

Value Chain and Vulnerabilities in Small-Scale Fisheries Communities of Makoko, Lagos, Nigeria

by

Happiness Nneoma Chukwuemeka

A thesis

presented to the University of Waterloo

in fulfillment of the

thesis requirement of the degree of

Master of Environmental Studies

in

Sustainability Management

Waterloo, Ontario, Canada, 2023

© Happiness Nneoma Chukwuemeka 2023

Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners. I understand that my thesis may be made electronically available to the public.

Abstract

This thesis aims to understand the value chain in the Makoko fishing community historically as well as the current perspective. The study examined how value chain contributes to vulnerabilities in a small-scale fishing community and consequently suggested factors that can address the gaps in the value chain to enable it to transition from vulnerability to viability.

The strategy of inquiry is a single community focussed study (case study). The value chain gaps, conduct, structure, and vulnerabilities within the small-scale fishing community were explored using a qualitative approach to gain a deeper understanding of the social phenomenon that would aid in proffering value chain enablers that can move the community towards viability.

Data from focused group discussions n=10, multi-stakeholder interviews at different nodes of the value chain (fishers (20), wholesalers (20), retailers (20), processors (20), households (20) totaling n=100 and interviews were completed by the Fisheries Management department representatives n=10 at the study location in Makoko, Lagos, Nigeria.

The results of the interviews and focused group discussions highlight a dysfunctional governance of the value chain which is propelling the value chain to contribute to vulnerabilities within the small-scale fishing community. Findings indicate a disconnect between the value chain actors and the value chain leadership, who are custodians of value chain management in the study location. Further findings show that there is inadequate government attention to fishery management in Makoko as enabling laws were not institutionalized and community leadership seemed non-existent in the fishery governance in the community.

Significant implications of dysfunctional governance of the value chain for the community include social injustice, economic inequality, environmental degradation, loss of traditional knowledge,

loss of food security and livelihoods, lack of investment and innovation, conflicts, and social tension, etc.

Studying value chains and vulnerabilities in small-scale fishing communities adds to the existing literature and provides further insights into the complex relationships between these communities and their natural resource. The comprehensive knowledge provides an informed, focused, and policy-tailored approach to addressing challenges and promoting sustainable well-being in these communities.

Keywords: value chain, vulnerability, small-scale fisheries, well-being, livelihoods, resilience.

Acknowledgments

I am eternally grateful to God for the grace and enablement he gave me to conduct and complete my thesis. These times were the most challenging for me as a graduate student with three children in a foreign land. My sincere gratitude goes to my thesis supervisor Dr. Prateep Nayak for his understanding during these times.

My gratitude also goes to Dr. Kafayat Fakoya for her advice and guidance during the initial phase of the project. The insights helped me find my feet. To Mr. Uthman, Lakan, and the research assistants who aided my data collection, I am extremely grateful. To Dr. Ama Bofo-Arthur, your contributions are well appreciated. To Dr. Kuye Olusegun, thanks for the insights and advice.

I would also want to appreciate the fisheries management representatives who helped give their candid perspectives in the interview guide. Your contributions are deeply appreciated. To the gatekeepers and traditional leaders in Makoko, thanks for allowing us access to your community to collect data for this academic research.

My sincere thanks go to my loving husband for his profound belief in me and my aspirations. To my children who joined me to study in Canada and made untold sacrifices, I love you more.

I would also like to thank my mum and siblings who supported me in their prayers throughout my graduate studies. Those encouragements were priceless.

To my dad who passed on in 2020, I wish you were here to hear of this milestone.

To my University of Waterloo V2V students and Syeda Tasnia Hasan you were all invaluable.

This research was made possible through funding from the V2V Global partnership which is supported by the Social Sciences and Humanities Research Council (SSHRC) of Canada.

Table of Contents

Author's Declaration	ii
Abstract.....	iii
Acknowledgments	v
List of Figures.....	ix
List Tables.....	ix
Chapter 1.0 Introduction	1
1.1 Background & Research Problem	1
1.2 Statement of Purpose	5
1.3 Research Questions	6
1.4 Significance of the Research Problem.....	6
1.5 Expected Contributions.....	6
1.6 Brief Description of the Proposed Study	7
1.7 Philosophical Worldview.....	7
Chapter 2.0 Literature Review	9
2.1 Introduction	9
2.2 What is the Value Chain.....	9
2.3 Value Chain in Fisheries	10
2.4 Benefits of Value Chain Analysis to Small-scale Fisheries.....	11
2.5 Value Chain Application to Small-scale Fisheries.....	12
2.6 The concept of Vulnerability.....	13
2.7 Vulnerability and Resilience in Small-scale Fisheries.....	15
2.8 Wellbeing of Small-Scale Fisheries.....	16
2.9 Governance in Small-Scale Fisheries.....	17
2.10 Deficiency in Literature	20
2.11 Conclusion.....	21
Chapter 3.0 Methodology.....	22
3.1 Introduction	22
3.2 Research Approach	22
3.3 Research Design	23
3.4 Sampling Procedure	24
3.5 Researcher's Role	25
3.6 Data Collection Procedure	25
3.6.1 Target Population and Sample Size	25
3.6.2 Data collection procedure	26

3.6.3 Focus Group Discussion	26
3.6.4 Interview	28
3.6.5 Literature Review	28
3.7 Data Analysis	29
3.7.1 Surveys	30
3.7.2 Survey Interview Analysis	30
3.7.3 Focused group Analysis	32
3.8 Data Interpretation and expected outcome	32
3.9 Validity and Reliability	33
3.10 Ethical Considerations	33
3.12 Limitations of the Study	34
3.13 Overview of the Study Location	35
Chapter 4.0 Presentation of Results and Discussion	39
4.1 Introduction	39
4.2 Socio-demographic Background of Respondents	39
4.3. Objective One: Understanding the Value Chain in Makoko Fishing Community	43
4.4 Objective Two: How Value Chain Contributes to Vulnerabilities	51
4.5 Meaning of Vulnerability within the Makoko fishing Community	54
4.6 How Value Chain Contributes to Vulnerabilities	59
4.7 Discussion	65
4.8 Conclusion	75
Chapter 5.0 Addressing the Gaps in the Value Chain	77
5.1 Introduction	77
5.2 Factors that can address the Gaps in the Value Chain.	77
5.3 What enablers would the value chain require?	79
5.4 Can these gaps be bridged with governance mechanisms?	81
5.5 Discussion	84
5.6 Conclusion	91
Chapter 6.0 Summary, Conclusion, and Recommendation	92
6.1 Introduction	92
6.2 Summary	92
6.3 Recommendations	94
6.4 Policy Implications	95
6.6 Directions for future research	96
References	98

Appendix A	107
Appendix B	109
Appendix C	111
Appendix D	113
Appendix E	115

List of Figures

Figure 1 Map of study location showing the fish market.

List of Tables

Table 1 What is your understanding of a fishery value chain?

Table 2 What constitutes a fishery value chain in this community?

Table 3 Historically, considering generations gone. What was the value chain process like?

Table 4 How has the value chain evolved over the years? Has the process changed in any way?

Table 5 What is the current perspective of the value chain today?

Table 6 What form of changes do you perceive will occur in the value chain in the future?

Table 7 What constitutes a fisher household?

Table 8 How have these households evolved over the years? Have fisher households changed in any way?

Table 9 Do you envisage any changes in the future of households' engagement in the value chain?

Table 10 What is the status of the implementation of the SSF voluntary guidelines for sustainable fisheries in Nigeria?

Table 11 What is the regulatory framework used for fisheries Management in Makoko?

Table 13 What policies guide quality control, fish handling, and post-harvest losses in Makoko?

Table 14 Any health, Safety and sanitary regulations enforcement in Makoko?

Table 15 What regulations are imposed on fish landing, and fish sale? Are there regulations for entry and exit within the value chain?

Table 16 How are fishing regulations enforced in the Makoko fishing community?

Table 17 Are there gaps within the value chain?

Table 18 What gaps do you think the value chain is experiencing?

Table 19 Can these gaps be bridged?

Table 20 What do you understand by Vulnerability in Makoko fishing community?

Table 21 What are the vulnerabilities in the Makoko fishing community?

Table 22 Are their value chain activities that impact the community negatively?

Table 23 How have these negative impacts evolved over the years? Were there actions to limit them? And by whom?

Table 24 What health, social, economic, and environmental challenges are prevalent in the community because of the value chain process?

Table 25 How has the value chain impacted youths in the community?

Table 26 Has the value chain process contributed to issues of concern in the Makoko Fishing community?

Table 27 What are the issues that have impacted households because of the value chain process?

Table 28 Is the small-scale fishing community involved with any organization to help address issues within their environment?

Table 29 What can you say about the profitability of fishing households from the value chain in the past and present day?

Table 30 How have households reacted positively to reduce value chain impacts on households?

Table 31 What factors do you consider can bridge the gaps in the value chain?

Table 32 What enablers will the value chain require?

Table 33 Has any action been taken by community leaders in the past and present to address the gaps in the value chain to enable it to contribute to viability?

Table 34 Has there been government intervention in the past or present to address gaps within the value chain and vulnerabilities within the community?

Table 35 Has there been collaborative action by actors within the value chain to address gaps within the value chain? If NO, why? If YES, what was done?

Table 36 Has your trade associations in the past and present tried to address gaps within the value chain? If YES, what was done? If NO, why?

Table 37 Do you consider it necessary for government and fisheries policies to address value chain gaps and vulnerabilities within your community

Chapter 1.0 Introduction

1.1 Background & Research Problem

Small-scale fisheries have been recognized as making profound contributions to food and nutrition security, employment, livelihoods, national economies, and societal well-being (Pomeroy & Andrew, 2011). Small-scale fisheries also give rural communities worldwide a sense of cultural identity, represented in oral history, songs, food, and other artistic forms (Islam & Chuenpagdee, 2022a). Millions of the rural poor derive their protein needs from fish (Akintola et al., 2022). “Fish provides 19% of protein intake in developing countries, a share that can exceed 25% in the poorest countries and reach 90% in isolated parts of coastal or inland areas and in small island developing states”(Béné et al., 2007, p. 2). Capture fisheries employ around 40 million people worldwide, with roughly 90% of them being small-scale fishermen (FAO, 2020). Despite these contributions, small-scale fisheries still find themselves in a precarious position as they are marginalized in comparison to large-scale fisheries and other businesses vying for marine space, resources, and government attention (Jacinto, 2004). Small-scale fisheries are at a global disadvantage as they are usually excluded from policy and decision making (Chuenpagdee & Jentoft, 2018).

The neglect of small-scale fishermen is visible in the physical environment of fishing communities as well as the fishery value chain (Di Cintio et al., 2022; Uddin et al., 2019).

Globally within the capture fisheries literature, small-scale fisheries have been labeled with two famous tags ‘fishermen are the poorest of the poor’ and ‘fishing is the activity of last resort’ which authors like Béné (2009) have argued that fishers are not necessarily poor in terms of money but may be the most vulnerable due to their dependence on a natural resource. “Vulnerability is the state of susceptibility to harm from exposure to stresses associated with environmental and social

change and from the absence of capacity to adapt" (Adger, 2006, p. 1). Issues aggravating vulnerabilities in small-scale fishing communities include high risk associated with the occupation, climate change, social economic and political marginalization, weak and ineffective organizations, antagonism from other marine users such as industrial fleets, issues associated with coastal and inland boundaries, and input prices (Béné et al., 2007). Previous studies have shown that fisher households vulnerability can persist irrespective of earning above the national average (Béné et al., 2007). Meaning that having income is not the only way to help fishers move away from vulnerabilities.

Value chain refers to all the activities and services that bring a product or a service from conception to end use in a particular industry. More specifically, from input supply to production, processing, wholesale and finally, retail. It is so called because value is being added to the product or service at each step of the chain (Kaplinsky & Morris, 2001). The value chain concept however, places a significant focus on financial rewards and explains the complex connections and exchanges between different market nodes (Kaplinsky & Morris, 2001). The value chain theory also has a wider use over other trade theories to explain why the poor may have the least competitive advantage from the value chain but its focus is basically economical (Pradhan et al., 2022). The Food and Agricultural Organisation (FAO) has placed a lot of emphasis on the small-scale fisheries value chain to create awareness for its proper development and promote pro-poor friendly market systems (Bjorndal et al., 2014). Overall, the value chain theory is focussed on financial performance. It is always about economic returns, enhancing margins either to increase revenue or to reduce cost but it does not consider other important issues related to social and environmental wellbeing.

The key findings in value chain application to small-scale fisheries include gender roles and relations, diversification of value chains, constraints to upgrading, opportunities for upgrading, limited participation of actors in decision making and environmental sustainability (Bolwig et al., 2008).

This study aims to explore how the vulnerability of the small-scale fishing community is linked to its value chain. Makoko in Lagos, Nigeria is known for its challenging living conditions and peculiar architecture but not much is known of the impact of value chain on vulnerabilities in the community. There is also limited information on the role of institutions, policy and regulation in shaping value chains and vulnerabilities within the fishing community. Lastly, community experiences and perspectives on value chain and vulnerabilities within the community needs to be captured in literature. This study sets out to address these gaps.

Efforts at enabling small-scale fisheries to move from vulnerability to viability such as co-management arrangements, capacity building, technology adoption, value chain development, access to finance are difficult without first analyzing the value chain (Kaplinsky & Morris, 2001). It is also important to expand policy and academic research to encompass the whole value chain because it is multifaceted and complex with various gaps that need to be understood and addressed (Crona et al., 2020). Some of the challenges in studying value chain and vulnerabilities in small-scale fisheries includes fragmented value chains, limited data and information, contextual diversity, inadequate data on vulnerabilities, lack of capacity and resources, inadequate community engagement and participation, policy and governance context (Bjorndal et al., 2014). Moreover, there is inaccurate records in a lot of small-scale fisheries in developing countries to inform policy and academic research (Béné et al., 2010).

This study is significant in that it aims to understand how value chain is contributing to vulnerabilities in small-scale fishing communities. The scope of the study is limited to the value chain within the Makoko fishing community.

This study is a single community focussed study. The approach is qualitative in nature with the use of open-ended interviews and focused group discussion at the study location. The target respondents are actors within the fisheries value chain (fishers, wholesalers, retailers, and processors), fishery management representatives and fishing households within Makoko fishing community in Lagos, Nigeria. The data collected will first be analysed deductively into themes according to the value chain and then inductively to find the relationship of themes within each chain link.

Specifically, this study aims-

1. To understand the fisheries value chain in Makoko fishing community both from the historically and current perspectives.
2. To examine how the fisheries value chain contributes or impacts vulnerability in Makoko fishing community.
3. To analyze and suggest factors that can address the gaps in the value chain to enable it to contribute to viability.

This study will contribute to literature that link fishing community vulnerability to the value chain. It will provide details on how small-scale fishing community viability can be enhanced by strengthening the value chain. The study would provide an understanding of vulnerabilities in small-scale fishing communities and how fishers perceive them. It would also provide guidance to stakeholders and the government on what is required to improve small-scale fishing viability

through the value chain. This study will contribute by adding to the available empirical studies in small-scale fishing communities in developing countries.

This study is organised into six chapters, chapter 1 presents the background to the study and the problem statement. Chapter 2 outlines the literature review of relevant literature to situate the study appropriately. Chapters 3, 4 and 5 focus on the study methodology, presentation, and analysis of the data respectively. Finally, Chapter 6 concludes the study.

1.2 Statement of Purpose

The purpose of this study is to explore how value chain of the small-scale fisheries is contributing to vulnerabilities in the communities of the small-scale fisheries.

The strategy of inquiry is a single community focussed study (case study), specifically in the Makoko Fishing community in Lagos, Nigeria. The value chains were explored using a qualitative approach to gain a deeper understanding of the social phenomenon that will aid proffer value chain enablers that can move the community towards viability.

At this stage in the research, the value chain is defined as the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services) and delivery to final consumers (Kaplinsky & Morris, 2001). Vulnerabilities are constraints which impact fisher communities' ability to guarantee a sustainable livelihood (Bene, 2009). This study aims to fill a gap in literature by highlighting how dysfunctional governance of the value chain propels the value chain to contribute to vulnerabilities within the small-scale fishing community. This is achieved by researching existing literature (secondary data) on value chains through the Waterloo online sources, google scholar and primary sources by collection of data through interviews, focussed groups and observation. The study aims to understand the value chain in the

Makoko fishing community historically and the current perspective. To examine how value chain contributes to vulnerabilities in the community and suggest factors that can address the gaps in the value chain to enable it to transition from vulnerability to viability.

1.3 Research Questions

Research Questions for this Qualitative Exploratory Case Study are:

- 1a. What is the structure of value chain in the Makoko fishing community?
- 1b. Who are the actors in the value chain?
2. What are the gaps inherent in the value chain contributing to vulnerability in Makoko fishing community?
3. How can these gaps be addressed to transition the community from Vulnerability to Viability?

1.4 Significance of the Research Problem

The significance of studying the value chain and vulnerabilities in Makoko fishing community is important because the research problem directly impacts livelihoods and income generation, food security and nutrition, cultural identity, policy intervention, gender dynamics, resource management and sustainability, market access and dynamics, participatory development, vulnerability, and resilience. A thorough study of these factors will provide insights that could enable informed actions that will promote Makoko's well being and sustainable growth.

1.5 Expected Contributions

Studying the value chain and vulnerability in Makoko fishing community would contribute to understanding the unique challenges and opportunities encountered by the community. This study would contribute to resilience building, livelihood enhancement, sustainable resource management, equity and social inclusion, community empowerment, cultural preservation,

knowledge transfer and learning, and academic and policy contribution. The study does have the potential to inform focused initiatives, encourage community involvement in fisheries management, and advance knowledge of the contributions of small-scale fisheries to sustainable development.

1.6 Brief Description of the Proposed Study

The strategy of inquiry for this study is the single community focussed study (case study) . The research approach is qualitative which gives the researcher the opportunity to be fully engaged in the research within the natural environment of the study participants (Creswell & Creswell, 2018).Data for the inquiry will be sourced through primary (interviews, focus group discussions) and secondary sources (Google scholar, University of Waterloo online resources, Grey Literature). Data analysis will be manually done deductively and inductively based on the themes and pattern that resonate from the data analysis. This themes and patterns in conjunction with academic literature will be used to support the narrative (Creswell & Creswell, 2018; O’Leary, 2007; Silverman, 2017).

