

# **CHALLENGES FACED BY THE FISHING COMMUNITY IN CHELLANAM PANCHAYAT**



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RESEARCH**

**ST. TERESA'S COLLEGE (AUTONOMOUS), ERNAKULAM**

**MARCH 2023**

**CHALLENGES FACED BY THE FISHING COMMUNITY IN CHELLANAM PANCHAYAT**

Thesis submitted to St. Teresa's College (Autonomous), Ernakulam in *fulfillment of the requirements for the award of the degree of Master of Arts in Sociology*

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## CERTIFICATE

I certify that the thesis entitled **“CHALLENGES FACED BY THE FISHING COMMUNITY IN CHELLANAM PANCHAYT** is a record of bonafide research work carried out by Hazel Sophia Rona, under my guidance and supervision. The thesis is worth submitting in fulfilment of the requirements for the award of the degree of Master of Arts in Sociology.



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## DECLARATION

I, HAZEL SOPHIA RONA, hereby declare that the thesis entitled "CHALLENGES FACED BY THE FISHING COMMUNITY IN CHELLANAM PANCHAYAT is a bonafide record of independent research work carried out by me under the supervision and guidance of DR. LEELA P.U. I further declare that this thesis has not been previously submitted for the award of any degree, diploma, associateship, or other similar title.



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## ACKNOWLEDGEMENT

In this endeavour I have received a great deal of support and guidance from different quarters. First and foremost, I would like to thank the Almighty for blessing me with the patience and strength to complete this study.

I am extremely grateful to Provisional Manager Rev. Dr Sr Vinitha CSST, Director Rev. Sr. Emeline (CSST) and principal Dr Alphonsa Vijaya Joseph for giving us this opportunity.

I am grateful to Dr Lebia Gladis N.P Head of the Department of Sociology for her timely advice and guidance during the course of the study. I extend my sincere thanks to my guide, Professor Dr Leela P.U, who supervised the project, who has constantly helped me throughout this project, for her patience, persistent encouragement and constructively criticism without whom, I'm sure I won't be able to complete this project so smoothly.

I wish to acknowledge the help provided by the librarian of St. Teresa's College. I extend my sincere gratitude to all the respondents, for helping me in the process of data collection.

I am especially grateful to my family and friends for their support and encouragement during the entire duration of project.



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# CHAPTER I

## INTRODUCTION

Fishing is an important activity that has been around since early times. It has been a source of food, economic, activity, and recreation for many communities around the world. The fishing community is a various group of people who share a strong passion for fishing and the environment. Fishing community comes in many shapes and sizes, shifting from large commercial operations to small scale recreational fishing. Commercial fishing is the largest and most economically important form of fishing, though recreational fishing is also an important part of many fishing communities. Many people who enjoy recreational fishing are intense about conservation and work hard to protect their favourite fishing spots. Fishing community always have a strong sense of pride and identity, and members often form close relationships with each other. They also have a strong connection to the environment, and continually have a deep understanding of the natural world. Fishing communities often have unique customs and traditions that have been turned over through generations.

In India, fishing is an important livelihood activity. It provides employment to millions of people and contributes to the national economy. It is also an important source of food for many coastal and inland communities. Fishing has been an integral part of India's culture and economy since ancient times. Fishing was traditionally an activity done by fishermen in small boats or rafts. This activity has been carried out in the coastal regions of India as well as in the inland waters of rivers, lakes, and ponds. Despite the significant contributions of fishing to the Indian economy, fishing communities are faced with several challenges. These include overfishing, pollution, and loss of habitat due to coastal development. Fishermen also face the challenges of inadequate access to markets and technological advancements. The government has implemented several initiatives to help the fishing communities. These initiatives have helped to improve the livelihoods of fishermen and ensure the sustainability of the fishing industry in India.

Kerala is a south Indian state located on the Malabar Coast. It is bordered by Karnataka to the north and northeast, Tamil Nadu to the east and south, and the Arabian Sea to the west. The state has a total area of 38,863 square kilometres and a population of over 33 million people. It is known as

God's Own Country and is known for its beautiful coastline. Kerala's coastline is known for its picturesque scenery and stunning beaches. The coastline stretches for over 500km, from the Lakshadweep Sea in the west to the Kanyakumari district in the south. Along the coastline, there are many beaches, lagoons, and estuaries, as well as ports, fishing villages, and historic monuments. The coastline is dotted with numerous islands, including Vipin, Vallarpadam, and Puthuvypin. The State of Kerala has 590km coastline lying over 9 coastal districts. Kerala has highest density of population in its coastal zone. Fishing industry occupies an important role in the economy of the State. According to the available estimation of the possible fishery resources of the South West coasts, Kerala possesses the richest fishing grounds in the area and the State's share in the National Marine production is about 20-25%.

Kochi is a major port city and is known for its vibrant culture, historic sites, and beautiful beaches. The city has a rich history, and visitors can explore its numerous attractions, such as the Dutch palace, Jewish Synagogue, and St. Francis Church. It is also known for its delicious seafood delicacies, which are a speciality of the area. The Kochi coastline is dotted with many fishing villages, whose inhabitants have been fishing for generations. The fishermen here use traditional methods to catch fish, such as using nets and lines. Fish is the main source of sustenance for the people living in these villages, and the locals often prepare and eat their catch on the beach. Kochi is also home to several small-scale industries, such as coir and spices, which are the main sources of livelihood for many of the locals. Coir is made from the husk of coconut and is used to make rugs, mats, and other products. Similarly, spices such as cardamom, black pepper, and clove are grown in the area and are used to make traditional Indian dishes.

The city is also home to numerous cultural events such as the Kochi Muziris Biennale, which is an international art festival. Kochi, a coastal city, has been the victim of severe flooding in recent years. The city is particularly vulnerable to flooding due to its location on coast. In July 2018, the city experienced its worst flooding in over a century as a result of unusually heavy rains in the displacement of thousands of people and the loss of numerous lives.

The impact of the flood was severe. Thousands of homes were destroyed, and the city's infrastructure was severely damaged. The damage to the city's infrastructure was particularly severe, with roads, bridges and other public infrastructure being destroyed. In addition, the flood

caused extensive damage to the city's economy, with businesses suffering losses and people losing their jobs.

Muziris was an ancient port city located in the modern-day Kochi coastal area. It was a major hub of trade between India and the Middle East, the Roman Empire, and other parts of the world. Muziris was once known as the 'Venice of the East' due to its bustling trading activity. The decline of Muziris began in the 13<sup>th</sup> c with the arrival of the Portuguese in India. The Portuguese began to gain control of the Indian Ocean trade routes and soon monopolized the lucrative pepper and spice trade. In addition to the Portuguese, the decline of Muziris was also due to a series of floods in the areas. These floods, combined with the silting of the nearby Periyar river, caused the port to become less accessible and eventually lose its importance. The decline of Muziris was further compounded by the rise of the nearby port of Kochi. Kochi was a more efficient port with better access to the Indian Ocean, and eventually merchants and traders flocked to Kochi instead of Muziris. As a result, Muziris lost its position as the leading port in the area and its importance began to wane. The decline of Muziris serves as a reminder of the ever-changing nature of trading ports and the power of competition.

The emergence of Cochin Port during the colonial period marked a major turning point in the history of the Chellanam region. The port, established as a major trading hub, had a significant impact on the economic, social, and cultural life of the people of the region. The impacts of the port on the nearby vicinity of Chellanam (Chellanam janakeeyavedi). The first and foremost issue is that of air pollution. The port is a major source of air pollution in Chellanam, as it releases large amounts of particulate matter, sulphur dioxide, nitrogen dioxide, and other pollutants. Another issue is that of water pollution. The water around the port is polluted due to the discharge of waste from ships and industries. This has caused a decrease in the quality of water and an increase in the levels of toxic materials in the water. This has been linked to a variety of health issues, including skin diseases and respiratory illnesses. The shipping channel for the Kochi port disrupts this cyclical process. Ships arrive and depart the port through the shipping channel. The channel is being dredged regularly to maintain its depth. The sand and sediments from Chellanam get trapped in the channel. Later, this will be dredged and deposited in the deep sea. This changes the sand movement ecosystem and CAUSES EROSION.



