in housing quality is one of the most notable outcomes and reflects both increased wealth and improved living standards. The rise in land ownership among migrant families indicates a significant enhancement in their economic assets, facilitating greater security and investment opportunities. Furthermore, the analysis indicates a marked change in savings behaviour following migration. A greater percentage of households report increased savings, suggesting improved financial management and planning. This shift is complemented by a decrease in debt levels, which highlights the financial relief and enhanced economic resilience of migrant households. The ownership of durable assets also illustrates the positive impact of

migration, as many households acquire valuable items that contribute to their well-being and comfort. The findings of this study affirm that migration elevates the socio-economic status of marine fisherfolk, enabling them to achieve greater financial security and enhanced quality of life through the benefits of remittances and increased income.

This study highlights the need for targeted policies to improve the socio-economic conditions of both migrant and non-migrant marine fisherfolk households. Key strategies include enhancing access to financial services such as low-interest loans, savings programs to support alternative livelihoods, education and healthcare. Encouraging livelihood diversification through training in aquaculture, handicrafts, or small businesses may create new income opportunities. Expanding education and vocational training may improve employability while strengthening social security programs would provide financial safety nets. Upgrading infrastructure, promoting sustainable fishing practices and strengthening community networks through Self-Help Groups (SHGs) and cooperatives would further improve quality of life. Additionally, policies that promote the productive use of remittances may stimulate local development and drive community-wide growth.

CHAPTER 8
FINDINGS AND CONCLUSION

- *Introduction*
- *Major Findings*
- *Recommendations and Suggestions*
- *Scope for Future Research*
- *Conclusion*

8.1 Introduction

This chapter presents the findings and conclusions drawn from the study titled 'Socio-Economic Analysis of Gulf Migration on Marine Fisherfolk in Malappuram District, Kerala'. The analysis highlights the interplay between migration as a survival strategy and the socio-economic conditions of marine fisherfolk. The findings are based on data collected through surveys and an in-depth analysis of key variables, including migration patterns and determinents, income and expenditure disparities, education levels, occupation and the overall quality of life among migrant and non-migrant fisherfolk households. The chapter is organised to discuss the key findings and conclusions. The chapter includes policy suggestions and recommendations aimed at addressing the challenges faced by the fisherfolk community and enhancing their socio-economic conditions. The scope for future research is also outlined, emphasising areas that require further exploration to deepen understanding of the impacts of migration on marginalised communities.

8.2 Major Findings

1. The first objective of this study is to analyse the socio-economic characteristics of the marine fisherfolk in the Malappuram district. This objective involves classifying households into migrant and non-migrant categories and analysing key socio-economic variables such as age, marital status, family size, gender, income, education, occupation and living conditions. The goal is to identify and examine the socio-economic differences between the two groups. By evaluating these factors, the study aims to assess how migration influences the socio-economic well-being, livelihood patterns and family dynamics within the marine fisherfolk community. The major findings of this objective are outlined below.

- In the study area of Malappuram district, 45.87% of households are migrants, utilising migration as a livelihood strategy to significantly improve income and access better services, while 54.13% remain non-migrants, relying primarily on the fishing sector for their livelihoods.

- Migrant marine fisherfolk predominantly consists of younger individuals with a higher proportion of working-age males. This leads to increased productivity and remittances but also creates a generational gap, making it challenging for older non-migrants to adapt to changing socio-economic dynamics. Women's participation in employment is limited, they play a vital role in managing household responsibilities. Their involvement is significant, especially given cultural restrictions and limited access to education, which hinder their engagement in the workforce. Additionally, they contribute to family welfare through effective household management and support for other family members.

- Among migrant and non-migrant marine fisherfolk, a significant proportion are married. Non-migrants tend to have a higher percentage of married individuals compared to migrants, reflecting differences in family structures and marital trends between marine fisherfolk.

- Marine fisherfolk households, both migrant and non-migrant, are shifting towards smaller family sizes, with most having fewer than five members. This move from joint to nuclear families may increase financial strain and reduce traditional support networks, especially for migrant households.

- Ration card ownership is high among both migrant (97.7%) and non-migrant (98%) households, reflecting their importance for accessing subsidised food and essential supplies. The slight difference in ownership underscores the critical role of ration cards in ensuring food security and reducing economic vulnerability.

- Migrant and non-migrant marine fisherfolk households in the study area show significant differences in ration card types. Non-migrants primarily hold pink cards (78.8%), indicating Below Poverty Line (BPL) status, with 8.9% holding yellow cards for the most economically vulnerable households. Migrants, on the other hand, have a higher proportion of blue cards (20.3%) and white cards (11.6%), which fall under the Above Poverty Line (APL)

and offer lower subsidies. This indicates that non-migrants receive higher government support compared to migrants.

- Migrant households show greater diversity in cooking fuel usage compared to non-migrant households. While non-migrants primarily use wood for cooking, with a few also using LPG. Migrant households also rely on wood and LPG but also have adoption of electric cooking methods. This indicates that migrants have better access to modern cooking technologies, reflecting a shift toward cleaner and more efficient cooking methods.

- Land holding shows that most migrant fishermen (72.09%) and non-migrant fishermen (70.44%) own plots between 5 and 10 cents, while 5.42% of non-migrants and 2.91% of migrants are landless. A small proportion of both groups (around 8.14%) own larger plots (16-20 cents), offering the potential for livelihood diversification. Larger landholdings enable fishermen to explore aquaculture, such as fish or shrimp farming and integrate agricultural practices like crop cultivation and livestock rearing. These initiatives, supported by government subsidies and cooperative investments may enhance income stability and reduce reliance on traditional fishing methods.