1.7 Philosophical Worldview

Worldviews are defined as the general philosophical orientation about the world and the nature of research that the researcher brings to a study (Creswell & Creswell, 2018, p. 44). Researchers' worldviews are defined by their research orientations, research experiences, research communities, advisers, and mentors (Creswell & Creswell, 2018). These experiences define the method, pattern, and model that the researcher uses in conducting the research. In other words, worldviews or research paradigms are a way of understanding the world and studying it. Some worldviews that researchers rely on include the Postpositivist worldview, Relativism worldview, Pragmatism worldview, and Constructivism worldview (Creswell & Creswell, 2018). This study is based on the constructive worldview. Reality is accepted by constructivism as a creation of the mind, reality

is seen as subjective. This philosophical perspective is closely related to relativism and pragmatism. Constructivism is the idea that all knowledge is created via human experience. This view assumes that knowledge and the knower are inseparable. Constructivist researchers do not assert objectivity; instead, they accept and describe their subjectivity as they collaborate with their subjects to co-create understanding. The research goal is to rely on the participants' view of the situation being studied. Open ended questions aid the researcher to listen to the participants as they express their views in their natural environment. The constructivist relies on the physical environment of the participant to understand the historical and cultural norms of the participants. The researcher ends up with a theory based on interaction and understanding of the social phenomena (Creswell, 2009). This study aims to understand and gain knowledge about the social phenomena in Makoko by getting information from the community participants in their natural environment. I embarked on this research to co-create knowledge that can assist policy makers, stake holders within Makoko fishing community to aid address value chain impacts in the community. My ethical responsibility was to ensure that ethical processes and guidelines were adhered to during the data collection and all through the research process.

Chapter 2.0 Literature Review

2.1 Introduction

This section of the study presents a review of the literature. The purpose of the literature review is to show the current understanding of the research problem, identify the research gaps that the proposed study seeks to address, and the methods previously used in similar research areas. This chapter thus explores literature on the value chain in fisheries, value chain analysis, benefits of value chain in small-scale fisheries, value chain application, the concept of vulnerability, and governance in small-scale fisheries. The role of governance in dealing with the vulnerabilities in small-scale fisheries to transition them from vulnerability to viability.

2.2 What is the Value Chain

Michael Porter popularised the concept of the value chain in his book "Competitive Advantage: Creating and Sustaining Superior Performance" (1985). Michael Porter defined a value chain as "a set of activities that a firm operating in a specific industry performs in order to deliver a valuable product or service for the market"(Porter, 2004, p. 33). Basically , the value chain is the series of activities carried out by a firm to create and distribute value to its consumers. Porter classified activities within the value chain as primary and secondary activities. Primary activities include those involved in the manufacture and delivery of a product or service, such as inbound logistics, operations, outbound logistics, marketing and sales, and service. Secondary activities include Procurement, technological development, human resource management, and infrastructure (Porter, 2004).

Value chain understanding is important for organisations to find areas where they can add value and differentiate themselves from competition. It also allows them to find areas where they may reduce costs and enhance productivity(Kaplinsky & Morris, 2001).The notion of competitive

advantage in Porters value chain has been criticized by interdisciplinary scholars as being narrow in scope as it is targeted towards economic gains only (Fabinyi et al., 2018). It does not recognise other forms of value such as social, cultural, ecological or political values in resources as it exist in small-scale fisheries (De Silva, 2011; Fabinyi et al., 2018; Pradhan et al., 2022). Businesses can uncover chances for innovation and strategic alliances by evaluating the value chain (Bjorndal et al., 2014). Moreover, value chain analysis can be used to identify areas for innovation and to understand how new technologies or business models can disrupt existing value chains (Gereffi et al., 2005). The value chain concept is the most preferred of trade theories and has become increasingly used in business and management studies as it provides a framework for examining and improving business processes (Bjorndal et al., 2014). One of the overriding concepts of the value chain is the realisation that consumer decisions are not necessarily based on price, as consumers may be prepared to pay more for a product that gives additional value (Walters & Lancaster, 2000).

2.3 Value Chain in Fisheries

Value chain in fishery are the stages in processing that the fish catch goes through in terms of harvesting, production, processing, distribution and marketing (Asche et al., 2015). Every stage of the fish product life cycle adds value to the product and stakeholders at each stage influence the quality and quantity of fishery products. Fish processing goes through the primary and secondary stages (Asche et al., 2015). Asche et al (2015) reaffirmed that in the primary processing stage, the fish is caught and brought to the shore during the harvesting stage for sorting and processing. The fish is cleaned, gutted, and filleted in the process. In the secondary processing state, the fish is transformed into products such as fish fillets, fish sticks, and fish meals. At the marketing stage, the fish is packaged and distributed to retailers and consumers. Fishery value chain can be conceptualized using the Global value chain framework (GVC) which highlights the role of global

actors in the production, processing, and marketing of fishery products. Gereffi et al.(2005) stated that the fishery GVC can be divided into three segments: input suppliers, manufacturers, and retailers. Input suppliers provide materials such as fishing gear and packaging, manufacturers process the fish into various products, and retailers sell the products to consumers.

In summary, the fishery value chain is complex and dynamic, involving numerous stakeholders and activities. Understanding the different stages and actors involved in the value chain is essential for identifying opportunities for value creation and improving the sustainability of the fishery industry.

2.4 Benefits of Value Chain Analysis to Small-scale Fisheries

Analysis of a fisheries value chain is beneficial in providing background information on qualitative and quantitative data that will give a comprehensive assessment of the entire fisheries, its activities, its stake holders, actors, power relations and setbacks that require immediate and long term attention to set the fishery on its path to sustainability(Rosales et al., 2017).Value chain analysis also highlights the state of development of the fisheries and constraints impeding its development(Rosales et al., 2017). Small-scale fisheries can benefit from the value chain analysis in a variety of ways, including greater market access, increased value addition, and increased sustainability as detailed below (Allison et al., 2012; Béné et al., 2015; Jacinto & Pomeroy, 2011).

Enhanced Sustainability: Small-scale fishermen can improve the long-term health of fish stocks and safeguard their livelihoods for future generations by working together to improve fisheries management and reduce waste and bycatch (Allison et al., 2012).Overall, sustainability can be enhanced by increasing and implementing traceability of fish stock, imbibing sustainable fishing practices, community involvement, value added products, Access to local markets.

Increased value addition: Small-scale fisheries can realize more value from their catch by engaging in value adding activities that produce high valued products by branding, packaging, processing (Béné et al., 2015)

Improved market access: The value chain analysis can assist small-scale fishers in expanding their product offers and entering new markets. Small-scale fishermen can reach new customers and earn greater value from their products if they collaborate to enhance product quality, packaging, and distribution (Jacinto & Pomeroy, 2011).

2.5 Value Chain Application to Small-scale Fisheries

Kaplinsky and Morris (2001) advised that there is no fixed process of implementing a value chain analysis. However, Rosales et al. (2017) noted four aspects of value chain analysis that can be applied to small-scale fisheries:

1) Value chain analysis outlines the actors engaged in the harvesting, processing, marketing of the fishery product. It details the attributes of this actors, profit and cost structures, goods flow along the chain, employment features, and the landing place and quantities of local and foreign sales are all assessed in the analysis. These details can be uncovered through focus group discussions, interviews, review of secondary literature, primary surveys.

2) Value chain analysis exposes the distribution of benefits by analysing chain margins and earnings, one can determine who benefits from chain involvement and which economic agents could benefit from further aid or organization. This is very important in the value chain especially in developing countries where small-scale fisheries are particularly fragile.

3) Value chain can be used as a veritable tool to assess upgrading within the value chain. Upgrading could be in terms of value addition or diversification to niche markets. Upgrading could also be in

terms of improving product design, rebranding, or quality improvement. These activities aid producers gain more economic value from the product. The upgrading strategy considers the economic benefits to actors and constraints inherent in the value chain with a view to transition from vulnerability to viability. Governance issues also determine upgrading strategies as tariffs, regulations, trade restrictions, standards and controls can shape or impede upgrade strategies.

4) Value chain analysis highlights governance within the fishery value chain. It exposes the rule making system and power dynamics in the value chain. Governance in value chain shows the structure of relationships in the value chain and coordination mechanisms of actors within the chain. This perspective is important as it draws attention to institutional arrangements that needs to be focussed on to improve small-scale fisheries value chain capabilities, correct distributional inequities, and increase sector value addition.

2.6 The concept of Vulnerability

The United Nations Framework Convention on Climate Change (UNFCCC) requested developed nations to commit to assisting developing nations in financing adaptation cost, and this generated a lot of research centred on the meaning of vulnerability and how to measure it (Klein, 2009). Although there has been years of research on vulnerability, experts have not agreed on what vulnerability of socio-ecological systems (SEs) implies or how to quantify it (Wolf et al., 2013). Vulnerability is an interdisciplinary field with lots of interpretation about its concepts, basically because of the diverse disciplines from which it originated (Janssen & Ostrom, 2006) . The concept of vulnerability originated from the study of natural hazards and poverty (Janssen & Ostrom, 2006). It is a concept that has been used in different research backgrounds(Adger, 2006) but there is no consensus on its meaning and definitions . Based on the focus of study, the term has been applied exclusively to the societal, ecological, natural, or biophysical subsystem or to the socio-

ecological system (Adger, 2006). Janssen et al. (2006) defined vulnerability as the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard (Janssen et al., 2006). Another vulnerability scholar defined the concept as a composite factor having two dimensions – exposure to risk, and susceptibility (Béné, 2009). Exposure discusses the stress or stressors such as drought, flooding, while Susceptibility refers to a person's or a family's inability to cope with and recover from risk factors that are specific to them. Vulnerability is a combination of human wellbeing that integrates environmental, social, economic, and political exposure to a range of potential harmful perturbations (Islam & Chuenpagdee, 2022). Vulnerability may also be seen as the degree to which a system, subsystem, or system component is likely to experience harm due to exposure to a hazard, either a perturbation or stress/stressor (Moret, 2014).

Considering the variation in definitions, what has been agreed is that vulnerability is “place-based” and “context-specific”, and that there are two different approaches, denominated “top-down” and “bottom-up”, “end-point” and “starting-point”, “biophysical” and “social”, or “outcome” and “context” vulnerability (Wolf et al., 2013). Overall, vulnerability being a construct has being a strong analytical tool for identifying states of susceptibility to injury, powerlessness, and marginalisation of both physical and social systems, as well as for guiding normative analysis of efforts to improve well-being through risk reduction (Béné, 2009; Berkes, 2007; Islam & Chuenpagdee, 2022b; Janssen & Ostrom, 2006; Klein, 2009; Nayak & Armitage, 2018; Paul, 2014). While there is no universal definition, a common definition for vulnerability is the inability of a system to withstand the perturbations of external stressors (Adger, 2006). For the purpose of this research, vulnerability would be defined as “the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to

adapt “(Adger, 2006, p. 1). Vulnerability can also mean exposure to risk, shock or stress(Chambers, 1989).

2.7 Vulnerability and Resilience in Small-scale Fisheries

Small-scale fisheries globally, encounter numerous challenges which impacts their ability to guarantee sustainable livelihoods (Kimani et al., 2020). The socio economic and political environment in which they find themselves coupled with external threats compound their vulnerabilities (Béné,2009).Fisher vulnerability is recognized and documented in literature and it has been argued that small-scale fishing communities will remain vulnerable because of their natural resource dependency (Béné, 2009).Vulnerabilities prevalent in fishing communities range from economic and political marginalisation, chronic underfunding, a lack of political voice, poor infrastructure, overfishing, habitat degradation, resource decline, poverty, threats from commercial vessels fishing inshore, illegal and destructive fishing practises, resource use conflicts, siltation, pollution, and weak governance, a lack of market information, poor transportation systems, high transportation costs, poor and insufficient market infrastructure, inadequate market access and post-harvest losses(Kimani et al., 2020). Fishing as a profession is dependent on fluctuating factors outside the control of fishers such as climate change. A lot of uncertainty surround fishing as an enterprise, as economic returns are not based on capital outlay but on the fish catch. (Etongo & Arrisol, 2021).Other factors exacerbating small-scale fisheries vulnerability include occupational risk, natural disasters, conflict with other marine users, lack of strong organizations, climate change, and macro-economic factors (Béné et al., 2007). For small-scale fisheries to deliver on its potential, sources of vulnerabilities must be understood at the individual and collective level to harness potentials of moving the sector towards viability (Béné et al., 2007).Vulnerability like most wicked problems has plagued small-scale fisheries historically, it has been argued that small-scale fisheries must have certain strength that has aided their survival till date (Nayak & Berkes,

2019). A lot of small-scale fisheries are adaptable, flexible and dynamic in their response to constraints within their environment which accounts for their survival (Berkes, 2007). Numerous factors within small-scale fisheries communities undermine their resilience (Allison et al., 2012). Issues such as illiteracy, lack of infrastructure, unsanitary environment, marginalization, lack of representation in governance and decision-making process to mention a few (Allison, et al. 2011). Resilience is the capacity of fishing communities and organizations (e.g., cooperatives, fishery agencies) to cope with, adapt to, and shape change to sustain a fishery system and human well-being within a desirable state (Villasante et al., 2022). Blythe (2015) viewed resilience as the capacity of a system to absorb changes without shifting into an alternate state. Blythe noted that Overfishing, weak governance, and a new set of stressors brought on by the effects of climate change all pose threats to coastal systems.

2.8 Wellbeing of Small-Scale Fisheries

In developing countries where most of the small-scale fisheries are embedded, policy makers have always neglected the sector in policy making, development planning, rural development because most are unaware of their economic contributions to nutrition and national development because of paucity of statistical data (Béné et al., 2007). This neglect of the sector has resulted in most inland fisheries resources being overexploited, thus threatening the sustainability of these resources in the absence of appropriate legislation, policies, and functional resource governance arrangements (Islam, & Chuenpagdee, 2022). The study of wellbeing shows how economic, social, cultural, and political elements must all be considered in order to completely appreciate the challenges that small-scale fishing communities face (Johnson et al., 2018). Wellbeing provides a model to deepen our understanding of fisheries, by addressing the three complementary aspects of material, relational, and subjective wellbeing. McGregor et al. (2009) defined wellbeing as "a state of being with others, which arises where human needs are met, where one can act meaningfully to

pursue one's goals, and where one can enjoy a satisfactory quality of life". The concept of wellbeing provides a broad framework for thinking about what matters to people, communities, and society (Weeratunge et al., 2014). The concept of well-being helps us uncover the vulnerabilities in small-scale fisheries. The approach broadens the analysis of fisheries, as it does for other social-ecological systems, in order to properly take into account the full range of values and objectives in fisheries and to more thoroughly assess management and policy alternatives (Charles et al., 2012). The material considers the resources in the possession of the person and whether his needs are met. If one's needs are not met, the person becomes vulnerable and is exposed to risk. The rational considers social relationships that can avail the person access to resources, family, and social structures while the subjective looks at the quality of life if the person is happy with his status or not. The absence of any three of these classifications exposes one to vulnerability and loss of resilience. Humans need capital to sort out needs. We need family and social affiliations to thrive and if one is not happy with his status in life or job, the person is affected mentally which can be argued as losing resilience (Charles et al., 2012).

2.9 Governance in Small-Scale Fisheries

The Food and Agriculture Organization (FAO) of the United Nations expressed concern over the absence of successful governance in small-scale fisheries globally (FAO 2020). Over 90% of fishers engaged in capture fisheries are employed by small-scale fisheries, which also produce nearly half of the world's fish harvest (or two-thirds when just considering catches intended for direct human consumption (Bene et al 2007). However, generally, small-scale fisheries have been ignored, understated, and covered up in national statistics especially in developing countries (Rosales et al., 2017). This misreckoning prevents the sector's weak status from being recognized, which is essential for making transformative change that could lead to good governance. Small-

scale fisheries are unique all around the world as they can be found in different marine environment such as lakes, lagoons, rivers, estuaries. They employ different technology for pre-harvest, harvest, and post-harvest activities. They are embedded in communities and are not isolated from activities posing a threat to them, therefore it will be inappropriate to consider small-scale fisheries as a distinct sector in its governance(Jentoft & Chuenpagdee, 2015). Successful fishery governance has always been a challenge (Crona et al., 2020) .The modest success gained so far in marine resource conservation can be attributed to the historically low levels of participation by fishermen in decision-making, which had led to poor fishing management(Crona et al., 2020). The social, legal, political, and economic frameworks used to manage fisheries collectively make up fisheries governance (Garza-Gil et al., 2020). Small-scale fisheries governance is frequently quite difficult, and there is a tendency to involve stakeholders in the decentralised management of these fisheries, which are frequently undefined and unconsidered in national policy (Garza-Gil et al., 2020). "Many small-scale fisheries are characterized by self-governing mechanisms that have significant conservation value"(Kolding et al., 2014, p. 1).Most small-scale fisheries suffer from weak management and governance institutions(Akintola et al., 2022) . Existing governance structures are mostly concerned with fishing and economic returns thereby neglecting other issues within the fishing community such as state of infrastructure, social capital, sanitation, youth development, drug abuse awareness (Charles, et al. 2012).

Small-scale fisheries policies have been criticized for being dominated by traditional models that are very aggregative and focus on the fishery's material and biological components only. Ineffective policies and detrimental governance have regularly resulted (Johnson et al., 2018). Small-scale fisheries are neglected, and it is harming them. Their marginalization and the need for proper recognition by governments led to the endorsement of the Voluntary Guidelines for

Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) (Chuenpagdee & Jentoft, 2018). The guideline is with the intention to rally governments and members of civil society to act to improve the viability and sustainability of small-scale fisheries (Chuenpagdee & Jentoft, 2018).