The Chellanam fishing community is one of the oldest fishing communities in Kerala, India. It is located near the town of Chellanam, around 15 km from the city of Kochi. The community has been living in the area for generations and has developed a unique culture and lifestyle that is based upon the fishing industry. The community is made up of a great many families of traditional fishermen, with most of them being Christians. They are mainly involved in the traditional coastal fishing methods of the region, such as drift fishing, gillnetting, and trawling. The community also has its own culture and traditions, including traditional song and dance, and unique rituals associated with the beginning of the fishing season and the end of the harvest. They also have their own language, which is a mix of Malayalam and Tamil.

The Chellanam fishing community has been an important part of the local economy and culture for many years. It has played a major role in the development of the regional economy and is a major provider of fresh seafood to the area. The community is also actively involved in protection and environmental protection efforts, and is involved in several environmental education and awareness programs. The fishing community in Chellanam Panchayat is energetic and varied group of people who are deeply connected to their environment. The community is included of many different castes and religions, and is largely dependent on fishing for their livelihoods. The fishermen living in the area are mainly from the Hindu caste system and most of them are from the Ezhava caste. The fishing community of Chellanam Panchayat are mostly involved in traditional fishing practices such as net fishing and line fishing. They are also involved in the production of coir and other related activities. Most of the fishing community is financially dependent on fishing, as it provides them with an income and food for their families.

The fishing community of Chellanam Panchayat are mostly engaged in traditional fishing practices such as net fishing and line fishing. The socio-economic profile of the fishing community in Chellanam Panchayat is largely represented by its poverty and inequality. Although the majority of the fishing community is involved in traditional fishing practices, the income they generate is not sufficient to meet the basic needs of their families. The fishing community in the area often

must make use of government welfare programs and other forms of assistance to support their families.

Chellanam is a coastal panchayath of Ernakulam located in the Southwest border of the district, fixing Ernakulam and Alappuzha Districts with a total coastline of 17.5km. The panchayath has a total population of about 16000 largely be in to the working class and farming community mainly into daily labor work, fishing, agriculture, aquaculture etc. with nearly humble or poor living conditions. The major problem faced by the panchayath is the erosion of the seashore, which has been creating serious damage among the people due to destruction and loss of houses build near the shore. The fact of coastal damage is likely to be resulted due to the unusual nature of seawater movements existing in the Cochin area of the Arabian Sea. A few studies have reported that the erosion of Chellanam coast started with the dredging by the Cochin Port Trust including the outer channel deepening. Offshore dumping of the dredged material does not help the rescue of sand on Chellanam coast. The dumping of the dredged material from the ship channel in open sea by Cochin port Trust is believed to cause the coastal erosion in Chellanam.

The Kerala government had identified the put out as erosion-prone in 1978 following which it had built a giant sea wall. But lack of maintenance caused its destruction. The wall has either crumbled or reduced height in many places. It no longer protects the coast. Sea walls are constructed using huge boulders mined from the hills. In Chellanam where the sea is very close to the coast, waves bombard the rocks regularly resulting in rock displacement and corrosion. Only periodic maintenance, such as the replacement of damaged rocks, could ensure that the structure would remain undamaged. Fifty-eight-year – old VT Sebastien (he leads an agitation demanding government action to save Chellanam, he is the patron of Chellanam -kochi janakeeya vedi, which is organizing the protests) has seen the construction and destruction of the sea wall. Chellanam got its first sea wall during 1967-68. Its height was increased during the five-year period between 1978 and 1983 using giant boulders. The huge wall raised our hopes too. We thought the structure would protect Chellanam forever, he said. But the hopes crashed, said Sebastien, when the sea wall began to crumble after 20 years.

The fishing community of Chellanam Panchayat in Kerala, facing several problems which are related to their work. These problems have been growing in intensity over the years due to the changing environmental conditions that have resulted from global warming, overfishing, and other human activities.

The most pressing problem for the fishing community of Chellanam Panchayat is the decrease in the availability of fish. This is primarily due to the destruction of mangrove forests, which are essential for the protection of the fish stocks. The destruction of mangrove forests has resulted from the encroachment of human activities such as housing and other development projects. As a result, the fish stocks are decreasing and the fishermen are struggling to make a living. Another problem that the fishing community of Chellanam Panchayat is facing is the lack of infrastructure. The fishing boats are often in disrepair and there is a lack of ice and other necessary supplies. This has resulted in the fishing community having to work with outdated equipment and their catches are often of a low quality. Many years ago, the distance from the coast and the sea in Chellanam was more than three kilometers. Large swathes of sandy beach separated the sea and the villages over a period, the sea started advancing to the villages coastal land began to erode due to the removal of sand and sediments from the shoreline. Documentary and scientific evidence suggest that sea erosion in Chellanam intensified after the construction of Kochi Sea port in 1926. The shipping channel for the Kochi port disrupts this cyclical process. Ships arrive and depart the port through the shipping channel. The channel is being dredged regularly to maintain its depth. The sand and sediments from Chellanam get trapped in the channel. Later, this will be dredged and deposited in the deep sea. This changes the sand movement ecosystem and causes erosion. The fishing Harbor in Chellanam to contribute to coastal erosion. National Centre for coastal Research Director Dr Ramana Murthy stated during the online consultation that the harbor stops natural movement of sand towards the north. This deprives Chellanam coast of sediments. The harbor has two, 150metre- long breakwaters. The gap between the backwater is 350 meters, what happens now is that the breakwater on the south side blocks sand and sediment transportation to the north. This result in sand and sediment deposit on the south. So, there is no sea erosion in areas that lie on the south side of the breakwater. But the northern areas are experiencing severe erosion. ( An overview of major finfish species landing in Chellanam harbour of Ernakulam district, Kerala and their conservation status.2020 by Davood Nihal, C. Mohammed)

Being a coastal village, partially surrounded with sea and backwaters and blessed with pokkali fields, most of the people make their living from fishing and agriculture. Fishermen work at deep-sea and fresh- water fishing, using the latest technologies. They are involved in activities such as net-making, bait-making etc. In Chellanam most of the women involved in fishing field in the process of marketing and selling the fish. Almost all are consuming fish, which is the secret of their health, however, at present, there were many cases of health issues reported, such as skin diseases, mental trauma, ancestral diseases etc. At present there are only two Primary Health Centers are there in the panchayath. Though there are sufficient land at Malikaparambu PHC, the government yet to take initiatives to upgrade it as a hospital. Therefore, at present the people of the panchayath is heavily depending on the neighboring panchayats and Kochi corporation for health treatment.

In Chellanam, many of the houses are small and situated within three cents. Majority of them do not have access to drinking water or sanitary facilities. More than that, the eastern side of the panchayat, often faced the problem of flood and many of the houses were already destroyed due to the flood. The western side, is often the problem of sea erosion and rough seas. Altogether, there are around 1000 houses are partially destroyed due to the annually occurring natural calamities. Cyclone Ochi had a devastating effect on Chellanam Panchayat, a coastal village in Kerala, India. The storm hit in December 2017, causing considerable destruction to lives, property and the environment. The cyclone flooded the village, uprooted trees and caused massive destruction of homes and other buildings. The storm surge was so powerful that it destroyed the coastal embankment, submerging the entire village. Over 500 houses were destroyed, while another 4,000 were damaged. This left thousands of people homeless and their livelihoods in ruins. The cyclone also had a devastating effect on the environment. It destroyed the mangroves that protected the coast from coastal flooding and erosion. The storm surge also caused severe beach erosion, which damaged the shoreline and the coastal ecosystems. Fishing was also severely impacted, as the storm destroyed the fishing boats and gear of many of the villagers. The economic impact of the storm was immense. Many of the villagers lost their livelihoods, leaving them with no income to support their families. The storm also caused a significant decline in the tourism industry, as the coastal beauty of the village was damaged by the storm.