- The type of house indicates that migrant fishermen predominantly live in better-quality homes, with 94.17% residing in good to luxurious houses. The result shows that 32.02% of non-migrants live in poor-quality kutcha houses, reflecting more vulnerable and unstable living conditions. During the monsoon season, non-migrant households face significant risks as poor-quality kutcha houses often suffer damage, leading to costly repairs that strain limited finances. While migrant households have better housing, they too remain vulnerable to rising sea levels and stronger storms driven by climate change. Both groups are forced to prioritise repairs over livelihood improvements which perpetuate financial instability.

- A higher proportion of migrants have attained higher education levels compared to non-migrants, with 26.16% of migrants completing Plus Two,

6.98% holding a degree and 1.6% having post-graduate education. The Pearson Chi-Square test (P = 0.001) indicates a significant relationship between education level and migration status. This suggests that higher education plays a key role in facilitating migration and improving job opportunities abroad.

- Non-migrants have a higher Ogive Index (0.64), indicating that their economic activities are concentrated in fewer sectors. Migrants have a lower Ogive Index (0.125), suggesting a greater diversification of their livelihoods across various sectors. The Simpson Index further supports this, with non-migrants showing a lower value (0.19), reflecting fewer dominant job types and migrants displaying a higher value (0.78), indicating a broader range of occupations. These findings suggest that migration leads to increased livelihood diversification and broader occupational engagement among marine fisherfolk.

- The occupational status of migrant and non-migrant households reveals that 25% of migrants in the gulf continue working in fishing, driven by higher income potential, abundant fish resources and more favourable working conditions abroad. Migrants also engage in diverse non-fishing jobs like drivier, shopkeeper and other jobs like construction work, fitness training, accountant, engineering and housekeeping jobs. Non-migrants primarily stay in fishing and allied activities. The Chi-square test (P=0.001) shows a significant association between occupation and migration status. Limited female participation in skilled, semi-skilled and high-paying jobs hinders socio-economic progress. Despite policies for women's empowerment, cultural barriers and limited resources restrict their involvement.

- Migrant households have a higher average income (rupees 32,488.37) compared to non-migrant households (rupees 20,635.47), reflecting the significant economic benefits of migration. The income distribution for migrant families is more spread out, with considerable variability, indicating diverse financial outcomes among this group. Non-migrants have a more

concentrated income of around rupees 15,000, suggesting limited economic opportunities and a greater reliance on local, less profitable economic activities.

- Migrant households spend more on average (rupees 27,883) than non-migrant households (rupees 25,300.49), reflecting the financial benefits of migration. Although the median expenditure is slightly similar for both groups, the variability in migrant spending is higher, indicating that while migration enhances financial resources, the outcomes are not equal for all migrants. Non-migrants have more consistent but lower expenditures, showing limited financial growth. Migration improves overall financial flexibility, but it does not guarantee equal economic advancement for all migrants.

- Among non-migrant fisherfolk, 93.10% do not save, whereas 47.67% of migrants save. It emphasises the role of migration in enhancing saving habits due to better job opportunities and financial resources. 81.28% of non-migrants are in debt, compared to 49.41% of migrants. Non-migrant debt primarily covers house construction, meeting marriage expenses and meeting day to expenses. Migrants have more balanced debt, with less for house construction, more for migration expenses, purchase of land and educational loan. This indicates that migration improves both saving practices and debt management.

- Migrant households have significantly higher ownership of motorcars (85.71%) and household appliances like fridges (54.56%), washing machines (72.73%) and air conditioners (89.36%). Non-migrant households own vehicles, with 68.75% owning autorickshaws and 53.65% owning scooters. TV ownership is similar across both groups. These differences in asset ownership reflect the contrasting lifestyle needs and economic conditions of the two groups.

2. The second objective of the study is to understand the pattern and determinants behind the migration of the marine fisherfolk community in the Malappuram district. This includes examining pre-migration characteristics such as age, family size, marital status and occupation, as well as understanding the push and pull factors influencing migration decisions. Furthermore, the study looks into the factors that affect the duration of stay. The following are the key findings:

- The majority of fisherfolk migrate to Saudi Arabia (39%) and the UAE (33%), driven by strong labour demand and better employment opportunities in these countries. Other gulf countries like Qatar, Kuwait, Oman and Bahrain attract fewer migrants (12 to 3%). This pattern reflects the preference for regions with higher demand for low-skilled labour, where fisherfolk with limited education and skills, find better wages and financial stability. Existing migrant networks and the promise of improved economic conditions further influence their migration choices.

- Before migration, respondents in the marine fisherfolk community were primarily engaged in fishing (75%), while 12.2% participated in allied activities and 10.47% had no occupation. In post-migration, there was a marked shift in occupational patterns, with only 25% continuing in fishing and 8.1% in allied activities. New occupational opportunities emerged, with 15.7% working as drivers, 25% as shopkeepers and 26.2% in other professions. The proportion of individuals without occupation decreased to zero, indicating that migration facilitated employment opportunities. These changes emphasise the role of migration in livelihood diversification, offering enhanced job stability and income opportunities

- The responses regarding the push factors for migration among marine fisherfolk indicate that low wages (56.97%) due to uncertain fish catches, indebtedness (32.56%) and unemployment (10.47%) are the main reasons pushing individuals to migrate. For pull factors, responses show that better employment opportunities in the gulf (76.16%) and the presence of friends

and relatives in the destination region (23.84%) are key attractions. These responses suggest that economic hardships drive migration, while better job prospects and social networks in the gulf countries act as major pull factors.