The SSF Guidelines suggest a variety of actions to improve the working conditions in small-scale fisheries. They also highlight the necessity of modifying governance systems because they frequently do not suit the interests of small-scale fishermen (FAO, 2020) . New ideas influencing commons governance are emerging from recent volumes of research to address governance issues in small-scale fisheries and some of these approaches are the polycentric mode of governance, adaptive co-management-management. The term "polycentric" refers to multiple, autonomous decision-making centres. Thus, instead of being governed by a single monocentric unit, polycentric systems are characterised by several governing authorities at various levels. When establishing norms and regulations for a particular area, each unit in a polycentric system does so with a great deal of independence. Theoretically, with the help of polycentric governance, noncompliance problems, power imbalances, and unjustified discrimination problems might be better addressed, and considerable investments in knowledge and innovations may be made (Gelcich, 2014).

Research has shown that polycentric systems can offer several advantages because of their mechanisms for continuing reciprocal monitoring, learning, and adaptation, even though no governance system is perfect. To encourage the participation of resource users and managers at many scales rather than relying on a single type or level of governance, a shift toward polycentrism may be beneficial for small-scale fisheries management. It aids in the management of small-scale fisheries because it can promote engagement of resource users and managers at diverse scales (Gelcich, 2014) . Co-management is a cooperative arrangement in which the local government,

the community of resource users, other stakeholders, and outside agencies share management of the fishery (Garza-Gil et al., 2020). Folke et al. (2005) defined adaptive co management as a process by which institutional arrangements and ecological knowledge are tested and revised in a dynamic, ongoing, self-organized process of learning by doing. Adaptive co management focuses on integrating various knowledge systems, teamwork and power sharing among local, regional, and national levels, as well as management adaptability, are important aspects of adaptive co-management (Trimble & Berkes, 2015). Adaptive co management can be used to address complex issues like fisheries and coastal management (Trimble & Berkes, 2015).

Governance in small-scale fisheries entails managing and regulating these fisheries to preserve their sustainability and safeguard the rights and livelihood of fishing communities. Ultimately, the preferred governance approach will depend on the place and context of the fishing community and the political, social, ecological factors that impact on its administration and management.

2.10 Deficiency in Literature

There are various gaps in value chain literature in small-scale fisheries. The inadequate comprehension of the mechanics of value chains in small-scale fishing communities is well documented (Béné et al., 2016). Value chains in fishing communities are complex and varied, affected by a variety of environmental, social, and economic factors that differ among areas and communities (Pradhan et al., 2022). Most literature on value chains in the fisheries industry, however, are more interested in activities in industrial fishing, ignoring the characteristics and constraints of small-scale fishing communities (Béné et al., 2015).

Existing literature on value chains has focussed on the technological and economic aspects of the value chain without taking cognisance of the cultural and the sociological aspects of the value

chain which dictates the way and manner the fishers interact between themselves and the marketing of the product within their social networks (Garcia Rodrigues & Villasante, 2016).

Another gap is in the governance of small-scale fisheries value chains. Existing studies have researched the function of rules and regulations in modelling value chains, however few have looked at power relations, its dynamics and conflicts that emanate amongst actors within the fisheries value chain and how it impacts the value chain and the fisheries community (Béné et al., 2016).

Conclusively, governance and value chain literature in small-scale fishing communities must move beyond technological and financial spectrum of the value chain and give attention to research on policy implications, social and cultural elements that impact value chains to aid build a robust system.

2.11 Conclusion

Fish has exceptional nutritional value to health and vitality of billions of people globally and as such the value chain needs to be given attention to secure livelihoods and food security. Adaptive approaches and context specific governance of value chains in small-scale fisheries are needed, that will involve different stakeholders to learn and collaborate to enhance value chain conduct, performance, and dynamics.

Overall, to move beyond value chains that propel vulnerabilities in small-scale fishing communities, the governance and literature on value chain in small-scale fisheries must move beyond a narrow economic approach and address the social, cultural, and governance components of value chains to make it resilient to contribute to viability in small-scale fisheries.

Chapter 3.0 Methodology

3.1 Introduction

The methodology for this explorative research is qualitative. Qualitative research is a flexible and nuanced approach to inquiry that seeks to understand complex phenomena within their social, cultural, and historical contexts, emphasizing the importance of subjective experience and interpretation (Bansal & Corley, 2011; Creswell & Creswell, 2018; O'Leary, 2007; Silverman, 2017). The qualitative approach used surveys through face-to-face open-ended interviews with the aid of an interview guide to enable data presentation using tables.

3.2 Research Approach

This study utilized the qualitative research approach to study value chain and vulnerabilities in small-scale fishing communities with Makoko in Lagos, Nigeria as a case study location. In this research, the researcher explored a complex social phenomenon and collected non-numerical data to understand the lived experience and opinion of respondents concerning a social phenomenon. The researcher explored the value chain in Makoko fishing community historically and the current perspective from the fishing community to find out how the value chain contributes to vulnerabilities within the community. The research focused on examining and comprehending the meanings or opinions of individuals or groups in their natural environment in order to understand social complex phenomenon (Creswell & Creswell, 2018). Qualitative research is frequently the outcome of the necessary examination of a specific problem in order to have a full grasp of a specific issue or in scenarios where not much is known or research has not been undertaken or there is need for application of a theory to be tested within a given population of study (Creswell & Creswell, 2018). In this qualitative research, the researcher was involved in the whole process of data collection, analysis and interpretation (Creswell, 2009). The researcher collected data from different sources (primary and secondary) employing specific designs with the use of open ended

interviews and focused group discussion to collect rich detailed data that provided an depth understanding into the insight and perspectives of research participants in Makoko fishing community (Creswell & Creswell, 2018; Denny & Weckesser, 2022; O’Leary, 2007). In this research approach, the researcher adhered to strict processes for data collection, analysis, and documentation of the data's methodological integrity, accuracy, or validity (Creswell & Creswell, 2018). Qualitative researchers collect data from different sources such as observing behaviour, examining documents, administering questionnaires, interviews with open ended questions with participants. In contrast to other designs, the researcher using a qualitative method offers comments regarding their part in self-reflection in the research and how their background and lived experiences will direct the course of the research and conclusion on themes (Creswell & Creswell, 2018; O’Leary, 2007; Silverman, 2017). The finding of themes and patterns for this research was driven by both inductive and deductive data analysis, leading to the identification, interpretation, and debate of a real-life representation of the research problem (Creswell & Creswell, 2018).

3.3 Research Design

Research designs are inquiry methodologies that provide particular guidance for procedures in a research investigation (Creswell & Creswell, 2018). This study utilized the single community focused case study design to offer an in depth understanding of the value chain and vulnerabilities in small-scale fishing communities with particular focus on Makoko community . Case studies are a type of research strategy used in many fields in which the researcher conducts an in-depth analysis of a case, individual or individuals, process or event (Creswell & Creswell, 2018). Case study design frequently investigates a single case or numerous cases over time with the goal of describing the case results through themes and patterns (Creswell, 2009). Cases are defined by time and activity, and researchers collect detailed information throughout time utilising a variety of data collection approaches to form themes (Creswell & Creswell, 2018). Case studies are very

valuable for delving into complex circumstances, such as a rare sickness, and for learning how people deal with certain situations and lived experiences (Crowe et al., 2011; Gibbert et al., 2008; Merriam, 1988). This study aligns with case study design as it explored the value chain of Makoko fishing community historically and the current perspective and how the value chain is contributing to vulnerabilities within the community. The study aims to find knowledge to address the research objectives and answer the research questions within Makoko and not outside it. Case studies are context specific, and Makoko was chosen for this study as a search in literature revealed that not much is known of the impact of value chain on vulnerabilities in Makoko. There is also a dearth in literature on the role of policy, regulation and institutions in shaping value chain and vulnerabilities within the Makoko fishing community. Lastly, there is inadequate information on community experiences and perspectives on value chain and vulnerabilities within the fishing community.

3.4 Sampling Procedure

The sampling procedure was purposive. Purposive sampling is usually used in qualitative research to ensure that only respondents who are willing and able to give valuable information that can answer the research questions and objectives would be selected (Campbell et al., 2020). The sample size for the study is 110 participants which comprises of value chain actors (80), fishing households within the Makoko fishing community (20) and fishery management representatives (10). The actors within the fisheries value chain are fishers, whole sellers, retailers, fish processors, consumers, regulators and non governmental organisations that fight for the rights of small-scale fishers and support biodiversity and marine ecosystem (FAO, 2018). The sample size of twenty respondents from each node of the value chain was selected as there are four nodes within the value chain and each node gets twenty interview guides as well as households. Ten, Fishery management representatives were interviewed. The sample size of 110 will form a representation of the entire population to be sampled.

3.5 Researcher's Role

My inability to be in Makoko physically during the research made me feel disconnected from the research even though I had visited Makoko before my research commenced. However, I appreciate the rich data collected by the research assistants and the community guide that assisted the team as I understand the actors were relaxed interacting with them as they spoke in their native language. I believe the quality of the research improved because of the rich data collected and the fact that I can relate with the environment having visited the study site. I do not expect my role as a researcher to impact the interpretation of the themes and outcome of the research as I continued to check reflexivity as I engaged with the study. My role in this research was to co-create knowledge that would aid stake holders and the community to transition the Makoko fisheries from vulnerability to viability.

3.6 Data Collection Procedure

3.6.1 Target Population and Sample Size

Population is the universe of possible sample sources (O'Leary, 2007). The target population for this study were the actors within the Makoko value chain, Fishery Management representatives and fisher households within the community. The Makoko fishing community has three landing sites namely Makoko main, Sogunro and Oko-Agbon. The busiest of the landing sites is the Makoko main which has about 360 fishermen, 75 wholesalers, about 150 retailers and 25 processors.

The sampling frame is the list of all the population units from which the sample will be drawn (O'Leary, 2007). The sample is the portion or subset of the population that is chosen for the study. The sample for this study is 20 fishers, 20 wholesalers, 20 retailers, 20 fish processors, 20 households and 10 Fishery Management personnel. The criterion used in selecting respondents was their active commitment to fisheries at Makoko for a minimum of five years. Research

assistants asked prospective participants their length of participation in the value chain before administering the interviews and those that did not meet the criteria were not selected. Data collection was aided by two undergraduate students and a research assistant due to the remote nature of the research.

There was the critical step of participant identification for focus group discussion. Purposive sampling of the participants for the focus group discussion was based on participants' aptitude and capacity to give important information (Campbell et al., 2020). Purposeful sampling selects samples that are "information rich." (Creswell & Creswell, 2018). Ten respondents made the list of focused group respondents for this study.

3.6.2 Data collection procedure

For this explorative research, extensive literature review, focus group discussion and open-ended interviews was used to understand value chain and fisher vulnerability in Makoko fishing community. The interview-based research according to Creswell and Creswell (2018), are beneficial for gaining insight and in depth understanding of a complex social phenomenon. A prepared open-ended interview guide was administered during the survey, and it gave the interviewer the opportunity to ask additional questions as needed. All the interviews were manually collected and recorded. The literature review provided further insight into small-scale fisheries vulnerability and value chain literature in general. This knowledge helped situate the study and provided better understanding of the research problem.

3.6.3 Focus Group Discussion

Focus groups are described as informal conversations about themes among chosen persons. Focus groups provide a greater variety of knowledge and the opportunity to ask questions if any areas need additional clarification (Merton, 1987). Focus groups, however, can be difficult to plan and

control. People may not be a true representative of users because it can be difficult to convince them to participate. Focus group discussion was undertaken to explore a range of ideas and experiences respondents had been exposed to concerning the goals of the study(Wilkinson, 1998). The focus group discussion was conducted within the study location with ten participants who were a representation of all segments of the value chain (fishers (2), wholesalers (1), retailers (1), processors (1), household (2), fishery management (2) and a traditional ruler (1). The engagement lasted for an hour thirty minutes. Discussions were based on outlined study objectives with the help of an interview guide specifically prepared for the focused group.

Prior to the group discussion, the consent of respondents who made the list was sought to meet at a specific location in the study location and at a specific time. The respondents were informed of the focus group's goal, norms, and time constraints. Also, respondents were briefed on the data privacy and withdrawal procedures (Creswell & Creswell, 2018).

Focus groups are used primarily for three purposes. First, as an adjunct to current techniques, they have been incorporated into multi-method study designs(Wilkinson, 1998). Most of the time in the framework of phenomenological investigations on people's perceptions and understandings, they have been used as a primary research methodology in and of themselves(Creswell & Creswell, 2018; Wilkinson, 1998). They have also been used as a form of participatory action research to empower people and create social and political change. (Wilkinson, 1998).

This method of data gathering was chosen for its adequacy in allowing the researcher moderate the group discussion and get a first hand detailed information about experiences of groups or population of study (O'Leary, 2007; Silverman, 2017). Typically, information is provided faster than if many people were questioned individually and it provides room for clarification if there are issues that require better understanding(Creswell & Creswell, 2018). The limitation of focused

group discussion is that some participants may not give their true perspective but will join or accept what the group is saying. Furthermore the moderator may have a challenging time moderating the group (Creswell & Creswell, 2018).

3.6.4 Interview

One of the several methods of gathering information in qualitative research is through interviews and there are four types which includes phone interview, face to face interview, MSN messenger and computer based interviews (O’Leary, 2007). The face-to-face interview also known as the in-person interview allows for synchronous communication of time and location, other types of interviews do not. In addition to the interviewee's stated response to a question, the interviewer can gain a variety of additional facts from the interviewee's social cues, body language, (Creswell & Creswell, 2018; O’Leary, 2007) For this study, the face-to-face interviews was employed for data collection as this was the best method for this study, as it entailed interviewing participants in their natural surroundings. Actors were interviewed at their place of business such as the landing site, fish market and the fish processing location. The research assistants were able to pick up nonverbal cues of the respondents. The interviews helped with understanding of the fisheries value chain, gaps within the value chain and vulnerabilities as the interviewers understood them. This form of interview technique is frequently utilised in social sciences research. O’Leary (2007) defined the interview method in research as a technique for gathering data in which researchers give participants essentially open-ended questions. Interviews, according to him, could be semi-structured, unstructured, or structured. Interviews also vary from formal to informal and finally interviews could be conducted on individual basis or in clusters.

3.6.5 Literature Review

A review of relevant literature was completed for the study and can be seen in chapter 2 of this thesis. The literature review consists of the review of concepts such as value chain, vulnerability

to viability, resilience, wellbeing, small-scale fisheries, and governance. An understanding of these concepts helped shape the background for the literature review. These concepts were searched for online using Omni (The university of Waterloo online resource), google scholar, google, Wikipedia. Peer reviewed journals and grey literature were reviewed to conceptualize and situate the study. Vulnerability to viability literature explored provided information on how weaknesses within a system impacts its sustainability and viability.

The literature on small-scale fisheries highlighted the global importance of this sector and how it is yet to achieve its potentials. The literature also detailed institutional frameworks and regulations necessary to transition small-scale fisheries and livelihoods of fish workers globally. The Governance literatures gave important perspectives on governance gaps in small-scale fisheries, forms of governance structures that can be adopted to aid small-scale fisheries and what stake holders in fisheries management should be doing to ensure viable governance of marine resources. Value chain literature provided information on the origin of value chain and how its application aids small-scale fisheries uncover inefficiencies within the chain. It also analyses power relations and can provide information that aids fishery management. Resilience literature provided an analysis of fisher household resilience and the issues undermining resilience in fishing communities while the wellbeing concept thus helps us understand the vulnerabilities experienced by small fishing communities. The review was limited as there was no policy document on the Makoko fisheries as at the time of the review. Efforts to get policy documents proved abortive within the limited time.

3.7 Data Analysis

Qualitative data analysis is a systematic way of studying non numerical data in order to find patterns, themes and insights (Creswell & Creswell, 2018). Data for this study was analysed

based on the literature review, data collected from the study location and information from the lead research assistant at the study location. Tables were used for data presentation for this study.

3.7.1 Surveys

Surveys are structured data collection instruments used in collecting quantitative data. They can also be used to collect information on respondents' opinion, preferences, and lived experiences. Survey instrument can be designed to be open ended questions or closed ended questions (Creswell, 2009). Closed ended surveys usually have multiple choice answers while the open ended surveys have essay style responses. Surveys can be administered in various formats such as online surveys, questionnaires, face to face interviews, phone interviews (Creswell & Creswell, 2018). For this study, open ended interview questions were used for the survey at the study location, and they were administered face to face. The analysis of the survey in each category of interviews was to read and understand each participant's response and code emerging themes from the responses. Individual responses were coded and categorise under the emerging themes. Finally, the codes under each theme were counted and the percentages were calculated. The summary of counts was presented with the use of tables to allow for ease of understanding and interpretation.

3.7.2 Survey Interview Analysis

The conducted interviews were manually recorded in the field and collated using the MS Excel application. The content of MS Excel worksheets were the verbatim responses of the interviewees subjected to content and theme analysis using a deductive approach. The deductive approach was to organize the themes according to responses from the different nodes of the value chain. The inductive approach was to find the themes within each chain link. The strategy used was to extract meaning from the data by identifying important themes relative to the research objectives and research questions.

Data analysis was done manually. The researcher chose the manual analysis of the data because of the need to engage with the data. Reading and re-reading the data provided the researcher a deeper understanding of the perspective and experience of the respondents. Manual analysis also provides flexibility to modify scheme codes and categories as new insights emerge rather than being confined to predetermined structures of software applications. However, manual analysis waste time but it helps the researcher exercise judgement and activate interpretative skill. To get the analysis done, the data captured in MS Excel was perused severally to get familiar with the content. The raw data was corrected for errors, emerging themes and patterns were singled out and coded with interpretative codes that was easy for the researcher to identify the themes. The codes represented the patterns and emerging themes found in the data. Individual responses were coded by narrowing the theme to the comment with the highest narrative and were arranged under the emerging themes. The same procedure was replicated for all the interviews. The codes of emerging themes in all value chain actors' interview segments were all categorized into broad themes inferentially by drawing relationship between each chain node responses. All responses were categorized and recorded under the categorized themes, they were counted, and percentages were calculated. A format and summary were created using tables. The next stage was the interpretation and analysis where relationships, trends and meanings were drawn from the categorized headings. The insights from these relationships were triangulated by comparing to literature and member checking to confirm validity of results. This step was to check the credibility and validity of the findings. Lastly was the synthesizing and reporting of the results in line with the study's research aims and objectives as a narrative in the discussion section of the thesis. The opinions of respondents were introduced into the result presentation as quotations supporting the numerous

emerging themes. These findings were examined and supported by relevant literature where applicable.