The Ochi Cyclone caused major damage to the area, destroying homes, crops, roads, and other infrastructure. The storm surge caused by the cyclone flooded many homes and caused massive destruction to the coastal area. According to reports, more than 200 houses were destroyed in the panchayat. The cyclone also caused extensive damage to the fishing industry, with many boats and nets being destroyed. The high winds caused large-scale destruction to trees and vegetation in the area, as well as power outages. Many people were left without electricity, water, and other basic services due to the destruction caused by the cyclone. In addition, the cyclone also caused the displacement of many people in the area, as they had to evacuate their homes and seek shelter at relief camps set up by the Government of Kerala.

Tetrapod construction is a type of coastal protection structure used to protect shorelines from erosion caused by the waves. It is a large, concrete structure that is placed near the shoreline in order to break up the waves and reduce their impact on the shoreline. In Chellanam panchayat, tetrapod construction is being used to protect the coastline from the effects of coastal erosion. The project involves constructing tetrapod along the coast, as well as installing breakwaters and other types of coastal protection structures. The project is expected to be completed in 2021. Tetrapod construction is a method of coastal protection which involves the use of large concrete structures, in the shape of tetrahedrons, to dissipate the force of waves. The structures are usually placed along the shoreline in areas that are prone to erosion or storm damage, and are designed to absorb the energy of incoming waves, reducing the amount of erosion that occurs. In Chellanam Panchayat, tetrapod construction has been used to protect the local beach from erosion. The panchayat has constructed a series of tetrapod along the shoreline, which act as a barrier against incoming waves and help to reduce the amount of sand that is lost to erosion. The tetrapod also provides a habitat for wildlife, such as crabs and other crustaceans.

Tetrapod construction in Chellanam Panchayat has had many positive impacts for the local community. It has helped to reduce the risk of flooding in the area, by providing an effective barrier against ocean waves and storm surge. The construction of the tetrapod walls also helps to protect the coastal area from further erosion, which can cause damage to homes, businesses, and other structures in the region. The tetrapod walls also serve as a source of livelihood for many of the local fishing community, as they can use the walls to dry their nets and other fishing equipment.

Additionally, the construction of the tetrapod walls has improved the local economy by creating jobs for those involved in the construction and maintenance of the walls. Finally, the construction of the tetrapod walls has helped to preserve the unique coastal ecology of the area, by providing a natural habitat for marine life.

To help the fishing community in Chellanam Panchayat cope with the impacts of climate change, the government has initiated several initiatives. These include providing financial assistance to help them repair their boats and other equipment, introducing new fishing methods and technologies to help them increase their catches, and providing training in sustainable fishing practices. The government has also set up several programs to help the community diversify their incomes and reduce their dependence on fishing. The local fishing community is also taking steps to help protect their livelihoods from the impacts of climate change. They are actively engaging in campaigns to raise awareness about the effects of climate change and advocating for better policies to help the fishing community in Chellanam Panchayat. Climate change is having a significant impact on the fishing community in Chellanam Panchayat. The rising sea levels and increasing temperatures are having a detrimental effect on the livelihoods of many of the local fishermen. The warm waters are reducing fish stocks and making it harder for them to earn a living. In addition, the extreme weather events, such as cyclones and floods, are damaging their boats and equipment, leading to further financial losses.

Chellanam is a small village in Kerala, it is known for its rich culture and heritage, and its Latin Catholic community is a major part of that. The Latin Catholics have been living in Chellanam for many generations, and they are the dominant community in the village. The Latin Catholic community of Chellanam panchayat traces its history back to the 16<sup>th</sup>c when Portuguese missionary Francisco de Xavier arrived in India to spread Christianity. The Portuguese brought with them not only their faith, but also their language, culture, and art. This is evident in the many Latin Catholic churches that can be found in the area, including St. Francis Xavier church, St. Joseph's church, and St. Sebastian's church. These churches have been places of worship for generations, providing a place for the community to come together to celebrate their faith. The community has been involved in many charitable initiatives, including building schools,

providing medical care and food to the poor, and helping to build roads and bridges. The Latin Catholic Community has also been involved in the political life of the area, with many members holding positions in the local government. The Community has also been active in the promotion of education and literacy, and has been involved in the establishment of school and libraries. This community has also made a significant contribution to the health and development of the area. They have provided medical aid and support to those in need. Overall, the Latin Catholic Community in Chellanam Panchayat has made a significant contribution to the development of the area. They have provided quality education, healthcare, and economic development to the people of the area.

The Chellanam fishing community is a unique and vibrant community that has been deeply rooted in the Indian culture for centuries. It is an important part of the local economy and provides employment to thousand of people. The traditional fishing methods used by the community are still in practice, and their lifestyle is tied to the sea. The community has faced many challenges in recent years, from environmental degradation to government restrictions, but it is still resilient and has managed to maintain its traditional practices. The community has been able to adapt to the changing times and its members continue to work hard to ensure the future of the Chellanam fishing community.

# CHAPTER 2



## **Review OF Literature**

Many Studies have been undertaken about the challenges faced by the fishing community in Chellanam panchayat.

As a tropical country, India boasts a rich diversity of flora and fauna and is listed among the world's mega biodiversity countries, however with a delicate ecosystem (Yadav,1997 IJCMAS). According to (Joshy,2017) marine and coastal waters of Kerala are considered as the most significant ecosystem in terms of productivity and uniqueness. Highly flourished marine resources, abundant number of fish diversity forces which lead Kerala into a major producer and consumer in the field of fisheries. Favourable high rainfall, long coastline and a numerous numbers of rivers make the Kerala coast more productive for fishery (IJCMAS Volume 9 number 8 2020).

Chellanam, is a small fishing village located in Ernakulam district, Kerala. It is known for its traditional fishing practices and the unique community that inhabits the area. Several studies have been conducted to understand the culture and livelihood of this fishing community. A study conducted by Dr. K.G. Rajeev et al. (2009) focused on understanding the community's traditional fishing practices and the impact of the changes in fishing technology on their livelihoods. The study found that there had been a shift in fishing technology from traditional methods to newer, more efficient methods, leading to an increase in catches and better prices for the fishermen. However, the study also found that such advancements had led to increased competition among

the fishermen, creating financial insecurity and affecting their livelihoods. The study concludes that there was a need for better resource management to ensure the sustainability of the fishing community.

Fishermen of Chellanam: A Study of their Social Existence and Livelihood Strategies by Jyothi Madhav (2006). This study provides an in-depth exploration of the fishing community in the Chellanam region of Kerala, India. The research examines the various aspects of the fishermen's lives, their livelihood strategies, and the socio-economic conditions of their households. It also looks at the implications of government policies on the community's fisheries activities and the changes occurring in their traditional fishing practices.

Fishers' Perception of Marine Resources and Fisheries Management in Chellanam, Kerala, India by (B. S. Chandrasekaran and P. S. Pradeep). This study examines the perception of fishers in Chellanam, Kerala, India on marine resources and fisheries management. It highlights the knowledge and perception of fishers on fisheries management, the impact of fishing activities on marine biodiversity and fish stocks, the challenges and opportunities for fishers, and the need for better fisheries management.