- These push factors are closely linked to pre-migration characteristics such as age, marital status, family size and occupation. Pre-migration age plays a crucial role in shaping migration decisions. Younger individuals (age group: 18-25) are more likely to migrate due to low wages, with 74.75% citing this as the primary reason. This trend decreases with age, as no individuals above 35 migrated for wage-related reasons. Indebtedness becomes more prominent among individuals aged 31-35 (81.25%) and reaches 100% in those above 35. Unemployment is a less significant factor, especially for younger individuals, with only 16.16% (age group: 18-25) citing it as a reason. These patterns suggest that wage issues are more pressing for younger individuals, while older individuals are driven more by debt.

- Pre-migration marital status influences migration push factors among marine fisherfolk. Low wages are a primary reason for both married (53.84%) and unmarried (72.41%) individuals. Indebtedness is more prominent among married individuals (37.06%) than unmarried ones (10.34%). Unemployment has a lesser impact, affecting 9.09% of married and 17.24% of unmarried individuals. The findings reveal a significant association between marital status and migration reasons, highlighting the different socio-economic pressures faced by married and unmarried individuals.

- Pre-migration family size influences push factors for migration among marine fisherfolk. Larger families (6-10 members) are more affected by low wages (73.44%), followed by those with 11-15 members (62.5%). Smaller families (fewer than 5 members) are also impacted, with 46% citing low wages. Indebtedness is more common in smaller families, while unemployment shows minimal impact across all sizes. Overall, larger families are more affected by wage and debt issues.

- Pre-migration occupation plays a significant role in shaping the reasons for migration. Low wages are the primary push factor for those in fishing (62.79%) and allied work (71.43%). Indebtedness primarily affects those in fishing (34.88%), while unemployment is most pronounced among individuals with no occupation (77.78%). These findings indicate that the urgency of migration drivers varies across different occupations.

- Marine fisherfolk with no prior occupation migrate mainly due to unemployment. Those people previously in fishing are driven by both low wages and unemployment. Pearson's chi-square test confirms a significant relationship between pre-migration occupation and reasons for migration, indicating economic conditions influence migration decisions.

- Pull factors are closely linked to pre-migration characteristics such as age, marital status, family size and occupation. Pre-migration age influences pull factors for migration among marine fisherfolk. Younger individuals (18-25) and those aged 26-30 primarily migrate for better employment opportunities, with this motivation remaining strong even in older age groups. The presence of friends and relatives is more important for younger individuals but decreases with age. This highlights that economic opportunities are the main driver for migration, while social connections matter more to younger migrants.

- Pre-migration marital status significantly affects the pull factors for migration. Married individuals prioritize better employment opportunities (80.45%) due to family responsibilities, while unmarried individuals are more influenced by social connections (44.83%). Economic factors remain important for both groups, but the reliance on social networks is higher among unmarried individuals (55.17%). The Pearson chi-square test confirms a significant link between marital status and migration motivations.

- Pre-migration family size plays a key role in the pull factors for migration. Larger families prioritise better employment opportunities, with 87.5% of

families with 11-15 members citing it as a pull factor. The chi-square test confirms a significant association between family size and migration motivations, highlighting economic factors as the main driver.

- Pre-migration occupation significantly influences the pull factors driving migration among marine fisherfolk. Individuals engaged in fishing (82.17%) and allied work (95.24%) prioritise better employment opportunities. Conversely, those without an occupation (83.33%) rely more on social connections, such as the presence of friends and relatives. This indicates that employed groups focus on economic advancement, while the unemployed are influenced by social ties.

- The OLS analysis shows that several factors significantly influence the duration of stay in the gulf countries. Unmarried individuals tend to stay for a shorter period, while married individuals, those with larger families and younger individuals are more likely to remain abroad for longer durations. Debt has a particularly strong positive effect, with individuals facing financial obligations staying longer to fulfil their commitments.

3. The third objective of this study is to analyse the income and expenditure inequality between migrant and non-migrant fisherfolk households. Migration often leads to changes in income and spending patterns. This section explores how migration affects financial well-being by comparing income levels, expenditure habits and the factors influencing them. The findings aim to highlight the role of migration in shaping income inequality and financial stability within the fisherfolk community.

- The Lorenz curve shows a significant divergence from the equality line, indicating considerable income disparity among migrant households. The Gini coefficient, a measure ranging from 0 to 1, quantifies this inequality, with higher values signifying greater levels of income inequality among migrant households.

- The Gini coefficient values show moderate income inequality in both migrant and non-migrant households. The migrant households have a Gini coefficient of 0.18, higher than the 0.13 for non-migrant households, indicating greater income disparity among migrants. Non-migrant households, with a lower Gini coefficient, experience more equal income distribution. It may be due to their shared involvement in fishing-related occupations.

- Income disparities among migrant households are significantly influenced by education and occupation. Migrants with higher educational qualifications earn more than those with lower education levels. Similarly, the type of occupation also plays a key role, with higher-paying jobs leading to greater income. In addition to education and occupation, factors like work experience and the industry also affect income levels. Irregular remittance flows contribute to income instability, with households relying on consistent remittances having more stable incomes.

- Migrant households spend significantly more compared to non-migrants. Migrants also exhibit greater expenditure variability, with a standard deviation of Rs.7,427.10 versus Rs.6,075.91 for non-migrants, reflecting the impact of migration on spending behaviour.

- Migration status, age, income and family size significantly influence household expenditure. Migrant households, on average, spend more than non-migrants, with income and family size also showing positive relationships with expenditure. For each additional year of age, monthly expenditure increases by 20.18 units and for each additional unit of income, expenditure increases by 0.12 units. Larger families tend to have higher expenditures, with a coefficient of 1669.511.

- Fisherfolk households prioritise food expenditure with significant variation due to differences in income and household size. Non-food expenses like clothing and utilities also show considerable variation highlighting diverse

spending needs. Medical and education costs have a wide variation, indicating occasional high expenses and unequal investment in education. These patterns reveal financial vulnerabilities, particularly in non-food, medical and education costs.