3.7.3 Focused group Analysis

The focused group analysis was also analysed manually as verbal response of participants were captured in excel format. The researcher perused through MS Excel to ensure there were no errors. After this stage, the inductive approach was used to find the themes within the data. Emerging themes were coded and denoted with interpretative codes for ease of identification. The themes denoted with interpretative codes were further categorized into broad headings where they were counted, and percentages were calculated. A format and summary were created using tables. The next state was the interpretation and analysis where relationships, trends and meanings were drawn from the categorized headings. The insights from these relationships were triangulated by comparing to the findings of the interview analysis for correlation or discrepancy. Where there were discrepancies in comments, member checking was done to ensure the results resonate the correct narrative. The insights from the focused group were triangulated by comparing to literature to confirm validity of findings or otherwise. This step was to check the credibility and validity of the findings. Findings of the focused group was part of the result presented and relevant verbatim comments were also included in the discussion section of the thesis.

3.8 Data Interpretation and expected outcome.

The conclusion of the single community focused study and data collection and analysis yielded rich data that gave insights to themes and patterns that would be used to support the expected outcomes. Individual responses and the full sample population's patterns, themes, and insights were evaluated, summarised, and thoroughly discussed, backed by tables and frequency counts (Creswell & Creswell, 2018). This study presented its data using tables and frequency counts

as this mode of presentation is easy to understand, easy to visualize and gives insight into the pattern of response within the population.

These results provided an understanding of Makoko Value chain historically and current perspectives and how value chain is contributing to vulnerabilities within the community. The research outcome would aid showcase best practices in small-scale fishing communities. A comprehensive literature review and discussion helped situate the study and offered a basis for interpretation of the findings.

The outcome of the research would benefit the community, stakeholders, industry practitioners and aid in policy formulation.

3.9 Validity and Reliability

The researcher ensured validity and reliability of this study by ensuring construct validity with a robust literature review (Creswell & Creswell, 2018). To ensure internal validity, external validity and reliability, the researcher has defined the scope of study, stated personal bias, and ensured research protocols are in place and that they were adhered to throughout the research process. This has made the process transparent and easy for other researchers to validate the findings (Creswell & Creswell, 2018).

3.10 Ethical Considerations

Ethics are considered a basis for conducting successful and relevant investigations (Silverman, 2017). This study observed research ethics by guaranteeing participants voluntary participation, anonymity, privacy, discretion, and approval in the form of consent. One approach to ensure voluntary participation was by asking individual participants to decide voluntarily whether to participate in the study or not. They were also assured that they would not suffer anything if they chose not to participate in the study. During the interview process, the individuals' physical

feelings and psychological impacts were given consideration. This was ensured by asking questions inline with the interview guide and emerging questions were strictly focused on value chain and vulnerability within the community. Participants were informed that this is a master's thesis and given the option to decline to participate if they so desired and that the University of Waterloo Research Ethics Board Committee had examined and approved this study's ethical processes (Ethics: ORE #44592, appendix A).

3.12 Limitations of the Study

The limitation of this research consists of the context specific nature of the case study approach, the sampling size, time constraint, biases, and the remote nature of the research. Case studies by their context specific nature makes the findings difficult to compare to other case studies (Crowe et al., 2011). The use of a single case study location can also be viewed as a limitation as findings may not be generalizable to other small-scale fisheries as issues regarding fisheries are usually place based and context specific. The case study design is often viewed as not being rigorous (Creswell, 2009).

The sampling of ten for fishery management representatives was considered adequate because the respondents were from the same government ministry managing the fishery. The views expressed by these professionals is strictly context specific. Qualitative research may contain researcher's bias and opinion based on researchers lived experiences and background. These concerns I have addressed by ensuring internal and external validity, construct validity and reliability throughout the study (Creswell & Creswell, 2018). This I have addressed through member checking and triangulation.

The remote nature of the research is also a limitation as the researcher felt disconnected from the study even though I had visited the location before the study commenced. The research assistants

helped bridge this gap by the rich data collected. Time was also a major challenge for the thesis as this is a master's dissertation with specific time of completion.

3.13 Overview of the Study Location

Makoko is a peculiar and culturally diverse fishing community on the Lagos coastline in Lagos, Nigeria (Oloko et al., 2022). Makoko lies on the north of Lagos Island and west of the third mainland bridge (Udo-Udoma, 2014). The community has grown over the years with its stilted buildings and web of waterways. The Egun people whose main occupation is fishing are the inhabitants of the waterfront and they migrated from Badagry and the Benin Republic in the 18th century (Afun-Ogidan, 2019). Makoko consists of six smaller villages namely Oko Agbon, Adogbo, Migbewhe, Yanshiwhe, Sogunro, and Apollo. The initial four are known as Makoko on the water as they inhabit the waterfront and have their home on wooden stilts while the remaining two villages have their homes on land (Udo-Udoma, 2014). NGOs and the Lagos state government know both settlements as the Makoko-Iwaya waterfront as the water connects both settlements. The water provides for Makoko their source of livelihood with Yoruba serving as a common language in a community where several languages exist. Major ethnic groups in the community include the Eguns, Ilajes, Ijaws and individuals from neighbouring countries of Togo, Ghana, Benin Republic, Cameroun (Oloko et al., 2022)). Makoko is usually called the "Venice of Africa" because of its waterways that criss-cross the community and provide a source of transportation (Afun-Ogidan, 2019). It is also known as the largest slum floating on water (Oloko et al., 2022). Makoko has a population of about 85,000 individuals living on land while the number of those living on water is unknown as the government failed to account for them during census (Udo-Udoma, 2014). Makoko occupies a strategic position within the Lagos metropolis but without roads, land, or modern infrastructure. The primary means of transportation within the huge slum

is through canoes. The major driver of economic activity is fishing, salt making, sand dredging and logging (Riise & Adeyemi, 2015). Makoko provides more than a third of fish supply consumed in Lagos(Adeyemi, 2012) . Irrespective of the economic contributions of this community to food sustenance, governments have mostly ignored this neighborhood in terms of providing social services and infrastructure(Afun-Ogidan, 2019; Babalobi, 2013; Oloko et al., 2022; Udo-Udoma, 2014).

Oyinloye (2017) called Makoko, "village in the city," depicting a community that governments have long abandoned and lacks even the most basic social services. Fishers in Makoko harvest fish with their family using traditional canoes and techniques from the lagoon. The harvest is sold to local dealers, most of whom are women. In Lagos' open-air marketplaces, fish is either sold fresh or smoked. Many of the boats used for fishing and transportation locally are constructed by members of the community. Makoko is a self-governed with community heads known as Baale's. Baale's are selected from families who are known to claim indigeneship in Makoko (Udo-Udoma, 2014).

The Lagos state government views Makoko as an embarrassment that should be taken out as reaffirmed by Ogunlesi and Esiebo (2016) , with the following statement “Makoko is also the perfect nightmare for the state government” – the largest metropolis in west Africa's (Lagos) is inundated with a slum which is visibly sprawled out beneath a bridge with the highest traffic volume. Makoko is terrible advertising for a city eager to portray itself as progressive, and the government is aware of this and is always motivated to take out the “embarrassment”. Makoko may be evicted or demolished by the state of Lagos at some point in time. as was the case with other waterfront fishing communities of Otogbame, Maroko, Badia East(Ogunlesi & Esiebo, 2016). The failed demolition in 2012 by the state government was met with resistance by the

Makoko community and they told the government they had a regeneration plan for the community but not everyone supports slum redevelopment or regeneration (Udo-Udoma, 2014)

Makoko shares ingenuity and inventiveness as it has continuously reinvented itself by providing for itself as seen by the number of water pipes beneath the lagoon bed to provide portable water to the community for a moderate fee, sanitation is also nonexistent as the community defecates directly into the lagoon and so are other municipal and industrial waste emptied into the Lagos lagoon which accounts for why fishers now have to move farther into the sea as the dirty water in which the stilts stand can no longer support aquatic life (Oyinloye et al., 2017) . Makoko has no functional clinics and surprisingly a community that sits on a foul-smelling water is not a locus of cholera and other communicable diseases. Significant health hazards in Makoko include malaria, malnutrition, respiratory diseases, maternal mortality due to lack of antenatal care (Oyinloye et al., 2017). Fishing is the major source of livelihood for the community. Makoko's cultural identity is strongly rooted in its fishing heritage and its Egun cultural roots as evident in their oral history, traditional festivals, and social norms. The community has faced several challenges over the years but has displayed resilience and adaptation evident in their peculiar architectural habitat design that is suited to its aquatic environment(Ogunlesi & Esiebo, 2016). As Makoko struggles with the problems of modernization and environmental change, they remain an practical example of the interaction between human societies and their natural environment (Adeyemi, 2012) .



Figure 1: Map Showing Study Location and Fish Market (Oloko et al., 2022)

Chapter 4.0 Presentation of Results and Discussion

4.1 Introduction

This chapter presents data taken from respondents to try and answer the research questions and objectives that the study set off to explore. Care was taken to consider the multifaceted nature of respondents so that no group of respondents will be left out. Chapter four details the first and second objectives which is firstly to understand the value chain in the Makoko fishing community historically and the current perspective. Explicitly exploring the regulatory framework, health, and sanitary regulations as well as who the actors in this value chain are historically and currently. The second objective examines how the value chain contributes to vulnerabilities in the fishing community which also specifically covers the meaning of the value chain to residents in Makoko, what gaps are inherent in the value chain, their understanding of vulnerabilities within the community, the contribution of the value chain to these vulnerabilities, and how they believe these weaknesses can be addressed. The chapter opens with the socio-demographic background of respondents. The interview questions value chain actors' group, fisheries management, focused group and households are provided in appendices B, C, D and E, respectively.

4.2 Socio-demographic Background of Respondents

Respondents' demographics covered households, fishermen, processors, wholesalers, and retailers. For households, 13 males were recorded against seven females. Their ages ranged from 34 years to 55 and above. About 10 respondents fell between 34 to 44 years, while 9 and 1 was recorded for those between the ages of 45 to 55 and above 55 respectively.

For fishermen, it is predominantly male territory as 95 percent were males with only one female recorded representing 5 percent of the study population. Their ages ranged from 25 years to above 55 years. Two respondents [10 %] as shown in Table 4.1 were below the age of 55. Most fishermen

were between 45 to 55 years [45%] followed by those within the age brackets of 36 to 45 years [35%].

Table 4.1: Households and Fishermen

HOUSEHOLDS								
Sex	Respondents	Percentage %	Age range	Frequency	Percentage %			
Males	13	65	34 – 44	10	50			
Females	07	35	45 – 55	09	45			
			Above 55	01	5			
Total	20	100		20	100			
FISHERMEN								
Sex	Respondents	Percentage %	Age range	Frequency	Percentage %	Years Fishing	F	Percentage %
Males	19	95	25 – 35	2	10	Below 10	1	5
Females	01	5	36 – 45	7	35	11 – 20	2	10
			46 - 55	9	45	21 – 30	9	45
			Above 55	2	10	31 – 40	6	30
						41 – 50	2	10
						Above 50	0	0
Total	20	100			100		20	100

Source: Field data [2023]

Most of the retailers at Makoko according to the data taken were females [Table 4.2]. In fact, all 20 respondents were females showing that retailing primarily is carried out by females and not males. Their ages ranged from 20 years to 60 years while ten percent of respondents did not know how old they were. The majority [50%] of the respondents were in the 41 years to 50 years age bracket while two respondents were each in the 20 years to 30 years category and 51 years to 60 years category. Most of the retailers [70%] were illiterates who had no formal education; however, five respondents had been to primary school while one respondent was an SSCE (Senior secondary certificate exam) holder which is equivalent to a high school completion certificate. As to how long they had been in business, only 10 percent had been in business under 10 years. 90% of the respondents had been in the business over 11 years.

Table 4.2: Retailers

RETAILERS											
Sex	F	%	Age Range	F	%	Educ. Level	F	%	Years in Business	F	%
Male	0	0	20 – 30	2	10	SSCE	1	5	Below 10	2	10
Female	20	100	31 – 40	4	40	Primary	5	25	11 – 20	10	50
			41 – 50	10	50	None	14	70	21 – 30	5	25
			51 – 60	2	10				31 – 40	3	15
			Unknown	2	10						
Total	20	100		20	100		20	100		20	100

Source: field data [2023]

Processing was also an all-female activity, as all 20 respondents were females. Their ages ranged from 20 years to 65 years. Three respondents had the highest level of education which is the SSCE (Senior secondary school certificate exam) which is equivalent to a high school completion

certificate. Twelve of the respondents, which account for 60 percent of the population of retailers had no formal education while five respondents, which accounts for 25 percent of the retailers had primary education. Their years in business also ranged from below 10 years up to 40 years. Twenty-five percent [25%] of respondents were recorded to have been in the business for under ten years while 75 percent have been in the business for above ten years. Their details are presented in Table 4.3 below.

Table 4.3: Processors

PROCESSORS											
Sex		%	Age Range		%	Educ. Level		%	Years in Business		%
Male	0	0	20 – 30	6	30	SSCE	3	15	Below 10	5	25
Female	20	100	31 – 40	6	30	Primary	5	25	11 – 20	5	25
			41 – 50	5	25	None	12	60	21 – 30	7	35
			51 - 65	3	15				31 - 40	3	15
Total	20	100		20	100		20	100		20	100

Source: Field Data [2023]

Wholesalers according to the data is also an all-women activity with most of the participants without any formal education. Only 10% have been in the business for less than ten years. This speaks to the level of experience of the actors in this segment of the value chain. This is shown in the table below:

Table 4.4: Wholesalers

WHOLESALEERS											
Sex	F	%	Age Range	F	%	Educ. Level	F	%	Years in Business	F	%
Male	0	0	20 – 30	0	0	SSCE	6	30	Below 10	2	10
Female	20	100	31 – 40	0	0	Primary	0	0	11 – 20	8	40
			41 – 50	12	60	None	14	70	21 - 30	8	40
			51 – 60	8	40				31 – 40	2	10

			Unknown	0	0						
Total	20	100		20	100		20	100		20	100

Source: Field Data [2023]

4.3. Objective One: Understanding the Value Chain in Makoko Fishing Community

4.3.1 Introduction

Objective one aims to understand the value chain structure in the Makoko fishing community.

Questions raised to delve deeper centered around how the value chain operated historically and in the present day as well as who the actors in this value chain are. The health and sanitary regulations and regulatory framework for managing Makoko Fishery were inquired into. Respondents' understanding of the value chain was explored, what constitutes a fisher household, what the makeup of fisher households were in the past, and how fisher households have evolved over the years was explored. This explorative research was conducted with the aid of an interview guide in the study location.

4.3.2 What is the meaning of the Value chain in Makoko Fishing Community?

Most respondents' understanding of value chain hovered around four main areas which they understood as covering the meaning of value chain.

Table 4.4 What is your understanding of a fishery value chain? (Value Chain actor's survey, n=80)

Questions	% of Respondents
The value chain involves fishermen and fish sellers' activities from fish catch to the table	40
The value chain is fishing activities before the fish is sold	20
The value chain is fishermen, marketers, processors, and what they do to ensure fish is sold in good condition	30
All participants in the fishery activity	10

Table 4.4 details forty percent of respondents saying that the value chain involves the fishermen and fish sellers' activities from the time fish is caught to the time the fish gets to the table of the consumer. This group of respondents consider all activities that facilitated the process as the value chain. Thirty percent of the respondents felt it concerned fishermen, marketers, processors, and activities concerning fish processing to ensure fish is sold in good condition. This group of respondents considered value chain activities to stop at the time the fish is sold as a commodity. Twenty percent considered the value chain as the value chain activities such as washing, cleaning, and scaling performed before the fish is sold. Lastly, ten percent considered the value chain as the actors participating in the process and not the activities engaged in the value chain.

Table 4.5 depicts responses as to what constitutes a fishery value chain in Makoko with the objective of knowing who the actors are in this value chain. The different responses were given as detailed in the table below.

Table 4.5 What constitutes a fishery value chain in this community? (Value Chain actor's survey, n=80)

Questions	% of Respondents
The fisherman, Sellers, and processors	25
The fisherman, processors, fish sellers and those who sell ice block and firewood	35
The fisherman, wholesalers, processors, retailers	35
All the people participating in fisheries activities which include fishers, processors, retailers, wholesalers, and regulators	5

Respondents were asked what the value chain process was like historically. Table 4.6 captures their responses.

Table 4.6 Historically, considering generations gone. What was the value chain process like? (Value Chain actor's survey n=80)

Questions	% of Respondents
There was the fisherman. Their wives and children in the value chain	25
There were Fishermen and their wives	20

There were not many people	5
There were only fishermen. They caught and sold their catch to meet their needs	50

Table 4.7 captures the responses of how the value chain has evolved over the years. All respondents affirmed that the value chain has evolved as twenty percent said the process has a lot of people engaged in the value chain who are not part of the fisher household. Sixty-five percent said that the value chain now involves the fisher household, wholesalers, retailers, and processors while ten percent believed that the value chain now incorporates regulators from the local government and the Fisheries department in the Ministry of Agriculture. Five percent envisioned that the value chain has evolved as fishers no longer or seldom sell directly to consumers but make their catch available to their wives or children who are also engaged in the value chain as wholesalers or retailers.

Table 4.7: How has the value chain evolved over the years? Has the process changed in any way? (Value Chain actor's survey n=80)

Questions	% of Respondents
The value chain now involves more people who are not part of fishers' household	20
The value chain now involves the Fisherman and his household (wife and children), wholesalers, processors, retailers	65
Fishers seldom sell directly to consumers and their wives sell fish in the market	5
The value chain now involves regulators	10

Inquiry to get the current perspective of the value chain had sixty percent of the respondents in Table 4.8 saying that there is specialization in the value chain as there are retailers, processors, wholesalers, and retailers. Twenty percent of respondents mentioned the presence of middlemen that help facilitate sale of the product to consumers and provide leverage to the fishers to go back to fish since the middlemen buy off the fish and the fishers are not saddled with the unsold catch.