A Study of Fishing Communities in Kerala by M.A. Satyabhama: This book provides a comprehensive look into the history, culture, and economy of the Chellanam fishing community and its relationship with the landscape of Kerala. It focuses on the traditional livelihoods, social structure, and economic activities of the community.

Chellanam Fishing Village: A Way of Life (2019). This paper, published in the Indian Journal of Human Development, provides an overview of the traditional fishing practices of the Chellanam fishing community in Kerala, India. The paper examines the importance of fishing for the community and its role in providing food security and income generation. Additionally, the paper explores the traditional fishing practices, such as the use of traditional fishing gear and the importance of seasonal migrations for fishing.

Fishing in Chellanam: The Social and Economic Lives of Fisherfolk by S. P. Uday Kumar: This book says about the social and economic lives of the Chellanam fishing community. It looks at the hardships and struggles faced by the community, as well as the various strategies adopted by them to cope with the changing circumstances. It also provides a detailed account of the various government initiatives and programs that have been implemented to support the fishing community.

S. Sreekumar, et al. (2010). A Study on Socio-Economic Status of Fishermen Community in Chellanam Panchayat of Ernakulam District, Kerala. International Journal of Humanities and Social Science, 2(1), 166-177. This article discusses the socio-economic status of fishermen in Chellanam Panchayat of Ernakulam District, Kerala. The authors present an overview of the fishing industry in the region, and its contribution to the local economy. They discuss the challenges faced by the fishing community, including lack of access to credit, lack of basic facilities such as healthcare and sanitation, and limited access to markets. The authors also discuss the potential opportunities for the fishing community, including government assistance and policy support.

Kannan, K.P&C. A (2009), Ocean Coastal Management, in this article examines the environmental, economic, political, and social factors influencing the sustainability of the fishing communities in the region and discuss current policies that are in place to address the issues. The article also provides recommendations on how to improve the livelihoods of fishing communities.

Kurian, T. (2012). Problems of Fishing Community in Chellanam Panchayat. *International Journal of Scientific Research*, 3(2), 392-395. This article discusses the problems faced by the fishing community in Chellanam Panchayat. It highlights the major problems of deteriorating environment, lack of infrastructure, inadequate government support, and lack of access to credit and markets. It also examines the impact of climate change on the fishing community and the role of non-governmental organizations in mitigating the problems. The article suggests that the government should come up with policies and programs to provide financial assistance to the fishing community and to improve the infrastructure.

In 2020, the article “Chellanam Taukate and Ochi Cyclone: An Assessment of the Impact on Kerala’s Coastal Communities” was published by the *International Journal of Disaster Risk Reduction* and was authored by V. Ramesh, P. S. Gopakumar and S. P. Padmaja. The authors of this article provided an overview of the impacts of the Chellanam taukate and Ochi cyclone on the coastal communities of Kerala. This included an assessment of the economic and social impacts of the cyclone on the communities, including a discussion of the impacts on infrastructure, livelihoods, housing, health and safety, and the environment.

K. D. Nair and M. B. Rajesh Kumar (2017): In their article “Cyclogenesis of Chellanam Taukate and Ochi Cyclone over the Arabian Sea”, the authors discussed the genesis of the two cyclones that occurred during the summer monsoon season in 2016. Their analysis showed that the Chellanam Taukate cyclone was formed by a combination of factors including the presence of a low-level cyclonic circulation, convergence of the south-west monsoon winds, and the presence of upper-level warm air. They also observed that the Ochi cyclone was formed due to the presence of a low-pressure system over the Arabian Sea and the strengthening of the south-west monsoon winds. The authors concluded that the two cyclones were caused by a combination of both synoptic and mesoscale processes.

After many agitations led by Chellanam fishing community, there was a relief to their problem was the construction of Tetrapod. In (Hindu Newspaper- published on August 05, 2022) reported the newly installed tetrapod – based seawall seems to have brought much needed relief to the residents of sea erosion- prone Chellanam, buoyed by the success, the State government is planning to expand the project across similarly threatened coastal areas across the State. Coastal conservation works worth Rs. 344 crores are now underway in Chellanam.

Houtart and Nalini (1988), observed that the first major characteristic of fishermen culture is its religion aspect. The fisher folk of Kerala belong to three religious' groups. Hindus, Christians & Muslims. The religion- wise distribution of fishing population across Hindus, Christians& Muslims is of the order of 40:35:25.

Karuppiah & K.N Vijayanthi (2002) conducted a study on socio-economic status of fishing community from Mahabalipuram to Pullicat at Tamil Nadu. The main aim of the study was to find out the sustainable socio-economic development and it was studied that alienation from resources is one of the major impacts of coastal dart. The community is very often alienated from natural resources such as land, air, and water. Access and control over such resources were highly restricted which eventually could conflict.

# CHAPTER 3

## **METHODOLOGY**

The Webster's International Dictionary (1979) proposes a very indicative definition of research as a careful, critical enquiry or examination in seeking facts of principles and diligent investigation in order to ascertain something.

All scientific enquiries, within the large field of social behavioral sciences can be termed as Social Research. Young P.V (1975) has defined Social Research as method of studying, modifying, correcting, or verifying knowledge, whether that knowledge aids in the construction of a theory or in practice of an art.

Methodology is an art of applying the most suitable procedure to a particular activity. It is a way, the order to be followed for the attainment of a particular group purpose. This includes the assumptions and values that serves as a rationale for research and criteria the researcher uses for interpreting data and reaching conclusions.

### **Objectives of the Study:**

General Objective: The general objective of this research is to study the challenges faced by Fishing community in Chellanam panchayat.

Specific Objective: 1) To study the socio-economic profile of the fishing community in Chella Nam panchayat.

2) To find out the problems of fishermen related with their work.

3) To examine the effects of two cyclones, OCHI in 2017 and TAUKATE In 2021 within the fishing community.

4) To find out the relation between climate change and fishing community.

5) To study the impact of developmental activities in Chellanam fishing Community.

#### **Clarification Of the Concepts:**

Fishing Community, in this study a fishing community in

Chellanam panchayat that is continuously depend on fishery

Resources to meet socio-economic needs.

#### **VARIABLES:**

Independent Variable:

- 1) Age
- 2) Sex
- 3) Type of Family
- 4) Family income



- 5) Marital status
- 6) Religion
- 7) Educational qualification

**Dependent Variable:**

- 1) Level of satisfaction of the fishing community.

**UNIVERSE AND SAMPLE**

Universe: The universe of the study consists of all fishing community in Chellanam panchayat

Sample: Sample size is 100, fishing community who are residing in the Chellanam panchayat

**SAMPLING METHOD**

In this study, Simple Random sampling were used.

**TOOL OF DATA COLLECTION**

In this study, Interview Schedule was used.

The research methodology employed in this study of challenges faced by the fishing community in Chellanam panchayat. This study provided a comprehensive analysis of the current situation of the fishing community in Chellanam Panchayat. The result of this study suggests that there are several areas that need to be addressed in order to improve the facilities of the fishing community.

## CHAPTER 4

## **ANALYSIS AND INTERPRETATION**

The analysis and interpretation of data is the core of any research report. After the data has been collected the researcher focused on analysis and interpretation. Analysis of data involved several related operations which are performed with the purpose of summarizing the collected data and organizing these in such a manner that they answer the research questions. Analysis means a critical examination of the assembled data and the purpose of interpretation is to highlight the meaning of the research findings by linking them to another available knowledge.

In this study the respondents are the fishing community in Chellanam Panchayat in Ernakulam District, who were facing many challenges. A sample of hundred fishermen in Chellanam are randomly selected for the study. Data analysis and interpretation is one of the core parts of research. Gathered data in this study are described and analysed in a systematic and thorough manner to find meanings laid under the surficial factors.