- Expenditure patterns between migrant and non-migrant fisherfolk households reveal significant differences in spending. Migrant households spent slightly less on food compared to non-migrants though this difference was not significant. Migrants spent more on non-food items reflecting greater financial flexibility likely due to remittances. Migrants also spent more on education showing a stronger investment in children's futures. Medical expenses were similar for both groups, but migrants had higher other expenditures. Overall, total expenditure was significantly higher for migrant households, indicating that migration positively influences financial resources.

4. The final objective of the study is to examine the impact of migration on the socio-economic status of marine fisherfolk. An ordered probit model was used to analyse the relationship between migration status, income, type of house, education , occupation and socio-economic status, categorized into low, middle and high levels. Additionally, the Sustainable Livelihood Index (SLI) measured the overall well-being and livelihood sustainability of migrant and non-migrant households. The major findings of this objective are as follows:

- The Sustainable Livelihood Index (SLI) highlights significant differences between migrant and non-migrant households. Migration plays a critical role in enhancing household resilience. SLI shows that 50% of migrant households fall into the medium sustainability category and 90.14% of non-migrants remain in the low category. A notable observation is presence of 7.56% of migrant households in the high sustainability category, which is absent among non-migrant marine fisherfolk. It shows the greater

vulnerability of non-migrant households in securing resources and improving their livelihoods.

- Livelihood capital differs significantly, with migrants showing higher human capital and financial capital reflecting better skills, income and savings. Migrants also have greater physical capital and natural capital showing improved resource access. Social capital is slightly lower for migrants and migration enhances livelihood capital.

- The ordered probit model shows that migration significantly improves socio-economic status, with higher education, income and better housing contributing positively, while fishing occupations and poorer housing are associated with lower outcomes.

- There is a strong link between the SLI and socioeconomic status (SES) among marine fisherfolk households. Most households with low SLI also have low SES, while higher SLI groups show a stronger association with medium or high SES. Migrant households generally achieve higher SLI and SES, highlighting migration as a critical factor in improving livelihoods, income and access to resources. These findings emphasise the role of migration in enhancing the socio-economic development of marine fisherfolk.

- The intra–analysis reveals that during post-migration, marine fisherfolk households experienced significant improvements, including a shift from poor-quality housing to luxurious homes, increased land holdings and a rise in savings. Debt levels dropped markedly and ownership of durable assets surged. It reflects enhanced financial stability and quality of life due to remittances.

- Remittances significantly boost the income of migrant fisherfolk households, with a positive correlation, indicating that higher income leads to greater remittances. These remittances enhance the economic well-being and income

capacity of households at home. Supporting access to high-paying jobs abroad can further increase remittances and drive economic development.

- The connection between the Sustainable Livelihood Index (SLI) and the Socio-Economic Status (SES) of migrant households is significant. Higher SLI correlates with better SES, with most households in the high SLI category achieving high SES. The chi-square test shows that migration improves living conditions and economic stability. These results highlight the importance of supporting migration and local development efforts to uplift non-migrant households.

8.3 Recommendations and Suggestions

Migration has positively impacted the socio-economic status of the marine fisherfolk community. There are some significant issues like concerns over female participation in the labour force and the low socio-economic status of the marine fisherfolk community, especially non-migrant households need to be addressed to achieve more balanced and sustainable development**.**

1. Livelihood Diversification: To enhance the economic well-being of non-migrant fisherfolk, it is essential to give upskilling programs that focus on alternative livelihood opportunities. These programs may offer skills in areas such as aquaculture, handicrafts, textiles and other handmade goods. Training in small business management may empower them to start and run local enterprises, providing a steady income beyond traditional fishing. By diversifying their sources of income, fisherfolk will be less vulnerable to the uncertainties of fishing. These new skills can open doors to greater economic opportunities and improve the overall quality of life for these communities.

2. Improving Educational Access: Education plays a vital role in enhancing employment opportunities and socio-economic development in marine fisherfolk. Many individuals, especially women, face limited access to higher education, which restricts their chances of securing better employment. While a majority of individuals from the community can access education up to the higher secondary

school (HSS) level. The lack of affordable higher education is a significant barrier for the fisherfolk community. Restructuring the education system to combine traditional degree programs with vocational training, especially in marine sciences and technical skills, will help align the education system with the migration patterns of the community. Short-term courses targeting employment abroad, such as carpentry, electrical wiring and welding, should be introduced to provide immediate, skill-based job opportunities for community members.

3. Enhancing Female Labour Participation: Cultural norms and limited access to education have historically hindered women's participation in the workforce of the marine fisherfolk community. In the study area, women migration rates are significantly very low, largely due to a lack of education and vocational training opportunities. Government initiatives such as the Theeramythri Project, Kudumbasree Mission and the National Rural Livelihood Mission (NRLM) have made progress in empowering women by promoting microenterprise development and skill-building. However, participation in these programs remains low, may due to limited awareness within the community & cultural barriers. Policies need to prioritise expanding educational access for women, providing vocational training in high-demand fields and enhancing awareness of available programs. Awareness campaigns and community outreach can help shift societal attitudes and encourage broader female participation in various economic activities.

4. Enhancing Resilience in Fishery Communities: Fishery-dependent communities are highly vulnerable to the impacts of climate change, as events like floods, cyclones and rising sea levels disrupt their livelihoods. These communities, which heavily rely on coastal resources for their income, face increased financial instability due to changes in fish populations, damaged infrastructure and shifting environmental conditions. To enhance their resilience, policies need to promote income diversification through aquaculture, eco-tourism and other alternative livelihoods. Investments in climate-resilient fishing gear, better early warning systems and sustainable fishing practices are crucial. Strengthening local cooperatives and integrating traditional knowledge into modern practices can further

improve adaptive capacity, ensuring the long-term sustainability of fishery-based livelihoods in the face of climate change. Collaborative efforts between government bodies, NGOs and local communities are essential to ensure effective planning and execution.