Thirty percent mentioned that fishers make their catch available to family members within the value chain to sell while ten percent of respondents said that the regulators cannot be distanced from the value chain as they are always present at the landing site and strategic locations within the fishing market to ensure health and sanitary issues are maintained.

Table 4.8 What is the current perspective of the value chain today? (Value Chain actor's survey n=80)

Questions	% of Respondents
There is specialization. (Processors, retailers, wholesalers, retailers)	60
There are middlemen (wholesalers, retailers)	20
The fisher gives his catch to his wife or children who is either a wholesaler or retailer to sell in the fish market	30
There are regulators from the Ministry of Agriculture and the local government council	10

Table 4.9 captures respondents' views on perceived changes that will occur in the value chain in the future. Fifty percent of the respondents believed that the use of standardized scales will be incorporated into the value chain process instead of using baskets that do not spell out the weight of their content. Twenty-five percent believed that the value chain would witness the presence of educated actors that would enhance value chain processes by incorporating technology into their day to procedures. Fifteen percent believed that because of the education of value chain actors, fish sales would be online in real time. They believed that packaging and labeling will all be incorporated into the value chain process. The last ten percent said they believed that haggling which is the mode of fish sale in Makoko would be a thing of the past.

Table 4.9 What form of changes do you perceive will occur in the value chain in the future? (Value Chain actor's survey, n=80)

Questions	% of Respondents
Sale of fish and fish products online	15
Sale of fish and fish products using scale instead of using baskets as a unit of measure. Fish pricing based on species of fish	50

Educated value chain actors enhancing value chain process with technology	25
An end to fish sale by haggling	10

4.3.3 What Constitutes a Fisher Household

What constitutes a fisher household was one of the areas probed into. Here respondents

expressed themselves in terms of what in their opinion constituted a fisher household. Their

responses are as presented in Table 4.10

Table 4.10 What constitutes a fisher household? (Household survey, n=20)

Questions	% of Respondents
People living with fishermen	15
Fisherman, his crew, his children, and his wife or wives if they live with him	5
Fisherman, his wife, and children	10
Fishermen, their nuclear and extended families residing with them	70

Respondents' view on how fisher households has evolved in Table 4.11 is that there has been no change in fisher households as forty-five percent of respondents said the whole family is engaged in the value chain while fifty-five percent reemphasized the same position that the households have not evolved as they are basically illiterates engaged in the fishery value chain process.

Table 4.11 How have these households evolved over the years? Have fisher households changed in any way? (Household survey, n=20)

Questions	% of Respondents
There are no changes in fisher households as they are all still engaged in the value chain	45
No changes, some have gone to school, but they are basically illiterates involved in the value chain	55

Table 4.12 was to know if there would be any changes in fisher household engagement in the value chain. All respondents agreed that there would be variations in household engagement in the value chain in the future and the responses are captured below.

Table 4.12 Do you envisage any changes in the future of households' engagement in the value chain? (Household survey, n=20)

Questions	% of Respondents
Yes. Wives could engage in other professions like hairdressing, catering.	25
Yes. We could have educated fishers and more children of fishers in school	30
Yes. Fisher household members can embrace other professions	45

4.3.4 Regulatory framework used in Makoko Fisheries.

One important aspect of fisheries management is the regulatory framework that is used in regulating the fishery. Fishery management is crucial to any successful fishing organization, especially in a fishing community. Questions on the regulatory framework used in the Makoko Fishery were administered to personnel in the fisheries department in the Ministry of Agriculture in Lagos. Below are the views of the respondents.

Table 4.13 What is the status of the implementation of the SSF voluntary guidelines for sustainable fisheries in Nigeria? (Fishery Management survey, n=10)

Questions	% of Respondents
The guideline has not been implemented	100

There is a hundred percent response rate to the non-implementation of the small-scale fisheries voluntary guideline for sustainable fisheries in Nigeria.

Table 4.14 is an attempt to find out the regulatory framework used in the management of the Makoko fisheries as Table 4.13 already confirms the non-implementation of the SSF guidelines. Eighty percent of the respondents confirm that there is no regulatory framework in place in Makoko as all activities relating to the value chain process and procedure are regulated by the value chain associations. Twenty percent of the respondents reaffirmed there is no regulatory framework in place in Makoko. They stated that the existing fishery laws and edits in Nigeria where Makoko is situated are weak and obsolete. They are not punitive enough to ensure

compliance by defaulters and as a result, they are not in use as those edits do not represent present-day realities(Akintola et al., 2022).

Table 4.14 What is the regulatory framework used for fisheries Management in Makoko? (Fishery Management survey, n=10)

Questions	% of Respondents
There is no regulatory framework as the value chain associations regulate the practice	80
There is no regulatory framework as existing laws or edits are obsolete and do not represent present-day reality	20

Table 4.15 aimed to explore the policies that guide quality control, fish handling, and post-harvest losses. Ninety percent of the respondents said the value chain associations regulate the activities while Ten percent of the respondents said there are no legal policies in place.

Table 4.15 What policies guide quality control, fish handling, and post-harvest losses in Makoko? (Fishery Management survey, n=10)

Questions	% of Respondents
There are no policies in place, the value chain associations regulate the practice	90
There are no policies in place	10

On health, Safety, and sanitary regulations in Makoko, all respondents stated that the health department in the local government council is legally empowered by law to regulate such issues within the Makoko Fisheries.

Table 4.16 Any health, safety and sanitary regulations enforcement in Makoko? (Fishery Management survey, n=10)

Questions	% of Respondents
The local government health department enforces, health, safety, sanitary and health regulations in Makoko fisheries	100

Fisheries Management representatives were asked if there were regulations to monitor entry and exit within the value chain and the response was a hundred percent that there is free exit and entry within the value chain. The value chain associations regulate issues within their node of the value chain but do not restrict entry or exit into the value chain. New entrants need to fulfill entry requirements and pay dues as required.

Table 4.17 was to elicit responses as to how fishing regulations are being implemented and enforced within the fishing community. The question aims to uncover if the community has rules or norms that detract from the ability of value chain associations to control the value chain. However, all respondents affirm that the fishing community does not interfere with fishing activities as the value chain associations regulate fishing rules within the community without community interference.

Table 4.17 What regulations are imposed on fish landing, and fish sale? Are there regulations for entry and exit within the value chain? (Fishery Management survey, n=10)

Questions	% of Respondents
There are no regulations for entry or exit into the value chain. The value chain associations regulate issues within their segment of the value chain	100

Table 4.18 was to know if the community assists in enforcing regulations in the community. The response is captured below as the community does not interfere in making or enforcing rules within its location. Respondents said all rules and enforcement emanate from the value chain associations.

Table 4.18 How are fishing regulations enforced in the Makoko fishing community? (Fishery Management survey, n=10)

Questions	% of Respondents
The associations regulate and enforce fishing rules within the community. The community does not interfere with fishing activities	100

4.4 Objective Two: How Value Chain Contributes to Vulnerabilities

The second objective aims to explore how the value chain contributes to or detracts from the vulnerabilities of the Makoko fishing community. In this section gaps in the value chain were identified. Residents understanding of vulnerabilities was explored, the type of vulnerabilities was be highlighted, and residents' perspectives as to how gaps in the value chain can be addressed was revealed. Data for this explorative research was from interviews within the study location with the help of an interview guide.

4.4.1 Are their Gaps in the Value Chain?

Fishers were asked if there were any gaps within the value chain and eighty percent of respondents [80%] believed that there were gaps. Twenty percent [20%] however responded in the negative. Table 4.19 presents the responses of research participants.

Table 4.19 Are there gaps within the value chain? (Value Chain actor's survey, n=80)

Response	% of Respondents
Yes	80%
No	20%

4.4.2 What are the Gaps in the Value Chain?

Fishers were asked to express or discuss the gaps they identified or experienced plaguing the value chain process. Several items were identified as contributing to or being the fishing business's gaps over a long time. The table below is an indication of the gap the fishers have experienced over time.

In Table 4.20, 20% of the respondents had not seen any gaps within the value chain and hence had nothing to report. They believed everything was normal within their ranks. 15% however felt there is a lack of cooperation amongst value chain actors while twenty percent commented on the inadequacy of technology in a generation where technology is taking over most activities globally. 25% however were concerned about facilities for the preservation of their catch as the absence of

preservation facilities which made storage a huge challenge. Lastly, 20% felt that they didn't see a lack of cooperation amongst value chain actors as a challenge but rather that there are challenges with coordination by value chain association leadership.

Table 4.20 What gaps do you think the value chain is experiencing? (Value Chain actor's survey, n=80)

Response	% of Respondents
None	20
Lack of cooperation amongst value chain actors	15
Inadequate Technological advancement	20
Inadequate preservation facilities	25
Coordination challenges	20

Lack of Cooperation amongst value chain actors: Value chain actors within the fisheries approach the fisheries as a personal trade due to the absence of collective action. The open-access nature of the fisheries also aggravates this challenge. The actors provide for their business with little or no support. These issues affect the way and manner value chain actors relate with themselves to ensure collective action as they operate as investors within the fisheries to maximize profit. Below is an excerpt of some value chain actors' responses when asked if they have had collective action in the past to address gaps within the value chain.

“The answer was NO because they don't have enforcement Powers” [Fisher].

Another value chain actor stated that:

“People operate their businesses independently and do not have the capacity to enforce desirable changes” [Fisher].

Another value chain actor stated that:

*“We are not well organized because we expect the government to intervene”
[Wholesaler].*

Inadequate Technological advancement: Twenty-five percent of the fishers perceived technological advancement as a major gap in the value chain but Interviews with fisheries management show that actors within the Makoko Fisheries are technology averse because of their level of literacy. They also spoke of instances where the government provided equipment and the fishers abandoned the use of those equipment. It is correct that illiteracy and inadequate capital to procure contemporary equipment is a major setback in the fisheries, but the fisheries management representatives rightly captured the situation as:

“There is resistance to modernization by value chain actors”.

A retired fisherman also commented on the issue of value chain actors’ resistance when he said.

“There is a high level of resistance to change by most actors within the value chain. Most of us are comfortable with the old processes of getting the job done. Even when some items are provided, we do not make use of them and are not eager to incorporate them, so we lack technological know-how. The value chain suffers from a lack of basic infrastructure such as adequate coolers, cold rooms, deep freezers, smoking kilns, filleting machines, ice boxes, a good road network to and from the market, and a good mode of transportation for product distribution and information. All these facilities aid in the quality of fish and leave a large gap in the value chain process due to its inadequacy”.

Inadequate Preservation Facilities: Makoko has cold room facility which is obviously inadequate for the fisheries. That is why there is a clamor amongst various actors for the provision of additional preservation facilities. A fisher captured the situation nicely when he said:

“We do not have enough preservation centers”.

Coordination Challenges by value chain leadership: Twenty percent of the respondent’s said the association leadership was weak and could not coordinate a united group in attending to value chain gaps. They stated that this was the major issue within the value chain. As a result, most actors within the Makoko value chain see the business as a personal enterprise where the government,

regulators, the community, and associations have failed to meet their needs and so they are averse to being guided or instructed by these parties. This state of mind and approach to fishing they said is the major challenge to the Makoko fishery value chain and this assertion was vividly captured by Fisher respondent who expressed his view as:

“Fishing here is all man to himself”.

4.4.3 Can these Gaps be bridged?

Identifying gaps in any situation is not enough if suggestions and/or solutions for how the challenges can be confronted are not proffered. Fishers were asked whether the identified gaps could be bridged, and if so, how these gaps could be bridged. Table 4.21 shows the various responses study participants gave to the issues raised. Eighty percent of respondents indicated that the gaps in the value chain could be confronted while twenty percent had no idea as to whether these gaps could be bridged. Those that believed the gaps can be addressed mentioned government intervention while others said they no longer consider such interventions due to past failed promises. Factors that can address these gaps are elaborated on in chapter 5.

Table 4.21 Can these gaps be bridged? (Value Chain actor's survey, n=80)

Response	% of Respondents
Yes	80%
No	20%

4.5 Meaning of Vulnerability within the Makoko fishing Community.

Vulnerabilities have a way of impacting community members both negatively and positively. Respondents gave diverse responses as to how they understood vulnerabilities and what these vulnerabilities mean to them. Table 4.22 details our respondent's understanding of vulnerability.

Table 4.22 What do you understand by Vulnerability in Makoko fishing community? (Household survey, n=20)

Questions	% of Respondents
Things that impact us negatively	30
Issues that cause drawbacks	15
Things affecting our wellbeing	10
Things that cause us not to succeed	20
Exposure to diseases	10
Issues that cause us to be poor	10
Issues that affect the well-being of the community	5

Things that impact us negatively: Thirty percent of the respondents considered vulnerability as all issues that impact them negatively. They considered negativity could emanate from their environment or from the value chain process. They mentioned issues such as bad air quality in Makoko, bad odour from the waterways within the slum settlement, and lack of basic infrastructure as issues impacting them negatively. A respondent said.

“We need urgent help. Some of us have already adapted to the unsanitary condition and constant smell in this community because they have no where else to go. Government should come to our help because this is a public health issue.”

Issues that cause us drawbacks: Some of the respondents considered vulnerability as a setback from a position of strength. They understood vulnerability as a loss of livelihood. They considered the government’s stance to relocate the inhabitants of Makoko whether through urban renewal, or gentrification a source of vulnerability. They fear they would lose their identity and livelihood and may suffer displacement as captured by a retailer who said.

“This government no send anybody, what they want is to take over Makoko for the rich”

Another respondent within the household said:

“Sometimes I dream that this community has been taken over and I cannot imagine what will happen to me and my children. That is why I find it difficult to buy expensive things because it will all be a waste. So, anything that makes me not have confidence in tomorrow is a set back.”

Things that affect our well-being: Some of the respondents highlighted the psychological trauma associated with displacement and the fear of such actions impacting their well-being. They said whatever impacts their mental health is a source of vulnerability and impacts their well-being as well. This situation the focused group member said.

“We need to upgrade and not demolish. Anytime this issue comes up I find it difficult to sleep. It is a problem as no one knows what can happen as we are all aware of what happened in Maroko, Otodo Gbame. If I worry so much about it, what will my children do if it does not take place in my time?”

Things that cause us not to succeed: Here respondents said that vulnerability is the inability to access basic infrastructure. They mentioned school and medical care. They said most of them languish and go for self-medication which makes them vulnerable. They also said the inability to access education or to pay for it is a source of vulnerability. This was aptly captured by a head of household who said.

“Education is power. Most of us here are poor because we are illiterate and have no other source of livelihood except fishing. If our children must succeed, education should be a gift but that is not the case in our community irrespective of the government free education initiative.”

Exposure to diseases: Others understood vulnerability as ill health and disease that their environment predisposes them to. They complained of malaria and typhoid which has its source from mosquito bite and infected water respectively. A household respondent said.

“Our ancestors lived on the water so we cannot be separate from water. The difference is that with civilization there is a lot being thrown into the water and it is giving us a lot of health problems because we also need to bath, drink, and cook with the same water”

Issues that cause us to be poor: These respondents considered limitations that predisposes them to poverty as vulnerability. They mentioned illiteracy, lack of access to basic infrastructure, and government neglect which was buttressed by a respondent who said.

“What we need is government support to provide essential services and upgrade the slum. If that is done that will be a source of empowerment to the Makoko residents. It’s being a life of struggle.”

4.5.1 What Vulnerabilities Persist in Makoko Fishing Community?

Specific issues that plague the Makoko fishing community were explored. The most highlighted issue in the community was the lack of basic infrastructure such as schools, healthcare, improper sewage, and waste disposal systems. 45% of respondents mentioned the lack of basic infrastructure, this was followed by environmental pollution and poor sewage disposal. 35% of respondents alluded to the fact that pollution and disposal of sewage were important to them. Air and waterborne diseases were identified by 15% of respondents while 5% admitted to unsanitary living conditions being a problem in the community.

Table 4.23 What are the vulnerabilities in the Makoko fishing community? Name them. (Value Chain actor's survey, n=80)

Questions	% of Respondents
Lack of Basic Infrastructure	45
Environmental Pollution and poor sewage disposal	35
Water and airborne diseases	15
Unsanitary living condition	5

Lack of basic infrastructure: Forty-five percent of the respondents bemoaned the lack of basic amenities in the fishing community such as pipe-borne water, the inadequate network of roads to and from the fishing market, lack of electricity and education facilities. These provisions which are basic to residential areas are obviously missing or inadequately provided in the slum where the fishing community is situated, and the respondents noted it makes them vulnerable. They believe

that if the government is willing, the situation will be different, and this was captured from a respondent who said.

“We need government attention; the NGOs are trying but they cannot do it alone”

Environmental pollution and poor sewage disposal: The respondents said that the major issue in the settlement is air and water pollution, illegal dumping of municipal and industrial waste into the lagoon coupled with the settlement’s poor sewage disposal. The respondents said they are prone to malaria, typhoid, dysentery, and cholera because they lack access to clean and potable water. The water they defecate into is what they use in cooking and other domestic activities. Most of the residents in Makoko on water defecate directly into the lagoon. A woman in the household said.

“We are resilient and have survived in Makoko, but this generation of children need something better. We hope that the community can have one focus and call on the government to assist. Our children need a better future.”

Unsanitary Living Conditions: Understanding the precarious situation in which Makoko finds itself is the unsanitary living condition in which the inhabitants thrive. The respondents complain of no proper waste management system in place. This situation was explained by a member of a household who said.

“Our surroundings need clean up. There are a lot of residents who do not care about the sanitation of Makoko. They dump their refuse anywhere and everywhere”.

Air and Waterborne diseases: The respondents complained of air and waterborne diseases prevalent in the community due to the high level of pollution resulting from the value chain process and residents' nonchalant attitude. They mentioned eye defects from fish smoking, cholera, dysentery, and respiratory diseases.

4.6 How Value Chain Contributes to Vulnerabilities

Table 4.24 was to elicit respondents' views if there were value chain processes detracting from the communities' vulnerability. All respondents agreed that some value chain processes impact not just the community negatively but also impacts the residents negatively and their views are captured below.