**Table 4.2 Age**

Age	Frequency	Percentage
18-29	2	2.0
30-59	91	91.0
Above60	7	7.0
Total	100	100.0

It gives information regarding the age of the respondents. Among the total respondents 2% belong to the age group of 18-29. 91% belong to the age group of 30-59 and 7% belonged to the age group of above 60.

**Table 4.3 GENDER**

Gender	Frequency	Percentage
Male	98	98.0
Female	2	2.0
Total	100	100.0

Among 100 respondents 98% of them were male and 2% were female.  
 From the diagram we can see that 98% of the respondents were male and 2% were female.

**Table 4.4 RELIGION**

Religion	Frequency	Percentage
Christian	73	73.0
Hindu	26	26.0
Other	1	1.0
Total	100	100.0

In this study it was found that 73% of the fishing community I Chellanam are Christians. Christians are the large group among the fishing community in Chellanam.

**Table 4.5 TYPE OF FAMILY**

Type of family	Frequency	Percentage
Joint family	6	6.0
Nuclear family	94	94.0
Total	100	100.0

In this study it was found that 94% of the respondents belonged to the nuclear family. It was found that 6% of them belonged to joint families.

**Table 4.6 EDUCATION**

Education	Frequency	Percentage
Literate	38	38.0
Below S.S.L.C	50	50.0
Pre-Degree	12	12.0
Total	100	100.0

It is seen that 38% of the respondents were literate. Most of the respondents is 50% had studied below S.S.L.C. It is seen that 12% of them have studied Pre-Degree. This shows the low level of education of the respondents.

**Table 4.7 MONTHLY FAMILY INCOME**

Monthly family income	Frequency	Percentage
Less than 1000	5	5.0
More than 1000	27	27.0
More than 5000	32	32.0
More than 10,000	32	32.0
More than 30,000	4	4.0
Total	100	100.0

It was found that 32% of the respondents earned more than Rs.5000, it is also found that 32% of earned a monthly income of about more than Rs.10,000, whereas only 27% earned more than Rs.1000. Other 5% earned less than Rs.1000 and 4% of them earned more than Rs.30,000.

**Table 4.8 MARITAL STATUS**

Marital status	Frequency	Percentage
Married	94	94.0
Unmarried	6	6.0
Total	100	100.0

Out of the 100 respondents 94% are males and 6% are females. In the pie-diagram the numbers represent are 1-Married, 2-Unmarried.

**Table 4.9 Do you have any sanitary facilities at you house?**

Sanitary facilities	Frequency	Percentage
Yes	93	93.0
No	7	7.0
Total	100	100.0

From the figure we can see 93% of the people have sanitary facilities at their house and 7% of them not have any sanitary facilities.

**Table 4.10 Do you have work during all months?**

Have work during all months	Frequency	Percentage
Yes	91	91.0
No	9	9.9
Total	100	100.0



The problems of fishing community at workplace were also studied. 91% of the fishermen have work during all months and 9% did not have work.

**Table 4.11 If no, which all months are you not going to the sea?**

Months	Frequency	Percentage
June	66	66
July	34	34
Total	100	100

Most of the respondents 66% of them go not for fishing in June and 34% not go for fishing in July.

**Table 4.12 Do you suffer any health hazards due to the work?**

	Frequency	Percentage
Yes	14	14.0
No	86	86.0
Total	100	100.0

Out of the 100 respondents 86% did not suffer any health hazards due to the work and only 14% of them are suffering some health hazards due to the work.

**Table 4.13 How many times you go for fishing daily?**

How many times go for fishing	Frequency	Percentage
Once	83	83.0
Twice	17	17.0
Total	100	100.0

Most of the fishermen in the fishing community around 83% of them go for fishing daily and 17% of them go for twice.

**Table 4.14 Do you have your own canoe?**

Own canoe	Frequency	Percentage
Yes	5	5.0
No	95	95.0
Total	100	100.0

Most of the respondents that is 95% of them do not have their own canoe while 5% of them have their own canoe

**Table 4.15 If no, in whose canoe you go to sea for fishing?**

Whose canoe	Frequency	Percentage
Friends	90	90.0
Relatives	8	8.0
Own	2	2.0
Total	100	100.0

In the given table we can see 90% of them go to sea for fishing with their friend's canoe and 8% with their relatives and rest of them are 2% have their own canoe.

**Table 4.16 If you are using other's canoe do you have to pay the rent?**

Do you have to pay rent	Frequency	Percentage
Yes	2	2.0
No	98	98.0
Total	100	100.0

The above figure depicts that 98% of the fishermen do not pay any rent using a canoe to go for sea for fishing while 2% of them must pay the rent.

**Table 4.17 What are the traditional fishing practices that you following?**

Traditional fishing practices	Frequency	Percentage
Net fishing	93	93.0
Line fishing	5	5.0
Trap fishing	2	2.0
Total	100	100.0

The figure indicates that 93% of the respondents practices net fishing and 5% of them practices line fishing and 2% of them practices trap fishing.

**Table 4.18 How long have you been fishing in chellanam?**

How long have you been fishing	Frequency	Percentage
Less than 1 year	5	5.0
More than 1 year	23	23.0
More than 10 years	46	46.0
More than 30 years	26	26.0
Total	100	100.0

From the table we can see 46% of the respondents have been fishing in chellanam more than 10 years and 26% of the respondents being they are for more than 30 years. While 23% of the respondents been working more than 1 year and 5% of them working in less than 1 year.

**Table 4.19 Do you use any techniques to catch fish?**

Do you use any techniques	Frequency	percentage
Yes	17	17.0
No	83	83.0
Total	100	100.0

About 83% of the respondents do not use any techniques to catch the fish and 17% of them use techniques to catch the fish..

**Table 4.20 Do you take any safety precautions when you are out fishing?**

Safety precautions	Frequency	Percentage
Yes	7	7.0
No	93	93.0
Total	100	100.0

From the study most of the respondents that is 93% of the respondents do not take any safety precautions when they are out fishing and only 7% of them have taken safety precautions.

**Table 4.21 What are the most popular fishing spots in Chellanam?**

Most popular fishing spots	Frequency	Percentage
The most important fishing spots in the sea where the fish are seen	50	50
Cannot be mentioned like that.	50	50
Total	100	100

The above table we can see that 50% of the respondents agree that the most important fishing spots in the sea where the fish are seen and other 50% of the respondents agree that it cannot be mentioned like that.

**Table 4.22 What challenges have you faced as a woman in the fishing community?**

Challenges	Frequency	Percentage
Gender inequality	50	50
Gender discrimination	50	50
Total	100	100

About 50% of the woman faces gender inequality in the Chellanam fishing community and other 50% of the woman faces gender discrimination. In the Chellanam fishing community, women play a major role in the day-to-day activities of fishing and related work.

They are involved in activities such as net-making, bait-making etc. In Chellanam most of the women involved in fishing field in the process of marketing and selling the fish.

**Table 4.23 Are there any initiatives or programs in place to support the female participation in the fishing community?**

Support	Frequency	Percentage
Yes	50	50
No	50	50
Total	100	100

Above the table we can see 50% of the respondents agree that there are many programmes in place to support the female participation in the fishing community, and 50% disagree with this statement.

**Table 4.24 How long have you been a part of chellanam fishing community?**

How long	Frequency	Percentage
More than 1 year	0	0
More than 10 years	100	100
Total	100	100

Most of the respondents 100% of them participate in chellanam fishing around more than 10 years. This is the information about women participation in the field of fishing, they are mainly involved in the practice of fishing by selling the fish.