8.4 Scope for Future Research

Based on the current research, there is much to explore regarding the Migration of fisherfolk communities across various aspects. Here are some potential areas for further investigation.

1. Expanding the study into additional districts in Kerala to compare how migration affects the socio-economic conditions of marine fisherfolk in different regions. This would allow for a broader understanding of how migration influences income, living standards and community dynamics across various coastal areas.

2. The parallel association between migration and women's empowerment can be incorporated into the scope of the current research. This could focus on how migration contributes to or hinders economic opportunities, social status and women's participation in the decision-making process.

3. Future research could examine how climate change, including rising sea levels and the increased frequency of extreme weather events, affects the livelihoods of marine fisherfolk and influences migration patterns. This study could also assess how different districts cope with climate-related challenges and evaluate the impact of these factors on migration trends and community resilience.

8.5 Conclusion

This study explores the socio-economic impact of gulf migration on the marine fisherfolk community in Malappuram district, Kerala, revealing an extremely emotional journey of struggle, resilience and persistent hope for a better future. Migration has become an essential survival strategy for these fisherfolk, driven by

the hardships they endure in their daily lives. This is particularly evident when comparing the socio-economic profiles of migrant and non-migrant households. Migrant households generally enjoy significantly improved living conditions compared to non-migrant households. These improvements are observed in various aspects, including better housing quality, enhanced educational opportunities and overall higher living standards. Migrant families often reside in stronger, well-maintained homes, which provide them with greater security and stability. Many migrant households have achieved higher educational qualifications, with numerous individuals completing higher secondary education or beyond. The financial support from remittances plays a pivotal role in enabling families to invest in the education and future aspirations of their children. In contrast, non-migrant households continue to face persistent vulnerabilities, with limited access to improved living conditions and fewer opportunities for upward mobility,

The marine fisherfolk community has traditionally depended on fishing for their livelihood, but over the years, this way of life has become increasingly unsustainable. Faced with challenges like high unemployment, low income from fishing, heavy debt and environmental degradation, many fisherfolk found their traditional lifestyle no longer viable. With limited resources and an uncertain future, they were forced to look beyond their coastal villages in search of better opportunities. Migration, particularly to gulf countries, emerged as a vital coping method to overcome their vulnerability. The hardships they endured pushed them to seek a better life, one where they could escape from lack of income, unemployment and indebtedness and provide a more stable future for their families. Their dreams of improved living conditions, financial security and a chance at a better life motivated them to leave their homes and embark on the journey to the gulf countries. These countries offered the promise of higher wages, better working conditions and the opportunity to send money back home. This became an inspiration of hope, offering a way to improve their lives. Migration was not just about finding work but it was about securing a better future, with the ability to provide their families with the education, stability and opportunities they had always hoped for.

For the marine fisherfolk, migration to gulf countries often begins as a way to escape the burden of financial struggles. With falling incomes from fishing, rising debts for daily expenses and the pressures of climate change, many feel there are few options left. Leaving behind their families and coastal life is not easy, but the promise of earning higher wages and supporting their loved ones makes the sacrifice seem worthwhile. Most migrants plan to stay abroad for only a few years to repay debts and secure the future of their families. Financial pressures often force them to stay longer. The money sent back home helps families repair homes, send children to better schools and cover medical expenses. These improvements motivate migrants to extend their stay, driven by the desire to achieve more for their families. The responsibility of providing for larger families also encourages them to remain abroad. While migration offers economic opportunities that improve financial stability, it also brings emotional and social costs. The extended absence strains familial and community relationships as migrants miss important moments in their family lives. The focus on economic survival often overshadows personal well-being, leading to isolation and mental stress. Additionally, families become dependent on remittances, leaving them vulnerable to economic instability if the migrant's situation changes.

Migration can significantly increase income through remittances, offering economic opportunities for migrants and their families. However, while remittances improve living standards by supporting education, healthcare and housing, they can also exacerbate income inequality. Wealthier households are often better positioned to afford migration costs, which means they are more likely to benefit from higher wages abroad, leaving poorer households with fewer opportunities (Barham & Boucher, 1998). Thus, while migration may boost the financial status of some, it may also deepen existing disparities, depending on the socio-economic structure of the community (Stark et al., 1988; Taylor, 1992). The findings show that while migration to gulf countries brings higher incomes for some marine fisherfolk families, it also increases income inequality within the community. Migrant households benefit from remittances, which improve their financial situation, leading to a larger gap between migrant and non-migrant households.

The Lorenz curve and Gini coefficient highlight the differences in income, with migrant families facing greater inequality. Non-migrant households, who rely on fishing, have more stable but lower incomes, limiting their financial growth. The ANOVA analysis shows that education and occupation play a big role in income differences among migrants. Those with higher education and better jobs earn more money, but other factors like work experience and the type of job also matter. Furthermore, irregular remittance payments contribute to financial instability, further increasing income inequality.

Migrant fisherfolk households demonstrate higher and more varied expenditures, particularly in essential areas such as non-food, education and others. These expenditures contribute to improved living conditions and greater financial stability. Non-migrant fisherfolk households, relying on traditional fishing for their livelihood, face consistently lower incomes that restrict their ability to invest in long-term improvements or uplift their living standards. The expenditure patterns of fisherfolk are influenced by various factors such as age, income levels, family size and migration status. These determinants play a crucial role in shaping the financial behaviour of the community, highlighting the significant benefits that migration can bring while also emphasising the economic challenges faced by non-migrant households.