Table 4.24 Are their value chain activities that impact the community negatively? (Household surveys, n=20)

Response	% of Respondents
Yes, Improper disposal of fish waste into the lagoon is one of the major odors we encounter	35
Yes, Indiscriminate Fish smoking in households impacts our air quality increasing the prevalence of lung diseases in the community and could expose the community to a fire outbreak	40
Yes, Improper waste disposal of fish waste on land creates an unkept environment for Makoko	5
Yes, Fish smokers are increasing the number of people with eye defects in the community	20

Fishing communities have their traditional ways of preserving fish either by salting, drying, or smoking. All respondents when asked how fish smoking became a problem in Makoko were quick to state that with the importation of a specific species of fish locally known as Kpanla.

Response in Table 4.25 shows that irrespective of the health and environmental challenges associated with this activity, nothing has been done by the regulators, value chain associations, or community leadership.

Table 4.25 How have these negative impacts evolved over the years? Were there actions to limit them? And by whom? (Household surveys, n=20)

Response	% of Respondents
Fish Smoking became a problem with the importation of a fish species locally known as kpanla. No action to limit them.	100

Table 4.26 depict the response to health and environmental challenges in Makoko. The issues of Air and water pollution, Malaria and typhoid, and Education of children have been extensively discussed in Table 4.23

Table 4.26 What health, social, economic, and environmental challenges are prevalent in the community because of the value chain process? (Household survey, n=20)

Response	% of Respondents
Air and water pollution	35
Malaria, typhoid, dysentery, cholera	15
Inadequate educational facilities for children	30
Child Labour/Child Abuse	20

Source: field data [2023]

Child Abuse and Child Labour relate to the issue of out-of-school children under the age of 18 years engaged in value chain processes or made to hawk smoked or fresh fish to help the family economically. Respondents highlighted the issue as prevalent within the community. This was aptly captured by a respondent who said.

“Our children need a better future. We engage them with helping in the family business as fishers, and retailers since we cannot afford to pay school fees. With the training, they can help themselves in life. That is how we started. They also need to be engaged so that they will not pick up vices from the community.”

4.6.1 Value Chain impacts on the Youth in Makoko fishing Community

Value chain was said to have had a good impact on the youth of the community especially in terms of employment opportunities. 35% of respondents explained that some youths have become self-employed because of the opportunities presented by the value chain. 15% of respondents cited early marriages as a negative impact of the value chain on the youth due to the quick access to finance. 30% also said that the ease of employability provided by the value chain increased the number of youths that have lost interest in higher education. Closely linked to early marriages were the incidents of domestic violence emanating from married youth that were inexperienced to handle the responsibilities that marriage presented, and the outcome is separations and childcare issues within the community.

Table 4.27 How has the value chain impacted youths in the community? (Household survey, n=20)

Response	% of Respondents
Source of Employment	35
Early Marriages	15
Youth out of school	30
Childcare issues	20

Source: field data [2023]

4.6.2 Value Chain impact on the community?

Respondents during the focused group interviews were asked whether the value chain had contributed to issues of concern to the Makoko community. This was to detail the kind of challenges that existed in the community which has arisen because of the value chain processes. About 90% of respondents responded yes, while ten percent said no. The Ten percent however mentioned that he was not sure whether some of these issues persisted. Details are shown in Table 4.28

Table 4.28 Has the value chain process contributed to issues of concern in the Makoko Fishing community? (Focused group, survey n=10)

Response	% of Respondents
Yes	90
No	10

Source: Field data [2023]

For those who responded yes, some of the emanating issues they raised were domestic violence, early school drop-out, adolescent pregnancy, child labour, and area boy syndrome leading to gambling, drug, and substance abuse, etcetera. Table 4.29 captures the scenario.

Table 4.29 What are the issues that have impacted households because of the value chain process? (Focused group survey, n=10)

Response	% of Respondents
Domestic Violence/ Broken Homes	30
Out-of-school children/Youths	20
Adolescent Pregnancies	10
Child labour/social vices	10
Health challenges	20
Environmental degradation due to pollution	10
Reduced Income	30

Domestic Violence/ Broken Homes: Respondents cited the issue of an early embrace of fishing by youths as exacerbating domestic violence in homes as most of the youths embrace early marriages and are unable to cope with the challenges of marriage. This has resulted in domestic violence for some while for others it has led to the separation of marriages.

Out-of-school children: The issue of out-of-school youths is also a problem as respondents quoted some youths as saying that there are no white-collar jobs out there after school. Some drop out to join fishing while others engage in school with little or no interest to make the best of academics.

Adolescent Pregnancies: The issues are not limited to the male folk as young girls become easy prey to male counterparts who have some economic resources to spare. The respondents mentioned poverty, inadequate family support, and lack of sex education as aggravating adolescent pregnancies in the community.

Child Labour: A respondent mentioned that some single parents because of adolescent pregnancies require help economically and mostly engage their kids for help. In this instance, the kids are unable to focus on school even if they are enrolled. A fisherman's wife in the household who is also a retailer said.

“Fishing is a family business, and everybody is involved.”

Health Challenges: Respondents mentioned the prevalence of malaria, dysentery, typhoid cholera, eye problems, respiratory diseases, and premature aging of value chain actors, as health challenges associated with the value chain processes. A fish processor said.

“Fish smoking and odour from decomposing fish waste indiscriminately disposed into the water and on land is our major challenge. Several of our fellow processors have problems with their sight, and some are no longer smoking as they can no longer cope with the smoke and heat from the local kiln.”

Environmental degradation: A respondent during the focused group discussion mentioned the issue of environmental pollution and overfishing because of the value chain processes in Makoko.

He attributed the issue to inadequate monitoring and the government's unwillingness to enact and enforce laws that can govern sustainable fishing practices. His comments are captured below.

“We lack government attention and if the laws that regulate small-scale fisheries are passed and enforced, our situation here will be improved.”

Reduced income: The issue of reduced income from the value chain was mentioned as impacting households negatively. This is one of the issues why fishers' household are diversifying their source of income to ensure livelihood security. Household responses can be seen in Table 4.31

Social Vices: Makoko with its substandard housing provides cheap accommodation for some of the urban poor who cannot afford decent accommodation. The area is overcrowded and with a lot of societal vices visible within the environment such as gambling, drug, or substance abuse. Respondents during the focused group discussions distanced themselves and the fishing community from the social vices listed saying that those vices were associated with other residents in the community as fishers, their wards, and kids are busy in value chain processes and do not have the luxury of such addictions. This was a consensus and aptly captured as

“We are focussed on fishing and do not engage in gambling, robbery and what have you? Here is already a mixed multitude but we fishers have a culture, and we adhere to it.”

4.6.3 Community Response to address gaps within the value chain

This question was to find out if there are community responses to vulnerabilities within their environment because of value chain impacts. All respondents interviewed stated that the community was not involved with associations that help address value chain impacts. However, some respondents noted that non-governmental associations visit the community to assist in terms of education, and provision of food, clothing, and fishing equipment but did not link such gestures to the community leadership or value chain association.

Table 4.30 Is the small-scale fishing community involved with any organization to help address issues within their environment? (Household surveys, n=20)

Response	% of Respondents
YES	0
NO	100

4.6.4 Fishing households' response to value chain impacts

Table 4.31 was to understand how fishing households respond to value chain impacts. Sixty percent of respondents stated that there is a decline in fishing household profitability from the value chain. Fifteen percent said fish prices are higher now, but the profits are low. Twenty percent said that fishers had more disposable income in the past than the present while five percent said that the difference in profitability between the past and the present was negligible.

Table 4.31 What can you say about the profitability of fishing households from the value chain in the past and present day? (Household surveys, n=20)

Response	% of Respondents
Fishing gave us better profit in the past	60
Prices of fish is higher now, but the profit is less	15
Fishers had more disposable income in the past	20
There is not much difference in profitability	5

Table 4.32 captures household reaction to reduced profitability of the fishing enterprise because of gaps within the value chain. Fifty-five percent of respondents said households are diversifying their income to other sources of income prevalent in the fishing community as the community aside from fishing is known for lumbering, dredging, and salt making from the lagoon. Wives are embracing other trades. Fifteen percent are into other vocational training. Twenty percent believe that training their children would improve their livelihood in the future and make them independent of fishing while ten percent of respondents had no idea how they could react positively to value chain impacts on household income. When asked why they had no idea, they said fishing for them is cultural and did not envisage picking up any other vocation in the future.

Table 4.32 How have households reacted positively to reduce value chain impacts on households? (Household surveys, n=20)

Response	% of Respondents
Income diversification by fishers going into sand dredging, salt making, lumbering, and Wives venturing into other vocations such as hairdressing, local food vendors within the community	55
Vocational training to other fields	15
Education of Children	20
No Idea	10

4.7 Discussion

Value Chain refers to the full range of activities that are required to bring a product or service from conception, through the different phases of production, and delivery to final consumers (Kaplinsky & Morris, 2001). The first objective of this exploratory research sought to understand the value chain in the Makoko fishing community historically and the present perspective. To answer this objective, our research questions are what the structure of the value chain is in the Makoko fishing community and who are the actors in this value chain. The second objective was to examine how value chain contributes to or impacts vulnerability in the Makoko fishing community. The research question is what are the gaps inherent in the value chain contributing to vulnerability in the fishing community? To embark on this research, respondents understanding of the value chain was enquired into, questions on the regulatory framework used in managing the Makoko fisheries was explored and finally, value chain gaps were identified to analyze how the gaps contribute to vulnerability in the study location.

4.7.1 Residents' Understanding of the value chain historically and current perspective

Respondents in Table 4.4 gave their views on what they understood a value chain to be, and the responses suggest they have a primary understanding that the value chain consists of activities that

take place from the time a fish is caught and the processes it goes through before it is sold to the final consumer. We dived into what constitutes a fishery value chain in Makoko, the responses in Table 4.5 revealed that the respondents understood that everyone who provides an enabling environment for the value chain to function effectively was a part of the value chain. Thirty-five percent of respondents mentioned fishermen, processors, fish sellers, and those who sell ice blocks for preservation and firewood for fish smoking as part of the value chain in the community. Five percent of the respondents however mentioned all the people participating in fisheries activities and included fishers, processors, retailers, wholesalers, and regulators. From these responses, one can infer that the actors in the Makoko value chain consist of fishermen, fish traders (wholesalers and retailers), processors, suppliers of input, and regulators. This submission is consistent with the literature (Jacinto & Pomeroy, 2011) .

Historically, the respondents clarified that the value chain consist of the fisherman alone who fished for his domestic consumption, and as society evolved, he began selling the surplus to make money to buy his other needs and as they got married, their wives joined them in the trade basically to process and preserve. This activity was basically salting and sun drying. As the family unit grew children joined the value chain and so did the extended family or people who live with fishers. They make up the fisher household and partake in the value chain process Table 4.10. Currently, the processing of fish in Makoko is basically smoking with a local kiln. Children of fishers are not only involved in processing but have joined in retailing as most hawk fish produce and some are into active fishing Table 4.6. This is what a respondent had to say about the current situation.

“Our children need a better future. We engage them with helping in the family business as fishers, and retailers since we cannot afford to pay school fees. With the training, they can help themselves in life. That is how we started. They also need to be engaged so that they will not pick up vices from the community.”

The respondents also stated that the value chain has evolved considerably as a lot of new entrants have joined the value chain for economic purposes who are not part of fisher households acting as middlemen, input suppliers, and regulators (Overa, 2011). Due to the evolution of the value chain, fishers no longer sell directly to consumers due to middlemen, and as a result, members of fisher households sell the product in the market either as retailers, wholesalers, or processors Table 4.7. The data indicates that Makoko value chain is place driven considering the evolution of its value chain and households. Place driven value chains place emphasis on the physical location of the product, processing and distribution which is the case in Makoko. Value chain actors, consumers, and stakeholders all focus on the geographic location of Makoko as a fishery hub that serve the geographic location where it is situated. Advantages of place driven value chains include emphasis on local production, emphasis on sustainable fishing practices that will benefit the community, preservation of culture, tradition and local knowledge.

The current perspective of the value chain as detailed in Table 4.8 is that there is specialization as there are various actors in the value chain with specialized activities and there are regulators from the local government council and the Fisheries department in the Ministry of Agriculture.

Table 4.8 What is the current perspective of the value chain today? (Value Chain actor's survey, n=80)

Response	% of Respondents
There is specialization. (Processors, retailers, wholesalers, retailers)	60
There are middlemen (wholesalers, retailers)	20
The fisher gives his catch to his wife or children who is either a wholesaler or retailer to sell in the fish market	30
There are regulators from the Ministry of Agriculture and the local government council	10

Respondents believe that in the future changes that will occur in the value chain would include sale of fish and fish products online, better educated value chain actors enhancing value chain processes with technology such as labeling and packaging, they see an end to haggling which is the present mode of pricing in the value chain, they also envisage price standardization and measurement to get an accurate weight of products before sale Table 4.9. Respondents also envision changes in the future of fisher household engagement in the value chain. Twenty-five percent of respondents said that wives of fishers may as well engage in other professions either full-time or part-time. Thirty percent said we could have educated fishers and more children from fisher households in school while forty-five percent of the respondents envisioned members of fisher households embracing other professions Table 4.12. Fisher households moving into other professions is consistent with studies conducted in Ghana and Zambia which concluded that fishers and their households are not different from other citizens that are geographically and occupationally mobile. They can move into other professions if they consider them viable alternatives and non-fisher households can move into fishing if necessary (Overa, 2011).

4.7.2 The regulatory framework operational in the Makoko fishing community?

The purpose of this section was to discuss the regulatory framework used in the Makoko fisheries. The data in Table 4.14 and focused group discussions suggest that there is no legal regulatory framework used in managing Makoko fisheries. Members of the value chain association said they have rules that guide their activities (traditional knowledge) which members are aware of, and it is those rules that are being implemented in the fishery. When asked why they were having challenges with co-ordinating their members to address value chain gaps. They stated that they do not have the capacity to address value chain gaps. They said that they register members who want to join the value chain and enforce market rules on members such as payment of appropriate levies

but cannot address value chain gaps as it requires funding. When asked how traditional knowledge rules can be used to sanctions members for indiscriminate smoking of fish in households or overfishing, a value chain leaders' response was.

“We cannot stop people from fishing or smoking fish in households. Fishing, fish smoking and other value chain activities are cultural. We live on water and do everything on water.”

Another value chain leader added that:

“We have rules but not for smoke or open defecation into the lagoon. Those things are for nature to take care of. Because the fish smoking is affecting our members, we are looking for what we can do about it”

The verbal quotations above signifies that the traditional knowledge in use in managing the Makoko fisheries requires some level of adaptation to deal with modern day realities. The statements also suggest that indiscriminate smoking impacting air quality and open defecation into the lagoon do not constitute a breach of rules in the fishery and so do not attract any form of sanctions. The responses also suggest that the regulatory framework used in Makoko which should have conservational value based on traditional knowledge does not recognize the profound effects of pollution on the sustainability of the fishery.

Regulators persuasion for processing to take place at the processing area has low compliance as respondent's views suggests noncompliance to those directives. The comments and data indicate that the key drivers of environmental degradation in the Makoko fishery are the open access nature of the fishery, non-implementation of the small-scale fisheries' voluntary guidelines, outdated laws and edits of the national and state government that could have rules to curb actions detrimental to the environment, weak institutions, and weak community leadership. These findings are consistent with results from previous studies in Sudan which found that low levels of punishment were elements contributing to non-compliance by fishers (Abusin, 2012) . The situation in Makoko also

aligns with a study in Ghana which found that if enforcement officials and the law are perceived as legitimate, Fishers will abide by them (Owusu et al., 2023a). One can conclude that value chain actors in the Makoko fishery are averse to regulations that do not conform to the traditional knowledge in place in the fishery. That could be the reason they did not recognize the regulators' pleas, relevance, and legitimacy of those rules even when they agree that some of the activities impacts public health and safety of residents in the community.

4.7.3 Analyzing gaps within the Makoko value chain.

Respondents in Table 4.19 believe that there were gaps within the value chain and a respondent gave his view by saying,

“The value chain suffers from a lack of basic infrastructure such as adequate coolers, cold rooms, deep freezers, smoking kilns, filleting machines, ice boxes, a good road network to and from the market, and a good mode of transportation for product distribution and information. All these facilities aid in the quality of fish and leave a large gap in the value chain process due to its inadequacy”. [Fisherman].

Another respondent said:

“We suffer from inadequate market information, non-existent occupational health and safety facilities, weak governance, socio-economic status/educational difference, and lack of collective action are some of the gaps in the value chain”.

Eighty percent of respondents indicated the gaps can be addressed but respondents when asked to detail some of the gaps confronting the value chain as presented in Table 4.20 the data highlighted a lack of coordination amongst value chain actors, challenges with coordination by value chain leadership, and inadequate technological advancement. Further comments from the respondent's were captured as saying.

“We need stronger unions and associations. Government is not always helpful to us, but NGOs assist”.

Another respondent said,

“With stronger trade associations, the value chain gaps can be addressed”. [Fisherman].

Respondents' comments above suggest weakness in the value chain associations and their leadership in addressing value chain gaps which supports listings in Table 4.20. Leadership weakness is the fundamental reason why there are challenges with coordination which accounts for why value chain actors are unable to have a united front that could aid collective action to address inadequacies in the value chain. The leadership vacuum revealed in the data supports what a respondent said about value chain actors resisting change. The response is captured as

“There is a high level of resistance to change by most actors within the value chain. Most of us are comfortable with the old processes of getting the job done. Even when some items are provided, we do not make use of them and we are not eager to incorporate them, so we lack technological know-how”.

The comment above suggests that the basic problem with Makoko fisheries is not the provision of equipment to aid the value chain process but that of governance. The data in Table 4.14 shows there is no regulatory framework for fisheries governance in Makoko while Table 4.18 reveals that governance for the fisheries lies with the value chain associations. The associations are said to have made presentations through their cooperative to the government but has not mobilized collective action to address challenges in the value chain. Most activities are centred on market sanctions and levies but inaction to value chain issues.

The situation suggests a weak governance regime that has no capacity to address value chain challenges as an association or attract institutions to assist.