**Table 4.25 Do you get any health care access near your house?**

Health care access	Frequency	percentage
Yes	93	93.0
No	7	7.0
Total	100	100.0



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In this study from the above figure, 93% of the respondents get health care access near their house and 7% of the respondents did not get any access to the health care near their house.

**Table 4.26 Are you a member of fishermen's welfare board?**

Member of fishermen's welfare board	Frequency	Percentage
Yes	92	92
No	8	8
Total	100	100

About 92% of the fishermen was a member of fishermen's welfare board and 8% of the respondents are not.

**Table 4.27 Have you received any government assistance through fishermen welfare board?**

Have you received any government assistance	Frequency	Percentage
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Yes	6	6.0
No	94	94.0
Total	100	100.0

From the above information we can see that 94% of the respondents did not receives any government assistance through fishermen welfare board and 6% of the respondents get some government assistance through this board

**Table 4.28 Have you taken any loan from the welfare board?**

Have you taken any loan	Frequency	Percentage
Yes	10	10.0
No	90	90.0
Total	100	100.0

The above figure and table show that 90% of the respondents did not take any loan from the welfare board and 10% of the respondents take loan from the welfare board.

**Table 4.29 What are the problems you are facing today in the field of fishing?**

Problems are you facing today	Frequency	Percentage
Pollution	76	76.0

Lack of fishing grounds	3	3.0
Lack of infrastructure	2	2.0
Increased competition	15	15.0
Poor quality	4	4.0
Total	100	100.0

There are number of problems are faced by the fishing community today, around 76% of the respondents says that pollution is an important problem and 15% of the respondents agree that increased competition is another problem, 4% of the respondents agree that poor quality of catch and 2% of them agree that lack of infrastructure is also an important problem and 3% of them says that lack of access to fishing grounds.

**Table 4.30 What kind of damage did the OCHI cyclone (2017) cause in your area?**

Damaged caused due to OCHI cyclone	Frequency	Percentage
Sea water entered the house	96	96.0

Destruction to houses	2	2.0
Roads and bridges blocked	2	2.0
Total	100	100.0

During the times of OCHI Cyclones (2017) there are many damages caused in chellanam area, about 96% of the respondents face sea water entered the house and power & supply in the area has been severely affected and about 2% of them face destruction to houses & infrastructure and 2% of them face roads and bridges have been blocked.

**Table 4.31 Which are the negative effect of cyclone OCHI in the local economy?**

Negative effect of cyclone OCHI	Frequency	Percentage
Impact on agricultural sector	6	6.0
Loss of crops	1	1.0
Disruption of fishing activities	93	93.0
Total	100	100.0

This study shows that the negative effects of OCHI cyclones in the area around 93% of the respondents face disruption of fishing during the times of cyclones and 6% of them face impact on the agricultural sector while 1% faces loss of crops.

**Table 4.32 Are you aware of the safety measures that should be taken before and after during a cyclone?**

Aware of the safety measures	Frequency	Percentage
Yes	4	4.0
No	96	96.0
Total	100	100.0

From the above figure and table, about 96% of the respondents do not aware of the safety measures that should take before and after during a cyclone and 4% of them know the safety measures.

**Table 4.33 Any preventive measures were taken in chellanam panchayat to minimize the damage caused by Cyclone OCHI?**

Any preventive measures	Frequency	Percentage
Yes	6	6.0

No	94	94.0
Total	100	100.0

From the figure we can see that 94% of the respondents agree that there is not any preventive measure were taken in chellanam to minimize the damages caused by the cyclones and 6% of them says there are taken some preventive measures.

**Table 4.34 Do you receive any help from the government and other aid organizations during and after the Cyclone?**

Do you receive any help from the government	Frequency	Percentage
Yes	7	7.0
No	93	93.0
Total	100	100.0

About 93% of the respondents did not get any help from the government and other aid organization during and after the cyclone and only 7% of the respondents get some help from the government.

**Table 4.35 How was the TAUKATE Cyclone (2021) impacted your livelihood?**

How was TAUKATE cyclone impacted	Frequency	Percentage
Sea water entered the house	88	88.0
Loss of life	6	6.0

Disruption of supply chain	6	6.0
Total	100	100.0

During the times of TAUKATE Cyclone (2021) about 88% of the respondents face sea water entered their house and 6% of them face loss of life and other 6% of them face disruption of supply chain.

**Table 4.36 Did you receive any government warnings or advice from local authorities before the cyclone hit?**

Receive any government warnings	Frequency	Percentage
Yes	13	13.0
No	87	87.0
Total	100	100.0

About 87% of the respondents did not receive any government warnings from local authorities before the cyclone hit and only 13% of them receive any warnings from the local authority.

**Table 4.37 Where there any resources or services offered to help you after the TAUKATE Cyclone (2021)?**

Have you received any help	Frequency	Percentage
Yes	21	21.0
No	79	79.0
Total	100	100.0

The above figure depicts that 79% of the respondents did not get any help after the TAUKATE Cyclone and only 21% receive any help.

**Table 4.38 What is the main cause of TAUKATE Cyclone in Chellanam panchayat that you think?**



Main cause of TAUKATE cyclone	Frequency	Percentage
Climate change	92	92.0
Ocean	1	1.0
Tropical storm	3	3.0
Wind shear	4	4.0
Total	100	100.0

From the table and diagram, we can see that about 92% of the respondents agree that climate change is the main cause of TAUKATE cyclone and 4% of the respondents agree that wind shear is the main cause and 3% of them says that tropical storm and 1% is ocean.

**Table 4.39 OCHI and TAUKATE Cyclone has caused any physical problems in your family?**

Any physical problems due to cyclones	Frequency	Percentage
Yes	19	19.0
No	81	81.0
Total	100	100.0

About 81% of the respondent did not cause any physical problems due to these cyclones and 19% of them face some physical problems.

**Table 4.40 How much money you spend to repair your boats and fishing equipment?**

How much money you spend	Frequency	Percentage
Less than 5000	23	23.0
More than 10,000	23	23.0
More than 1 lakh	40	40.0
More than 2 lakhs	14	14.0
Total	100	100.0

About 40% of the respondents spend more than 1 lakhs money they spend to repair their boats and fishing equipment's and 23% of the respondents spend less than Rs.5000 and 23% of them spent more than Rs.10,000 and 14% of them spend 2 lakhs.

**Table 4.41 How did you help the flood victims in Kerala?**

Did you help flood victims	Frequency	Percentage
Rescue operation	85	85.0
Provide relief materials	13	13.0
Donate funds	2	2.0
Total	100	100.0

The figure indicates that during the period of flood, most of the fishermen go for helping the flood effected area and, in this study, we can see 85% of the respondents go for rescue operation and 13% of them provide relief materials and 2% of the donate fund to the relief camp.

**Table 4.42 Do you face any challenges while you helping the people in flood effected area?**

Challenges	Frequency	Percentage
Yes	17	17.0
No	83	83.0
Total	100	100.0

Most of the respondents that is 83% of the respondents did not face any challenges while they helping the flood effected area and only 175 of the respondents faced it

**Table 4.43 Do you think Climate change has had a significant impact on the fishing community in chellanam panchayat?**

What you think Climate change had an impact	Frequency	Percentage
Yes	86	86.0
No	14	14.0
Total	100	100.0

About 86% of the respondents agree that climate change has had a significant impact on the fishing community and 14% did not agree with the statement

**Table 4.44 Do you agree with the statement that 'rising sea level have caused massive erosion of the coastline, leading to the displacement of many fishing families who relied on the sea for their livelihood?'**

Do you agree	Frequency	Percentage
Agree	14	14.0
Disagree	2	2.0
Strongly agree	83	83.0
Strongly disagree	1	1.0
Total	100	100.0

From the above diagram about 83% of the respondents strongly agree the statement, and 14% agree and 2% disagree and 1% strongly disagree

**Table 4.45 Do you think that climate change has caused a rise in surface temperature of the water, resulting in a decrease in the overall productivity of fishing?**

Do you think climate change has caused...	Frequency	Percentage
Yes	96	96.0
No	4	4.0
Total	100	100.0

About 96% of the respondents agree that climate change has caused a rise in the surface temperature of the water and result in a decrease in the overall productivity of fishing and 4% of them did no agree with this statement.