Despite the challenges, migration has a strong positive impact on the socio-economic status of marine fisherfolk. Migrant households show significantly higher Sustainable Livelihood Index (SLI) scores, showing better living conditions and greater financial stability compared to non-migrant households. Migration improves various aspects of livelihood, including financial stability, education and health, leading to higher SLI scores for migrant households. Non-migrant households face financial limitations, resulting in lower SLI scores and ongoing socio-economic challenges. Migrants tend to have weaker social networks in their local communities compared to non-migrants, suggesting that economic ties often come at the expense of social connections (Haan & Zoomers, 2005). The ordered probit model shows that migration significantly influences socio-economic status, with migrant households

achieving higher categories. Education, income, occupation and housing conditions all play crucial roles in shaping socio-economic outcomes, with better living conditions positively impacting higher socio-economic status. The intra-analysis of the socio-economic impact of migration on marine fisherfolk reveals significant transformations in their living conditions and financial stability. Many families have moved from inadequate shelters to well-constructed homes, reflecting greater wealth. Increased land ownership among migrants has provided more economic security and investment opportunities. Migrant households have seen a rise in savings and debt reduction, indicating better financial management. The ownership of durable assets has also contributed to their enhanced well-being.

Migration has improved the socio-economic status of marine fisherfolk, but it has not eradicated the deep-rooted marginalisation they face. Despite higher living standards, better financial security and access to resources through remittances, these communities continue to experience significant challenges. The increased income from migration has allowed some families to move into better housing and invest in education and healthcare. The fisherfolk remain marginalised due to their reliance on a precarious livelihood that is deeply vulnerable to environmental, economic and social changes. Fisherfolk communities still face limited access to land ownership, limited occupational diversity and a persistent lack of social mobility. Even though many migrant households have achieved higher socio-economic status compared to non-migrants, they are still at the mercy of fluctuating global markets and unstable migration opportunities. The emotional and social toll of migration, including long-term separation from family members, further compounds their marginalised status. Non-migrant households, continue to struggle with limited economic opportunities and dependency on traditional fishing.

Fisherfolk face a multitude of challenges that have significantly impacted their livelihoods. The cost of fishing has become increasingly high, making it difficult for households to sustain themselves. With the reduction in government subsidies, essential resources like kerosene and petroleum have become even more expensive, further straining their financial situation. Overfishing and a decline in

fish catches have worsened the situation, leading to lower wages and limited opportunities. Additionally, the impact of climate change brings unpredictable weather patterns and environmental challenges, adding to the hardships faced by these communities. Together, these issues have created a cycle of economic hardship, leaving fisherfolk struggling to secure a stable and sustainable livelihood. This situation stresses the urgent need for the implementation of sustainable fishing practices and stringent regulations to combat juvenile fishing, particularly by large boats. These measures are important to ensuring the long-term viability of fishing as a livelihood and to addressing the adverse effects of overfishing on fish stocks.

The National Fisheries Policy promotes sustainable fisheries management and enhances the livelihoods of fishing communities. The Pradhan Mantri Matsya Sampada Yojana (PMMSY) provides financial assistance and incentives for infrastructure development in the fisheries sector. Training programs under the Fisheries and Aquaculture Infrastructure Development Fund (FAIDF) empower fisherfolk to adopt sustainable fishing techniques and improve their operational efficiency. Initiatives like Self-Help Groups (SHGs) and the Theeramaythri program specifically target women empowerment. By fostering women's participation in economic activities, these programs aim to improve the socio-economic conditions and enhance the decision-making power of women. Women's participation helps to diversify income sources and strengthen community resilience, ultimately leading to more sustainable livelihoods. To maximise the impact of these initiatives, the government must ensure their effective execution and accessibility for the intended beneficiaries. By monitoring and assessing the impact of these policies, stakeholders can identify opportunities for enhancement and ensure that the benefits reach those who need them most.

Enhancing education and skills development may effectively address income inequality among the marine fisherfolk. Expanding access to formal education, vocational training in sustainable fishing and complementary skills like fish processing can diversify income sources. Promoting financial inclusion through microfinance and savings programs may boost financial stability. Prioritising

education and financial empowerment can reduce reliance on traditional fishing, improve earnings and foster economic resilience. Effective policies can lead to a more equitable distribution of resources, benefiting both migrant and non-migrant fisherfolk communities. This study highlights the need for targeted policies to improve the socio-economic conditions of both migrant and non-migrant marine fisherfolk households. Enhancing social security, improving infrastructure and promoting sustainable fishing practices are essential for long-term stability. Strengthening community networks through Self-Help Groups (SHGs) and cooperatives can foster collective economic activities. These strategies aim to improve financial security, diversify livelihoods and promote sustainable development in coastal areas.