Gaps in the Makoko value chain are consistent with studies conducted in small-scale fisheries in developing countries where the FAO noted severe gaps in the value chains and made a clarion call on governments and institutions to assist artisanal fisheries by enabling the value chain (FAO, 2018).

4.7.4 How are these gaps impacting Fisher Households and the community?

Sixty percent of households in Table 4.31 stated that fishing was more profitable in the past than it is now. 20% of respondents from the same table supported the response by adding that fishers had more disposable income in the past than present-day fishers. Fifteen percent said that fish prices were higher now, but the profit is low which gives us a total of 95% of respondents saying that fisher income has declined. When asked how they are reacting to this decline in income Table 4.32 captures the responses which suggest that fisher households may change in the future in the study location as 90% of the aggregate response shows a diversification of income to other professions to bridge the gap in income between the present and past income. The diversification of household members and fishers to embrace other professions even if it's a temporary move supports an empirical study conducted in Sudan which suggests that fisherfolks need better education as well as alternative income-generating activities (Abusin,2012).

4.7.5 How has the value chain contributed to vulnerabilities?

Vulnerability for the purpose of this thesis does not mean poverty but exposure to risk, shock, or stress (Chambers, 1989). Respondents when asked how the value chain in Makoko contributes to vulnerability, could relate to the issues on an individual and community level. Based on the data, vulnerability impacts would be related to environmental, social, natural, institutional, political, and technological dimensions. Previous studies have shown that deprivation is reducing in fishing communities, but substantial issues remain a challenge for communities and governments in a quest to improve living conditions (Bennett, 2002). The contributions of the value chain to vulnerability in the Makoko fishing community are detailed below.

Environmental Impact: Respondents complained on different scales about the abuse of air quality because of fish smoking. They complained of water pollution because of the illegal dumping of waste emanating from the value chain processes. Other issues emanation from the

value chain process includes open defecation into the lagoon by households, fishers, and indiscriminate dumping of refuse at the fish market and around households. These actions aid environmental degradation, and the impact of these activities is water and airborne diseases such as malaria, Typhoid, and Eye problems impacting households Table 4.23.

Natural Impact: Respondents noted that the fishing profession exposed fishing households to living on the water. A respondent noted that they were at risk of climate change and rising water levels which could sweep away their shanty houses overnight and some of the residents could lose their lives. Her comments are detailed below.

“Fishing is a risk, living on water itself is another risk. In fact, everything about us is risky. We hope that the water level will not affect our shelter because the water level keeps rising. It was not this high some years ago.”

Economic Impact: Fishers and fishing households revealed the economic impact of fishing on their livelihood as income has reduced. The reduction in income is the basic reason for income diversification by fishing households as shown in Table 4.31 and Table 4.32 respectively. A reduction in income is a reason why kids cannot go to school or those in school must discontinue if their parents cannot afford the fees. Households cannot access proper healthcare facilities thereby resulting in disabilities in households.

Social Impact: The Makoko community is a thriving community, and the social impact of the value chain as revealed by the data are an increase in adolescent pregnancies, young uneducated fishers and value actors, Early marriages, Domestic abuse, Child abuse, childcare issues, and societal vices.

Political Impact: The data reveals that the value chain actors and the community have not harnessed their numbers for collective action. As a result, they lack political representation that could draw government attention to their plight.

Institutional Impact: Vulnerability is made worse in this fishery by the inadequate governance system and poor interactions (Millán, 2019) . The impact is that the fishing institution is weak and lacks the appropriate institutional framework and policy support that could transition it from its vulnerable state.

Technological Impacts: Technology aids a process to become efficient and with efficiency, one could look towards maximizing cost. The response below suggests the value chain actors are technologically averse. This trend exacerbates vulnerability as some value additions along the value chain that could aid profitability would be lost for non-implementation.

“There is resistance to modernization by value chain actors”.

4.7.6 Factors Influencing gaps in the value chain.

Value chain gaps cannot be bridged without first understanding the value chain and its challenges.

The value chain approach in fishery management does not limit our focus to fish catch, in that it examines relationships between and amongst actors. The value chain explores the policy and economic environment and outlines the internal and external forces impacting the value chain (Parke, 2014).

The study reveals that the gaps in the value chain are influenced by external and internal factors. The external factors include Regulatory and compliance issues, Technological advancements while the internal issues include Lack of skill and training, process inefficiencies communication and collaboration, Resource allocation, and utilization. This can be seen in Table 5.2 in conjunction with the respondent responses.

Regulatory and compliance issues: There are no enabling laws regulating Makoko fisheries. Nigeria where the study site is located has not institutionalized fishery laws and is yet to implement small-scale fisheries guidelines(Akintola et al., 2017).

Technological advancement: Makoko fisheries is still traditional in nature as value chain operations are basically local except for the adoption of engine boats, refrigerators, and cold rooms.

Lack of skill and training: Value chain actors need capacity building which is basically lacking in the fishery.

Communication and collaboration: There is ineffective communication and a lack of collaboration in the fisheries. There is a need to ensure the inclusiveness and active participation of local resource users and local community leaders in fishery initiatives.

Resource allocation, and utilization: The Makoko fisheries lack adequate resource allocation which is an institutional problem. The fisheries leadership should also ensure the utilization of resources when they are allocated by monitoring compliance.

Process Inefficiencies: The value chain is inundated with outdated and obsolete processes.

4.8 Conclusion

This chapter addressed objectives one and two of the thesis. The chapter began with the socio-demographic characteristics of respondents which was illustrated with the use of tables. Respondents' understanding of the value chain historically and currently as well as vulnerabilities and challenges were also explored. The data suggest that the Makoko fishery is place driven and that the fishery continues to evolve over time. The major challenge revealed by the data is the weak governance capacity in the fishery. Those who should manage the fisheries such as the fisheries department in the Ministry of Agriculture are saddled with obsolete laws that are not punitive enough to check excesses within the fisheries. The value chain associations who are saddled with governance lack the collective action to address value chain gaps. This situation poses a problem

to fisheries management, and it becomes difficult to coordinate or map out punitive measures for non-compliance. The situation was highlighted by a fisheries management respondent as captured below:

“There is no policy for enforcement in Makoko fisheries. We monitor what they do but basically, we work with them, and advice based on moral suasion. The value chain associations regulate the practice”.

Chapter Five will explore how to address the gaps in the value chain.

Chapter 5.0 Addressing the Gaps in the Value Chain

5.1 Introduction

Chapter Five presents data taken from respondents to address the gaps that the value chain is experiencing. This objective was realized by administering open-ended questions with the help of an interview guide within the study location. In this chapter the data from the field study will be presented and described which lays a foundation for the discussion segment where data presented will be interpreted in terms of its significance and implications.

5.2 Factors that can address the Gaps in the Value Chain.

Businesses require an enabling environment within which to thrive, the enabling environment that fishers considered relevant for the value chain process was expressed by respondents and details can be seen in Table 5.1 below.

Table 5.1 What factors do you consider can bridge the gaps in the value chain? (Value Chain actor's survey, n=80)

Response	% of Respondents
Provision of preservation facilities	20
Government intervention	10
Technology Transfer	20
Enhanced coordination	40
No Idea	10

Provision of Preservation Facilities: The Makoko fishing community has a landing site with preservation facilities that are inadequate to care for many of its value chain actors within the community. The existing facility is also underutilized because of the epileptic power available in the area and the poor maintenance culture of users is another issue to worry about. Lagos State, where Makoko is situated is not immune to the high cost or the rising cost of petrol and gas products to maintain and power the facilities due to the constant power outage. The value chain actors are subscribing to solar-powered cold rooms that could aid preservation in the fisheries. A respondent stated as captured below.

“We need basic amenities and infrastructure to aid the fishing business such as cold rooms, and smoking or drying kilns that are solar-powered. Solar is best as we do not need to spend on gas”.

Government intervention: The respondents stated that the attention of the government is required to provide facilities such as pipe-borne water, electricity, a better road network to aid commuting to and from the fish market, and adequate waste disposal from the market. They also mentioned some form of government regulation to curb indiscriminate fish smoking within the community. This they believe could help with air quality within Makoko. Respondents' views captured below speak to their belief that government interest in Makoko will help address gaps in the value chain.

“The problems in Makoko are due to government neglect”. [Processor]

“We need government assistance as well as political recognition. Since we lack political recognition and representation, our issues are not being addressed even when we make presentations to the government”. [Traditional Ruler]

“We need improved governance and coordination of value chain processes. If the government approves the laws, the regulators will do a better job in this fishery and that will go a long way to make the value chain profitable”. [Fisherman]

Technology transfer: Respondents said they needed technology transfer through capacity building. A wholesaler stated that they needed workshops and training from time to time where new ways of preserving fish, filleting, and packaging will be taught to them such that they can be enabled to provide product varieties and value additions to the fisheries as they basically scale, clean and smoke fish now. His response is captured as.

“We need training to improve what we can offer customers. If the government and the Ministry of Agriculture can train us, we are ready to learn new processes. They can also make available hire purchase agreements to enable us to get the machines that will help us with value addition. Most importantly, the government must improve the infrastructure in this place”. [Wholesaler].

Enhanced Coordination: The respondents here are referring to the weakness of institutions that are meant to regulate small-scale fisheries in Makoko. They believe that if these institutions are empowered by the law and the government, they would be better organized. This referred mainly to the open-access nature of the fishery and the ease of entry and exit of value chain actors into the fishing profession. Verbatim comments by respondents are captured below.

“There is no regulation of entry or exit within the trade thus making the number of fishers explode thus leading to overfishing”. [Fisherman].

“We lack standardization. We don’t sell by weight, and we are plagued with inadequate pricing. If that is corrected by the associations, we will be better off”. [Fisherman].

These comments above can be related to Table 4.20 where a fisherman stated that fishing is a self-regulating exercise in Makoko. His comment is recaptured below.

“Fishing here is all man to himself”. [Fisherman].

5.3 What enablers would the value chain require?

This question was asked to understand what solutions the value chain actors required in the value chain. Their response is captured in Table 5.2 below.

Table 5.2 What enablers will the value chain require? (Value Chain actor's survey, n=80)

Response	% of Respondents
Access to Finance, loans	25
Strong Trade Associations	35
Education	15
Introduce Subsidies	15
Hire Purchase for Equipment	10

Access to finance: The actors within the value chain lamented their inability to access finance as a major impediment to the success of the fisheries. They believed that access to finance through

banks and cooperatives would help. Most value chain actors lacked collateral and hoped this could be waived. A fisherman commented,

“We need assistance from banks at low interest, but we don’t have collateral and cannot do all the paperwork involved.”

Strong trade associations: The respondents believed Government intervention through legislation of appropriate laws that would aid fishery management in Makoko could help in curbing overfishing, Air quality control for indiscriminate smoking of fish in the community, they believed the laws could empower associations to standardize their practices such as prizing, quality control, sanitation, occupational health and safety, and general infrastructural decay in the area. This is what a respondent had to say.

“We need stronger unions and associations. Government is not always helpful to us, but NGOs assist. With stronger trade associations, the value chain gaps can be addressed”. [Fisherman].

Education: The respondents highlighted formal and informal education to be an enabler of the value chain. They want their children in formal schools which is presently a luxury in the community. They also want vocational schools to train them on best practices for fishing, and value addition. During the household interview, a member of the household said.

“Our children need education. Fishermen and traders also need some form of training. Private schools in the community are so expensive and we cannot afford them. If the government can add to the number of schools in the community, the next generation of value chain actors will make a difference”. [Member of household].

Introduction of subsidies: The respondents described the rising cost of the equipment they use for their fishing activities especially gas used to power engine boats and coolers. They requested that the government subsidized the cost of items used in fisheries. It will make the profession more profitable as captured from a respondent who said.

“We need help if the government can subsidize. It will be better”. [Fisherman].

Hire purchase agreements: Most value chain actors believed they would be enabled by having access to hire purchase agreements to purchase equipment needed for their trade. Most are still using obsolete equipment. They also mentioned that they would have loved to get contemporary equipment but lacked the capital to do so. A respondent during the focused group interviews said.

“Government has through the co-operatives provided nets and engine boats to the fishermen but that is not all that is required in this fishery. The processors, retailers, and wholesalers have needs that will make their job better. We would need loans to purchase needed materials or hire purchase agreements”. [Fisherman].

5.4 Can these gaps be bridged with governance mechanisms?

This segment of the data analysis is to evaluate how the governance mechanism in the fishing community is enabling or detracting from the community’s vulnerability and how this situation can be addressed. The data presented speaks to the actions of community leaders, value chain associations, and government to address gaps within the value chain to enable it to contribute to viability.

Table 5.3 Has any action been taken by community leaders in the past and present to address the gaps in the value chain to enable it to contribute to viability? (Value Chain actor's survey, n=80)

Response	% of Respondents
Yes, they have complained to the government about piracy and illegal trawling	10
Yes, through empowerment schemes (NGOs)	10
None	80

An aggregate of twenty percent of the respondents said that community leadership has tried to address gaps in the value chain by complaining to the government. Ten percent of these respondents said that the complaint was mainly on issues such as piracy and illegal trawling impacting the value chain negatively while the other ten percent said the complaint was channeled through NGOs who came in to empower the associations when they got information on the

community's presentation to the government and visitation to the neighborhood. Eighty percent said that the community leadership had not done anything in terms of addressing gaps within the value chain. They said that complaining to the government and NGOs was not enough as they as a community have not done anything to address the issues via collective action or community regulation of activities.

Table 5.4 was to ascertain the government's response to complaints from community leaders to address value chain concerns. Ten percent of the respondents said that the government representatives take the list of fishermen every year but do not stop unregistered fishermen from participating in fishing activities. Other respondents said government provides loans to cooperatives to increase their boat fleet while seventy percent of respondents said the government has not intervened in their node of the value chain.

Table 5.4 Has there been government intervention in the past or present to address gaps within the value chain and vulnerabilities within the community? (Value Chain actor's survey, n=80)

Response	% of Respondents
Government registers fishers every year but does not stop unregistered fishers from fishing	10
The government provides loans to cooperatives to increase the boat fleet	20
None	70

Table 5.5 got a resounding NO to the question asked to find out if value chain actors collaborate to address gaps within their node of the value chain. The reasons are detailed in the table below.

Table 5.5 Has there been collaborative action by actors within the value chain to address gaps within the value chain? If NO, why? If YES, what was done? (Value Chain actor's survey, n=80)

Response	% of Respondents
No, because they expect the government to assist	30
No, because they do not have enforcement power	10
No, because they are not well organized	35
No, because people operate their businesses independently	15

No, they do not have the capacity to enforce the desirable changes	10
--	----

Trade associations are usually known to address issues affecting members and trade differences and this question was to ascertain what the value chain associations had done. Forty-five percent of respondents accept that they had complained to the government and fifty-five percent said that the associations have done nothing to address the issue as they feel economically incapacitated.

Table 5.6 Has your trade associations in the past and present tried to address gaps within the value chain. If YES, what was done? If NO, why? (Value Chain actor's survey, n=80)

Response	% of Respondents
Yes, they have complained to the government	45
No, they feel they don't have money to address the issues	55

All respondents in Table 5.7 believe that timely intervention by government, and enforceable fishery policies will help address value chain gaps and vulnerabilities within the fishing community. They believe by providing improvement in infrastructure, health care facilities, adequate sewage and waste disposal facilities, regulation of value chain activities such as overfishing and monitoring of air quality due to indiscriminate fish smoking, access to loans, and education will help immensely in dealing with vulnerabilities within the fishing community.

Table 5.7 Do you consider it necessary for government and fisheries policies to address value chain gaps and vulnerabilities within your community? (Value Chain actor's survey, n=80)

Response	% of Respondents
YES	100
NO	0

5.5 Discussion

This section of the thesis will discuss the results presented in this chapter. The results will be given some form of meaning by evaluating and interpreting them. The significance and implication of the results will also be discussed. The discussions will help answer the research question which is, how can these gaps be addressed? Answering this question will help achieve the research aims and lay a foundation for the conclusion of the thesis.

5.5.1 Introduction

A fishery value chain is the embodiment of all the processes and activities involved from fish catch until the product gets to the final consumer. It involves fishing, processing, packaging, transporting, marketing, and retailing (De Silva, 2011). The fishery value chain also encompasses all the actors such as regulators who provide an enabling environment for the product as they also add value to the value chain (De Silva, 2011, Jacinto & Pomeroy, 2011). This discussion section aims to discuss factors that can address the gaps in the value chain to enable it to contribute to viability by answering the research question: How can these gaps be addressed to transition the community from vulnerability to viability?

5.5.2 Addressing gaps within the Value Chain

Respondents believe that the gaps in the value chain can be bridged by government intervention in the value chain processes by the implementation of laws to curb excesses within the value chain. One of such excess is noted in the fish processing node where processors smoke fish indiscriminately in households thereby impacting air quality in Makoko. They also believe that Technology transfers through capacity building, provision of preservation facilities that are solar powered and enhanced co-ordination by governance mechanisms in Makoko would address gaps within the value chain. When asked what enablers the value chain required to address its

weaknesses, the respondents listed access to finance, loans, hire purchase agreements, strong trade associations, education, and the introduction of subsidies to reduce the cost of inputs.

The data suggest that the respondents in Table 5.1 are aware that the major issue in this fishery is that of coordination of the governance mechanism in Makoko. Forty percent of the respondents mentioned enhanced coordination within the value chain leadership to whom the power of fisheries regulation lies. An inclusive and vibrant leadership in the value chains can fix some of the issues listed as factors required in this value chain because leadership will mobilize members to map out strategies to provide for themselves internally. They can also leverage on collective action to get government attention to fix inadequacies in the fisheries.

5.5.3 Governance mechanisms in Makoko fisheries

One of the features of small-scale fisheries is that they are embedded in communities. Previous studies have highlighted the relevance of community leaders, government, and value chain associations in governance mechanisms that aid in the regulation of fisheries activities (Owusu et al., 2023). Co-governance, community-based fisheries management initiatives, and co-management are all initiatives that bring stakeholders together to achieve inclusiveness, harness local knowledge of resource users to positively shape compliance levels of regulations in small-scale fisheries (Akintola et al., 2017; Owusu et al., 2023).