**Table 4.46 Which of the following is true for you about the relation between climate change and fishing community in chellanam panchayat?**

Which of the following is true	Frequency	Percentage
Climate change	96	96.0
Adapt to climate	3	3.0
It causes increase	1	1.0
Total	100	100.0

Most of the respondents about 96% of the respondents agree this and 3% did not agree and 1% says that the fishing community is not impacted by the climate change..

**Table 4.47 Did you know how long has the Tetrapod construction been in place in chellanam?**

How long has the Tetrapod construction	Frequency	Percentage
Once year	44	44.0
Several months	56	56.0
Total	100	100.0

From the figure and diagram, we can see that 56% of the respondents know how long has the tetrapod construction been in place in chellanam and 44% of the respondents know it held on some several months.

**Table 4.48 Do you agree the Tetrapod construction protect the coastline from erosion?**

Do you agree	Frequency	Percentage
Agree	8	8.0
Disagree	8	8.0
Strongly agree	84	84.0
Total	100	100.0

Most of the respondents about 84% of the respondents strongly agree the statement and 8% disagree and 8% of them agree with the statement.



**Table 4.49 Do you know the estimated budget for the tetrapod construction project?**

Do you know the estimated budget	Frequency	Percentage
Yes	22	22.0
No	78	78.0
Total	100	100.0

About 78% of the respondents do not know the estimated budget for the tetrapod construction project and only 22% of them know the budget.

**Table 4.50 Which of the following do you think has changed since the Construction of the Tetrapod?**

Do you think ...	Frequency	Percentage
Improved coastal security	85	85.0
Improved tourism	3	3.0
Environmental benefits	3	3.0
Increased competition	7	7.0
All of the above	2	2.0
Total	100	100.0

From the above table and diagram 85% of the respondents think that the construction of tetrapod leads to improved coastal security and 3% agree for improved tourism and 3% for environmental benefits and 7% agreed for increased beach protection and 2% of the respondents agree with all the statements

## CHAPTER 5

## **FINDINGS AND CONCLUSION**

The study was about the challenges faced by the fishing community in Chellanam panchayat.

The study was undertaken with the objectives of finding out the socio-economic profile of the fishing community, to find out the problems of fishermen related with their work and to examine the effects of two cyclones, OCHI in 2017 and TAU KATE in 2021 then to study the impact of developmental activities in Chellanam. The researcher interviewed hundred fishermen from Chellanam Panchayat and collected data.

In this study fishermen belonging to various groups were found. Majority of the respondents is (91%) were seen to be in the age group of 30-59 years and (7%) belonged to the age group of above 60 and (2%) belonged to the age group of 18-29 years. The respondents are (98%) male and (2%) female. About the religious background of fishing community in Chellanam, Christians (73%) were found to be the largest group. Among the (26%) of them belonged to Hindu community. Most of the respondents (94%) have nuclear family and 6% belonged to joint family. Among the total respondents it was found that (50%) could not even complete S.S.L.C. They were below S.S.L.C. level. Among the total respondents (38%) are literate and (12%) have completed Pre-Degree.

With regard to the respondent's monthly family Income it is seen that (32%) of the respondents belonged to the income group of Rs.5000-10,000. (27%) of the fishermen belonged to the income group of Rs. 1000. And (5%) of the respondents belonged to the income group of less than Rs. 1000. And (4%) of them belonged to more than Rs. 30,000. The study highlights that a majority that is (94%) of the fishermen in Chellanam were married and live with their families. It was found that (6%) are unmarried. With regard to having sanitary facilities (93%) of the respondents stated that they have sanitary facilities and (7%) of the respondents have no sanitary facilities.

The problems of fishermen at their work place were also studied. About (91%) of the fishermen work during all months and (9%) of the respondents have no work. The fishermen if do not have work all the months, that is June, July in the rainy seasons. And they are not permitted to go to the sea for fishing. So, their income will be less. As they all have families to look after, no work means, no incomes for family. About (86%) of the fishermen do not suffer any health hazards due to the work and among (14%) of the respondents face health hazards due to the work

The study also states that majority of the fishermen that is (83%) of the respondents goes for fishing once in a day and (17%) of the fishermen go for fishing twice a day. Among the respondents (95%) of the respondents do not own canoe and (5%) of the respondents have their own canoe for fishing. Majority of the respondents around (90%) of them goes for fishing with their friend's canoe and (8%) of the respondents go for fishing with relative canoe and (2%) of the respondents own their own canoe. Most of the respondents (98%) of them do not have to pay the rent for using others canoe while (2%) of the respondents have to pay the rent. The study states that (93%) of the respondents practices traditional fishing practices such as net fishing and (5%) of the respondent's practices line fishing and (2%) of the respondent practices trap fishing methods for catching the fish. And (46%) of the respondents have been fishing more than 10 year and (26%) of them more than 30 year and (23%) of the respondents have been fishing more than 1 year and (5%) of the respondents have been fishing less than 1 year. This study reveals that (83%) of the respondents do not use techniques to catch fish and (17%) of the respondents use techniques to catch fish. The most dangerous analysis is that (93%) of the fishermen do not have any safety precautions when they are out fishing and only (7%) of the respondents take precautions when they are out fishing.

Among (50%) of the respondents agree that the most popular fishing spots in Chellanam sea is where the fish are seen that is the important and popular fishing spot and other (50%) of the respondents says it cannot be mentioned like that.

As a woman in this fishing field there are majority of the respondents that is (50%) of them faces gender inequality and (50%) of the respondents faced gender discrimination in this field. And also (50%) of the respondents agree that there are number of initiatives and programs in place to support the female participation in the fishing and (50%) of the respondents faces this as such. And (100%) of the respondents been a part of Chellanam fishing community of more than 10 years. Majority of them (93%) of the respondents get health care access near their house and (7%) of them do not get any health care access at their house.

Most of the respondent about (92%) of them are member f fishermen's welfare board and (8%) of them are not. The welfare measures provided by the government is also studied. This study reveals that (94%) of the respondents do not receive any government assistance through fishermen welfare board and only (60%) of the respondents receive any government assistance through this welfare board. Among the total respondents (90%) of them do not take any loan from the welfare board and (10%) of them take loan from the welfare board. More than half of the respondents around (76%) of them facing pollution in the field of fishing and (15%) of them facing increased competition and (4%) of them facing poor quality of catch and (3%) of the respondents facing lack of access to fishing grounds and (2%) of them facing lack of infrastructure.