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APPENDIX

SOCIO-ECONOMIC ANALYSIS OF GULF MIGRATION ON MARINE FISHERFOLK IN MALAPPURAM DISTRICT, KERALA

BLOCK 1: BASIC INFORMATION

1	District		Code	
2	Taluk		Code	
3	Name of City/Town/ Panchayat			
4	Ward Name			
5	House Number			
6	Address			
7	Name of Informant		Age	
8	Phone Number			

Details about visits to the household	1
Date (s) of Interview	/ /
Time Taken	…...hr .....min
Name of Investigator	Nusaiba.KP Research Scholar EMEA College of Arts and Science ,Kondotty
Name of the Supervisor	Dr.Shibinu .S Research Supervisor PSMO College ,Tirurangadi

BLOCK 2: HOUSEHOLD DETAILS

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
PID No.	Name of the household members *(write in Capital letter) (Head of the HH first*)	Relation to HH (code)	Gender (M-1, F-2, Others -3)	Age	Marital Status (code)	Education (code)	If student, type of Institution	Economic Activity (code)	Occupation	On average, how many days does [name] work per week?	Monthly salary (Rs)	Married women whose husband residing outside India (Y-1, N– 2)
1												
2												
3												
4												
5												
6												
7												

Codes: Column -2	Column – 6	Column - 5
1- Head of the HH	1-Literate Without School Education	1- Never married
2- Husband/Wife	2-SSLC & Below	2- Married

3- Unmarried children 4- Married children 5- Son-in-law/ Daughter-in-law 6- Grandchild 7- Father/Mother/ Father/Mother-in-law 8 - Brother/ Sister 9– Servant 10 - Cousin 11-other relative 12-non-relative 13 – Others	3-Plus Two 4-Degree 5-PG 6-Others like Technical education and Professional Certificate courses	3- Widow/Widower 4- Divorced 5 - Separated Column – 8 0- No occupation/Pension 1– Fishing 2-Allied activity 3-Driver 4-Shop keeper 5– Others: Fitness Trainer, Accountant, Engineer, Construction Worker and House keeping

BLOCK 3: HOUSEHOLD DETAILS

1.	Do the HH have a ration card? (1. Yes, 2. No)	
2.	If yes, what is the color? 1. Yellow 2. Pink 3. Blue 4. White	
3.	What type of fuel is used for cooking? 1 – Wood 2 – Electricity 3 - Kerosene 4 - L.P. Gas 5 - Others (specify)	
4.	Type of house which the household is now occupying 1 – Luxurious (3 or more bedrooms with attached bathrooms, concrete/tile roof, tiledfloor) 2 - Very Good (2 bed rooms with attached bathrooms, concrete/tile roof, Mosaic floor) 3 - Good (1 bed room, brick and cement walls, concrete or tile roof) 4 - Poor (Brick walls, cement floor, tin or asbestos roof) 5 - Kutcha (Mud walls, Mud floor &Thatched roof)	
5.1	Type of House ownership? (1 – Own, 2 – Rented, 3 – Leased, 4 – Others, specify)	
5.2	Does the HH own the house elsewhere (Yes - 1, No - 2)	
5.3	Do you have house loan? (Yes 1, No 2)	
5.4	If yes, then how much	
5.5	Have you taken loan for any other purpose? (Yes-1, No -2)	
5.6	If yes (Vehicle Loan- 1, Property loan -2, Personal loan-3, Others-4, specify)	
5.4	What is the approximate cost of construction of this house? 1 - < 1 lakh, 2 – 1 lakh to5 lakhs, 3 – 5 lakhs to 20 lakhs, 4 – 20 lakhs to 50 lakhs, 5 – above 50 lakhs	
5.5	Did you get any type of financial support ftom the government for constructing house ? Yes-1 No-2	
5.6	If yes, from where and how much rupees	
6.1	Does any member of this household own land? (Yes – 1, No – 2)	
6.2	If yes, how much cent of land it is?	
7	Does the household own any of the following? (Yes - 1, No - 2)	
7.1	Motor car	
7.2	Taxi / Truck / Lorry	
7.3	Motor Cycle /Scooter	
7.4	Mobile Phone	
7.5	Television (If yes, enter code 10 for CRT (Old) TV or 11 for Flat Screen)	

7.6	Refrigerator	
7.7	Washing Machine	
7.8	Microwave Oven	
7.9	Computer / Laptops	
7.10	Net connection	
7.11	Air Conditioner (A/C)	
7.12	Inverter	
7.13	Livestock	

8	What is the source of drinking water?	Well/ borewell / / pipe line other

9	Consumption Expenditure	Last Month
9.1	Expenditure for Food Items	
9.2	Non-food Items	
9.3	Medical Expenses	
9.4	Education Expenses	
9.5	Total Expenditure in a month	
10	Total Income in a month	
11	Total Savings in a year	
12	Total Investment	
13	Total Debt, if any,	

13.1	Reason for debt	Children education -1/ house construction- 2 / purchasing land -3/ marriage purpose – 4/ meeting migration related expenses -5 / medical purposes -6 / other -7
13.2	From where did you get the money	Gold loan – 1 /document loan -2 / money from friends and relatives – 3/ selling assets -4 / other – 5, specify
14	How do you rank your current socio-economic status?	Low -1/Middle-2/ High-3

15	To your best knowledge, in the last six months, have you or anyone else in yourhousehold thought about getting a job in a foreign country? 1 – Yes, 2 – No	
16	If NO to Q14, then ask: Why is no one from your household interested in getting a job in a foreign country? Instructions to interviewers: do not read options but listen and record	

	choices. Multiplereasons are allowed – after recording all reasons, ask to rank in order of importance.		
	Items	Choice	Rank
16.1	Prefer to work in Kerala		
16.2	Prefer to work in other states in India		
16.3	Don't know anyone who is working outside India		
16.4	Don't know about job opportunities outside India		
16.5	Don't know how to apply for jobs outside India		
16.6	Emigration expenses are too expensive		
16.7	Prefer to be close to family in Kerala		
16.8	Working conditions outside India is worse than in Kerala		
16.9	Living conditions outside India is worse than in Kerala		
16.10	Others (specify):		

BLOCK 4. DETAILS ABOUT THE FISHERFOLK IN THE HOUSEHOLD

1. Is there any members continuing the fishing or allied activities as occupation in your family?
2. If allied, specify the activity?
3. If fishing is your primary/secondary occupation, state the age of entry into fishing?
4. If fishing as a primary occupation, then how many members of the family are engaging in to fishing?
5. Why do they select this job**?**
6. Do they have any subsidiary occupation?
7. If yes, specify it
8. If primary occupation is fishing the state the type of fishing?
9. What is the ownership status over the fishing craft?
10. What is the total cost of buying the boat?
11. How did you get the money for buying the boat?
12. Do you get any financial support from the government?
13. How many people should be in the boat when going to work?
14. Which type of net are you using for fishing: Ring seine/Purse seine/gill net/other

15. what are the technologies used for fishing purpose: Mobile phone/GPS/,Echo sounder
16. what is the income sharing pattern of fishing: Daily / Weakly / Monthly
17. how far are you going for fishing?
18. Do you like if your next generation take this job?
19. Answer is yes or no then state the reason
20. Do you ever wanted to quit this job?
21. Answer is yes or no then state the reason
22. Have you ever gone to other states or districts for fishing?
23. If yes, then where?
24. Any one of your family members met any type accident during fishing?
25. If yes,specify
26. Did any one of your family members have chronic health issues?
27. If yes , what is the disease ?
28. What isthe monthly medical expensein Rs.
29. Which hospital are you going for the treatment: Private / Government /Other , specify

BLOCK 5. TRENDS OF MIGRATION

1. Is any member of the household working outside

2. If Yes, provide details

5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	5.10	5.11	5.12	5.13
Sl. No of the migrant as given in column 5	**Sex (Code)**	**Marital status (Code)**	**Type of migration (EMI/OMI)**	**Educational qualification (Code)**	**Age at the time of first visit (Years)**	**Marital Status**	**Destination (Country/State)**	**Status of the migrant (Code)**	**Duration of stay outside Kera-la/India**	**Occupation before migration (Code)**	**Occupation while outside (Code)**	**Monthly Earnings (Rupees)**

Column – 5.5
1- Literate Without School Education
2- SSLC & Below
3- Plus Two
4- Degree
5- PG
6- Others: Technical education and Professional Certificate courses

Column – 5.7
1 - Never married
2 - Married
3 - Widow/Widower
4 - Divorced
5 - Separated

Column – 5.11& 5.12
1. No occupation/Pension
2. Fishing
3. Allied activity
4. Driver
5. Shop keeper
6. Others: Fitness Trainer, Accountant, Engineer, Construction Worker and House keeping

3. Has he migrated for the first time:?

4. If fishing as the occupation in destination country, which type of fishing is there: Owner / worker/Captain/(Driver) (Crew)

5. What is the average number of working days in a weak?

6. What is the income sharing pattern: Weakly/ Daily/ Monthly/ Depends upon the catch

BLOCK 6: IF RETURN MIGRANT: PROVIDE DETAILS

6.1	6.2	6.3	6.4	6.5	6.7	6.8	6.9	6.10	6.11	6.12
Sl. No as given in part 2; column 10	Sex (Code)	Educational qualification (Code)	Type of return migration (EMI/OMI)	Year of return	Place where the person worked/studied before re-turn (Country/State)	Total number of years the person was outside Kera-la/India	Reason for return (Code)	Occupation		
								Before Migration (Code from	Last occupation while outside	At present (Code from

Codes: Column – 6.9 (Reasons for return)

Earned sufficiently	-	1
Issues with the employer	-	2
Responsibilities are fulfilled	-	3
Health issues , s p e c i f y	-	4
Stayed too long abroad	-	5
Expiry of contract	-	6
Difficult working conditions	-	7
Employment terminated by employer	-	8
Compulsory repatriation by host Govt.	-	9
Govt. repatriated for illegal entry	-	10
Family problems	-	11
Others (Specify)	-	12

BLOCK 7. FACTORS INFLUENCING MIGRATION

1. From where did they get information regarding job opportunities abroad?
2. What is the most important factor that pushed migration: Unemployment/ Low wage/ Indebtedness/Others.
3. What is the most important factor for selecting the present destination: Presence of Friends and Relative/ Better Employment opportunity/Others.
4. Who helped them to migrate?

5. How much was the cost of emigration?
6. What was the important source of financing their emigration?
7. Has anyone from here gone to foreign countries for education.
8. If yes, then details and how much is the cost for that?
9. In the case of student migrants how are the course expenses met?

BLOCK 8. SOCIO-ECONOMIC IMPACT OF MIGRATION

1. Did anyone in your family receive money from persons residing abroad during the last 12 months?
2. If yes, the total amount of money received (Rs)
3. If yes, then Who sends money? (Write the total number if there is more than one migrant in the family)
4. Mode of remittances
5. Periodicity of money is receiving?
6. For what purpose was the remittance money used? (Priorities the items)

No.	Item	Priority
1	For day-to-day expenses	
2	Education of children	
3	Repay debts	
4	Purchase/build houses/apartments	
5	Repair/renewal of existing house	
6	Purchase/improve land	
8	Start new business	
9	Deposit in bank/stock market, equity, etc.	
10	Donation to temple/church/mosque or other reli- gious/charitable organizations	
11	Purchase of vehicles	
12	Medical/hospital expenses of the family members	
13	Purchase of gold	
14	Cash in hand	
15	Others (Specify)	

7. What changes have occurred in household amenities and socio-economic indicators due to migration?

Socio-Economic Indicators		**Before Migration**	**After Migration**
Type of House			
Economic Status			
Social and political participation			
Land	Inherited land		
	Purchased land		
	Total land		
Vehicles			
Financial asset, if any			
Deposit, if any			
Money invested in business			
Debt			
Household Amenities			
Fan			
Fridge			
Mixi			
Matresses			
Washing machine			
Table and chairs			
Gas connection			
Computer			
Laptop			
TV			
AC			
Other			