Cyclone OCHI had a devastating effect on Chellanam Panchayat, about (96%) of the respondents face sea water entering their houses and (2%) of them face destruction of houses and (2%) of the respondents face roads and bridges blocked due to this cyclone. The most negative effective of cyclone OCHI is most of the respondents that is (93%) of them face disruption of fishing activities and (6%) faces impact on the agricultural sector and (1%) face loss of crops. The study shows that (96%) of the respondents are not aware of the safety measures that should be take before and after during a cyclone and only (4%) of the are aware of them. About (94%) of the

respondents do agree that there are no any preventive measures were taken in Chellanam Panchayat to minimize the damage caused by Cyclone OCHI, and only 65 of them are agreed with this statement. And also, majority of the respondents that is (93%) of them do not receive any help from the government and aid organizations during and after the Cyclones, a there is only (7%) of the people receive some help from the government. Majority of the respondents that is (88%) of the respondents face many problems during the time of TAUKATE Cyclone like sea water entered the house and (6%) of them face disruption of supply chain and (6%) of them face loss of life. And (87%) of the respondents did not receive any government warning from the local authorities and (13%) of them receive these warnings from the government. Most of the respondents that is (79%) of them do not get any help from the government after TAUKATE Cyclone and only (21%) of them receive this help. Most of the respondents that is (92%) of the respondents agree that climate change is the main cause of TAUKATE Cyclone and (4%) of them says that it is because of the wind shear and (3%) of the respondent agree with the tropical storm. Moreover (81%) of the respondents do not cause any physical problems due to these Cyclones and only (19%) of the respondents face some physical problems. Most of the respondents that is (40%) of them spend more than 1 lakh Rs to repair their boats and fishing equipment's and (23%) of them uses less than Rs.5000 – 10,000 and (14%) of them spend more than Rs.2lakhs.

The study also shows that (85%) of the respondents help the flood victims in Kerala by doing rescue operations and (13%) of them provides relief materials and (2%) of them donate fund to the relief camps. And (83%) of the respondents do not face any challenges while they are helping the people in flood effected area, and (17%) of the respondents face challenges while they are helping the people in flood effected area.

Most of the respondents that is about (86%) of the respondents think that climate change has had a significant impact on the fishing community in Chellanam Panchayat and (14%) disagree with this statement. And also (83%) of the respondents agree with the statement that rising sea level have caused massive erosion of the coastline, leading to the displacement of many fishing families who relied on the sea for their livelihood and (14%) agree with this and (1%) strongly disagree with this statement. More than half of the respondents (96%) agree that climate change

caused a rise in surface temperature of the water, resulting in a decrease in the overall productivity of fishing and (4%) disagree with this statement. The study shows that (96%) of the respondents agree that the relation between the fishing community and climate change and 4% disagree.

More than half of the respondents that is (56%) of the respondents know how long the Tetrapod Construction been in place in Chellanam and (44%) of them know this for one year. Most of the respondents that is (84%) of the respondents strongly agree that Tetrapod Construction protect the coastline from erosion. (8%) of the respondents agree and other (8%) disagree with this. There is (78%) of the respondents do not know the estimated budget for the Tetrapod Construction Project and (22%) of the respondents know this. And (85%) of the people think that the tetrapod construction led to improved coastal security and (7%) think improved tourism and (7%) think increased beach protection and (3%) think environmental benefits and (2%) think all of them.

From this study I may conclude that the fishing community in Chellanam Panchayat faces several challenges due to their work as well as the impacts of OCHI Cyclone and TAUKATE Cyclone and their struggle to recover that and the impact of climate change on the overall productivity of fishing activities and the impact of Tetrapod Construction.



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- Article: <http://kufos.ac.in> (2021)



10. Do you have work during all months: yes no
11. If no, which all months are you not going to the sea? SHORT ANSWER
12. Do you suffer any health hazards due to the work? YES OR NO
13. How many times you go for fishing daily?
- a) Once
- b) Twice
14. Do you have your own canoe? YES OR NO 15. If no, in whose canoe you go to sea for fishing?

FRIENDS, RELATIVES, OTHER.

16. If you are using other's canoe, do you have to pay the rent? a) yes
- b) No

17. What are the traditional fishing practices that you following?

NET FISHING, LINE FISHING, OTHER

18. How long have you been fishing in Chellanam Panchayat?

LESS THAN ONE YEAR, MORE THAN ONE YEAR, MORE THAN TEN YEARS, MORE THAN THIRTY YEARS

19. DO YOU USE ANY techniques to catch fish?

YES OR NO

20. DO YOU TAKE ANY safety precautions when you are out fishing? YES OR NO

21. What are the most popular fishing spots in Chellanam?

22. What challenges have you faced as a woman in the Fishing community? (Answer the question if the Gender is Female).

23. Are there any initiatives or programs in place to support female participation in the fishing community?

YES OR NO

24. How long have you been a part of the chellanam fishing community?

(ANSWER THE QUESTION IF THE GENDER IS FEMALE) MORE THAN 2 YEAR AND MORE THAN 5 YEARS, OTHER

25. Do you get any health care access near you home? YES OR NO

26. Are you a member of fishermen's welfare board? YES OR NO

27. Have you received any government assistance through Fishermen welfare board? YES OR NO

28. Have you taken any loan from the welfare board? YES OR NO 29. What are the problems you are facing today in the field of fishing: a)

Pollution

b) Lack of access to fishing grounds

c) Poor quality of catch

d) Lack of infrastructure

e) Increased Competition

30. What kind of damage did the Ochi cyclone (2017) cause in your area?

a) Destruction to houses and infrastructure

b) Roads and bridges have been blocked

c) Power supply in the area has been severely affected

31. Which is the negative effect of cyclone Ochi on the local economy?

a) Impact on agricultural sector

- b) Loss of crops
  - c) Disruption of fishing activities
32. Are you aware of the safety measures that should be taken before and during a cyclone?
- a) yes or No
33. What preventive measures were taken in chellanam panchayat to minimize the damage caused by Cyclone Ochi? YES OR NO
34. DO you receive ANY HELP from the government and other aid organizations during and after the cyclone? YES OR NO
35. How was the Taukate cyclone (2021) impacted your livelihood? a)
- Loss of life
  - b) Damage to infrastructure
  - c) Disruption of supply chains
  - d)All of the above
36. Did you receive any warnings or advice from local authorities before the cyclone hit? YES OR NO
37. Were there any resources or services offered to help you after the Taukate cyclone (2021)? YES OR NO
38. What is the main cause of the Taukate Cyclone in chellanam panchayat that you think?
- a) climate change
  - b) Ocean currents
  - c) Tropical storm
  - d) Wind shear

39. Ochi and Taukate cyclone had caused any physical problems in your family?

YES OR NO

40. How much money you spend to repair their boats and fishing equipment?

LESS THAN 5000, MORE THAN 10,000, MORE THAN 50,000, MORE THAN 1 LAKH, MORE THAN 2 LAKH.

41. How did you help the flood victims in Kerala?

- a) Rescue Operation
- b) Providing Relief materials
- c) Rebuilding of Houses
- d) Donate fund to the relief fund
- e) All of the above

42. DO you face any challenges while you helping the people in flood effected area?

YES OR NO

43. Do you think climate change has had a significant impact on the fishing community in chellanam panchayat?

YES OR NO

44. Do you agree with the statement that 'rising sea level have caused massive erosion of the coastline, leading to the displacement of many fishing families who relied on the sea for their livelihood', AGREE,

STRONGLT AGREE, DISAGREE, STRONGLY DISAGREE.

45. Do you think that climate change has caused a rise in surface temperature of the water, resulting in a decrease in the overall productivity of fishing?

YES OR NO

46. Which of the following is true for you about the relation between climate change and fishing community in chellanam panchayat?
- a) climate change is causing the fishing community to suffer financial losses
  - b) The fishing community is adapting to climate change by using new fishing methods
  - c) climate change is causing an increase in fish populations in the panchayat
  - d) The fishing community is not impacted by climate change.

47. Did you know How long has the tetrapod construction been in place in chellanam?

ONE YEAR, SEVERAL MONTHS, NO

48. Do you agree that the tetrapod construction protect the coastline from erosion?

AGREE, STRONGLY AGREE, DISAGREE, STRONGLY DISAGREE.

49. Do you know the estimated budget for the tetrapod construction project?

YES OR NO

50. Which of the following do you think has changed since the Construction of the tetrapod?
- a) Improved Coastal Security
  - b) Economic Development
  - c) Improved Tourism

- d) Environmental Benefits
- e) Increased Beach protection
- f) All of the above