Table 5.3 indicates that no action was taken by community leaders to address gaps in the value chain in their community. Eighty percent of the respondents who said the leaders had done nothing did not agree with ten percent of respondents who said the community leaders made presentations to the government and the other ten percent who said the presentation drew the attention of NGOs who came in to empower the community residents. The eighty percent respondents expected the leaders to address internal issues such as indiscriminate fish smoking in households, improper

waste disposal in the fish market, open defecation into the lagoon by marine users and households. Since they were yet to tackle this internal menace emanating from value chain processes within their community, residents considered they are disconnected from gaps in value chain requiring community intervention. Some respondents had this to say.

“The community leadership must rise beyond its present level to monitor and sanction activities deemed detrimental to its environment” [Member of Household]

Another respondent said:

“We need cooperation among value chain actors and the community. This cooperation can be in terms of proper waste disposal, fish smoking at the designated areas and not in households as it is the case in most households now, fines and sanctions for every unsanitary act in the lagoon such as illegal fishing practices, open defecation into the Lagoon” [Member of fisher Household]

Another respondent said.

“Some collective action will unify and bring the community together to deal with the challenges” [Member of Household]

These comments and situation revealed in this data shows that community leadership must take its place in fisheries governance and take actions to improve the community well being and economic sustainability. The posture of community leadership in Makoko does not align with studies conducted in Ghana and Zambia that shows relevance of local community leaders in marine conservation initiatives (Overa, 2011; Owusu et al., 2023). The difference is that while Zambia and Ghana had government backing to enhance value chain development by providing appropriate institutional structures, Nigeria is yet to institutionalize fishery policy. Community leadership in Makoko needs to begin to address the challenges within its environment while waiting for government intervention Table 4.18 (Owusu et al., 2023).

When asked what government has done to address value chain gaps, ten percent of respondents stated that the government representatives register fishers every year but do nothing to ensure registration of new fishers after the registration. There is also no penalty or sanction for nonregistration while twenty percent indicate that government provides loans to cooperatives to increase numbers of boat fleet. While seventy percent says government has done nothing in their segment of the value chain. Respondents said that this is not all that is required to transition this fishery from vulnerability to viability as indicated by one of the respondents who said.

“Government provides engine boats and nets but that is not all that we need. We need modern kiln, we need loans, schools, health centers.”

Overall, it can be inferred that government commitment to this fishery is inadequate Table 5.4. Questions to ascertain the level of collaboration within value chain actors to address gaps in value chain as detailed in Table 5.5 supports responses in Table 4.20 which indicate a lack of cooperation by value chain actors. The comments in Table 5.5 suggest that the value chain actors are unwilling to address issues within their control as thirty five percent indicate they are not united and lack organisation, thirty percent indicate they are waiting for government intervention because they believe they lack the capacity to enforce the desirable change because they do not have enforcement powers. This result suggests unwillingness to act on the part of value chain actors which could be the effect of deprivations prevalent in fishery dependent communities(Béné, 2003).

To ascertain trade association level of intervention, Table 5.6 suggest that the trade association has not intervened to address gaps in value chain. A fifty five percent response indicate that they have not intervened as the association feels it does not have the economic power to address the value chain gaps while forty five percent says they have intervened by making presentations to the government.

Overall, governance mechanisms in the study community based on the data presented needs capacity building. Governments, small-scale fishermen, fish workers and their organisations (FWOs), civil society organisations (CSOs), academic researchers, the private sector, and the donor community are all considered stakeholders in accordance with the SSF Guidelines (Akintola et al., 2017) . These organisations all describe the environment in which fisheries are developed.

5.5.4 Suggestions to address the gaps in the value chain.

Addressing the gaps in the value chain of any fishery cannot be effective without a legal regulatory framework. It is hoped that the fishery regulations in the study location are passed to law and implemented so that the potential of this fishery can be realized.

The study suggests the following measures to address gaps in the value chain.

Co-management: Co-management with traditional authorities and fishery agencies is a practical choice for fishery management initiatives. Efforts should be made to ensure the inclusiveness of all stakeholders as this will improve compliance, credibility and legitimacy of fishing regulations in the study location (Owusu et al., 2023)

Capacity building: There is an urgent need to train value chain actors and regulators on best practices by prioritizing gaps in the value chain based on their impact and feasibility of improvement.

Collective bargaining: Respondents mentioned inadequate pricing, lack of standard weight for fish sold, haggling as shown in Table 4.9 These issues will be resolved by collective bargaining by enhancing value chain associations. Strong associations will regulate the fishery activities and sanction noncomplying members.

Direct market access: This will ensure that fisherfolks are able to reach the consumers directly thereby boycotting middlemen. This will ensure a large share of profit to the fishers thereby

enhancing livelihoods. Direct market access can also be in terms of online marketing for fish and fish products. This was also supported by a respondent who said.

“We used to make better sales with the mobile phone when the Makoko app was working. We sell directly to the buyers who pay us better than what we get from the sale to wholesalers and retailers here. I hope the mobile sale can continue as it would also help the value chain”. [Fisherman]

Short- and long-term strategies to address each identified gap: Strategies for each identified gap should be for the short- and long-term implementation. Gaps should be prioritized based on their impact and feasibility of improvement.

Cost benefit analysis of each proposed solution: Every proposed solution must have cost benefit analysis to ensure marginal returns of the initiative to the fisheries.

Automation and integration of technology where applicable: Small-scale fisheries issues are context specific and as such automation and integration must take cognisance of this variable. This will aid automation and integration tailored to the environment and literacy of the actors.

Stakeholder engagement and change management: All stake holders in the Makoko fisheries should be identified and there should be a strategy to get buy-in and support to move the fisheries beyond its weakness. There is need to build credibility, legitimacy, and accountability of stakeholders to ensure compliance to fishing regulations by value chain actors.

Identifying potential risk associated with implementing new solutions: Impact assessment of every new solution to ensure it is viable for the fishery.

Monitoring and evaluation of improvement initiatives: Stake holder monitoring to ensure that initiatives align with the goal of transitioning the fisheries from its vulnerable state to viability.

Feedback Mechanism and continuous improvement: This is reporting to stakeholders on situation in the fisheries. This will provide guidance where necessary and feedback requirement

should be institutionalized as a standard for regulators, stakeholders, and gate keepers to report on the fisheries and continually improve on standards.

Social- ecological system perspective of Value chain:

A social-ecological systems perspective is defined as “an integrated, coupled, interdependent and co-evolutionary system with mutual vertical and horizontal feedback between ecological and social subsystems” (pradhan et al., 2022, p. 2). The social-ecological system (SES) approach is evolutionary as it looks at the value chain by incorporating environmental and vulnerability concerns into its lens. A social ecological systems perspective to value chain disapproves of the idea of neoclassical value chain models that operates without taking a full look at both the social and ecological subsystems and is not flexible enough to consider a variety of realities and approaches to solving complex human-environmental problems (Pradhan et al., 2022). Makoko fisheries value chain is place driven and focused mainly on economic gains which supports neoclassical value chain models. This is the basic reason why vulnerabilities within the fisheries thrive unabated. Small scale fisheries value chains must be dynamic to meet the present challenges of climate change and the ever-growing demands for fisheries product. To meet these challenges, value chains should be governed through the social-ecological system (SES) lens where the biophysical (biota and environment) and human (economic, cultural, ethical, and sociopolitical aspects) subsystems interact through complicated and interdependent relationships(Villasante et al., 2022). Therefore, to effectively manage and govern small scale fisheries value chains, a variety of environmental and human processes functioning simultaneously with climatic and human-induced causes must be considered (Villasante et al., 2022) .

5.6 Conclusion

This chapter looked at the gaps that exist in the value chain process of Makoko fisheries, and how the gaps could or may be bridged. Some of the interventions required were government intervention and access to finance, loans, and hire purchase opportunities to purchase fishing equipment, technological transfer, basic infrastructure, and training was also mentioned to help them meet the needs of the community. Suggestions to address gaps in the value chain were also explored. Above all, a social-ecological system approach to the management of small-scale fisheries value chain was advocated to transition small scale fisheries from vulnerability to viability. Chapter Six concludes the study with the summary and study conclusions.

Chapter 6.0 Summary, Conclusion, and Recommendation

6.1 Introduction

Chapter six concludes this study with the presentation of the summary of findings, conclusions, recommendations, as well as policy implications to serve as a guide to help in solving or finding solutions to challenges identified by individuals and households who engage in small-scale fisheries value chain in Makoko.

6.2 Summary

This study explored the value chain processes within the small-scale fisheries in Makoko fishing community. The study worked with three main objectives which were firstly, to understand the value chain in Makoko fishing community historically and the current perspectives. The second objective was to examine how value chain contributes or impacts vulnerability in Makoko fishing community while the third objective sought to analyze or suggest factors that can address the gaps in the value chain to enable it to contribute to viability. These objectives were addressed qualitatively with the use of a literature review, face-to-face interviews, and focus group discussions. The data indicates that fishing in Makoko is a male dominated activity while processing and trade is a female dominated activity. The focus group discussion reflects what the interviews revealed on the issues inundating the value chain process in Makoko.

The revealed responses highlight the understanding of the fishery value chain in Makoko historically and currently. They considered value chain in Makoko fishing community as all the people participating in fisheries activities which includes fishers, processors, fish sellers (wholesalers and retailers), providers of input (those who sell ice block and firewood) and regulators. They believed that fisher households have evolved overtime in how the families were constituted but ultimately the community had not changed much as fisher households were still

actively involved in value chain processes. A remarkable information revealed was the fact that fishers in the past did not live in the same community with their family but visited their families intermittently during the fishing season but today they live with their families in Makoko. The Makoko value chain is place driven. Inefficiencies in the value chain that results in less value creation or lost opportunities for stakeholders were inquired and issues such as lack of basic infrastructure, pollution, water borne diseases, unsanitary living conditions, and governance issues were highlighted. How these inefficiencies detract on the community's vulnerability were also explored. The third objective sought to address the shortcomings inundating the value chain process. Respondents were optimistic that the gaps they were experiencing could be bridged when preservation facilities were made available, if government intervened appropriately, technology transfer, as well as enhanced coordination by value chain associations.

Study findings clearly indicate that a lot needs to be done in the arena of governance within the study location. The researcher's suggestions to address value chain gaps were also highlighted with the social ecological systems perspective to value chain being the evolutionary lens to govern value chains.

Study results indicate the challenges within the Makoko value chain. What needs to be addressed to transition the Makoko fishing community from vulnerability to viability is significant. Stake holders must own Makoko fisheries and leverage on its potentials to aid livelihoods and food security at this time when Nigeria is struggling to overcome food insecurity. It is obligatory for the government to galvanize action to enable small-scale fisheries in Nigeria to attain their full potentials.

6.3 Recommendations

Recommendations on addressing gaps in the value chain of Makoko fishing community based on the findings requires a comprehensive and collaborative approach. Here are some suggestions to stakeholders to assist alleviate the situation.

1. Government needs to take decisive steps to sign into laws fishing regulations that will take cognisance of the context specific nature of small-scale fisheries in Nigeria.
2. There should be a multi stake holder dialogue in Makoko with a view to identifying and addressing value chain gaps.
3. Stake holders are to conduct a thorough gaps analysis to understand the challenges posed by each of the gaps and prioritize gap based on their feasibility of improvement.
4. There should be trainings and capacity building to build requisite skill of stakeholders.
5. Efforts must be made by financial institutions to support the community by making available soft loans or financial assistance with flexible terms of payments.
6. Ensure market linkages to enhance access to other markets. Alternative modes of marketing such as online marketings should be further integrated and enhanced in the fishery.
7. Invest in post harvest infrastructure such as cold rooms, modern smoking kiln, road infrastructure for proper distribution and access to the fishery.
8. Encourage the development of community-based associations and cooperatives with political representation that will enable the community to monitor value chain challenges within their community and negotiate fair terms with the government.
9. Value chain actors require access to information in a timely manner to be aware of price changes and market trends.

10. Enable legal and Institutional frameworks for fisheries management. The development of credible, transparent, and legitimate fisheries governance frameworks promotes sustainable fisheries.

6.4 Policy Implications

Neglecting value chain gaps in small-scale fishing communities has a lot of implications for livelihoods, resource management, food security and the general well being of fishing communities. Policy makers need to adapt, design, and execute policies that can improve the sustainability, resilience, and equity of small-scale fisheries by incorporating all stakeholders into the master plan. Detailed below are some policy implications of neglecting value chain gaps detracting on a small-scale fishing communities' vulnerability.

Food Security and Nutrition: Unaddressed value chain weaknesses can result in post harvest losses, reduced quality of seafood due to spoilage, inadequate processing, handling, and distribution. This impacts nutritious seafood availability and can affect the quality of nutrition available to small fishing communities and poor household who rely on fish for most of their protein intake (FAO, 2018).

Livelihoods and Income: Small-scale fisheries rely on the value chain for most of their livelihoods and ignoring gaps in the value chain such as inadequate market access, limited bargaining power, inadequate pricing will further exacerbate poverty in fishing households(Béné, 2003).

Gender Equity and social inclusion: Value chain gaps within processing and marketing of fish can impact women who play a vital role in this node of the value chain thereby further exacerbating issues of gender equity and social inclusion in small-scale fisheries.

Resource Management: Inefficiencies within the value chain can detract on sustainable fishing practices and discourage resource managers from policy implementation if the enabling laws are non-existent, obsolete or inadequately institutionalized (Akintola et al., 2022).

Cultural Heritage and Identity: Small-scale fishing communities play a vital role in the cultural role, identity, and traditional knowledge of fishing communities. Ignoring gaps could lead to loss of traditional knowledge, loss of community bond due to abandoning traditional fishing practices to meet up livelihood demands (Islam & Chuenpagdee, 2022a).

Ecosystem Health: Ignoring value chain gaps could lead to inappropriate waste disposal, air and water pollution which will impact ecosystem health. Sustainable policies will safeguard ecosystem health as issues that lead to environmental degradation will be promoted and monitored.

Governance and Regulation: Institutionalizing fishery regulations and governance will address issues of unsustainable fishing practices, illegal trawling, unreported and unregulated fishing (IUU). Ignoring value chain gaps will subvert and sabotage governance efforts.

6.6 Directions for future research

Future research in value chain and vulnerabilities in small-scale fishing community should continue to broaden our understanding and explore the complex interactions between value chain, small-scale fishing communities and the wider socio-ecological system. Specifics of future research includes.

Climate change Resilience: Understand how climate change affects different nodes of the value chain and suggest strategies to enhance the resilience of small-scale fishing communities. This could involve studying adaptive capacity, traditional ecological knowledge, and diversification strategies.

Conflict and livelihoods: Understanding of the complex relationship between conflicts, resource scarcity and livelihoods in small-scale fishing communities. Analyse how value chain dynamics can contribute or exacerbate conflict resolution in small-scale fishing communities.

References

- Abusin, S. A. (2012). *Deterrence analysis of compliance with fishery regulations among artisanal fishers in Sudan* [PhD Thesis]. University of Pretoria.
- Adeyemi, K. (2012). African water cities. *Architectural Design*, 82(5), 98–101.
- Adger, W. N. (2006). Vulnerability. *Global Environmental Change*, 16(3), 268–281.
<https://doi.org/10.1016/j.gloenvcha.2006.02.006>
- Afun-Ogidan, F. A. (2019). *VENICE OF LAGOS-Reviving the fishing culture in Makoko through Aquaponics* [Master's Thesis]. University of Waterloo.
- Akintola, S. L., Fakoya, K. A., Danagalan, A. H., Akiode, O., Kappo, A., & Areola, F. O. (2022). *A Situational Analysis of Small-Scale Fisheries in Nigeria: From Vulnerability to Viability*. 23.
- Akintola, S. L., Fakoya, K. A., & Joseph, O. O. (2017). Applying the small-scale fisheries guidelines in Nigeria: Status and strategies for Badagry coastal and creek fisheries. *The Small-Scale Fisheries Guidelines: Global Implementation*, 635–656.
- Allison, E. H., Ratner, B. D., Åsgård, B., Willmann, R., Pomeroy, R., & Kurien, J. (2012). Rights-based fisheries governance: From fishing rights to human rights: From fishing rights to human rights. *Fish and Fisheries*, 13(1), 14–29. <https://doi.org/10.1111/j.1467-2979.2011.00405.x>
- Asche, F., Dahl, R. E., & Steen, M. (2015). Price Volatility in Seafood Markets: Farmed vs. Wild Fish. *Aquaculture Economics & Management*, 19(3), 316–335.
<https://doi.org/10.1080/13657305.2015.1057879>
- Babalobi, B. (2013). Water, sanitation and hygiene practices among primary-school children in Lagos: A case study of the Makoko slum community. *Water International*, 38(7), 921–929.

- Bansal, P. (Tima), & Corley, K. (2011). From the Editors: The Coming of Age for Qualitative Research: Embracing the Diversity of Qualitative Methods. *The Academy of Management Journal*, 54(2), 233–237. <http://www.jstor.org/stable/23045078>
- Béné, C. (2003). When fishery rhymes with poverty: A first step beyond the old paradigm on poverty in small-scale fisheries. *World Development*, 31(6), 949–975.
- Béné, C. (2009). Are Fishers Poor or Vulnerable? Assessing Economic Vulnerability in Small-Scale Fishing Communities. *The Journal of Development Studies*, 45(6), 911–933. <https://doi.org/10.1080/00220380902807395>
- Béné, C., Arthur, R., Norbury, H., Allison, E. H., Beveridge, M., Bush, S., Campling, L., Leschen, W., Little, D., Squires, D., Thilsted, S. H., Troell, M., & Williams, M. (2016). Contribution of Fisheries and Aquaculture to Food Security and Poverty Reduction: Assessing the Current Evidence. *World Development*, 79, 177–196. <https://doi.org/10.1016/j.worlddev.2015.11.007>
- Béné, C., Barange, M., Subasinghe, R., Pistrup-Andersen, P., Merino, G., Hemre, G.-I., & Williams, M. (2015). Feeding 9 billion by 2050 – Putting fish back on the menu. *Food Security*, 7(2), 261–274. <https://doi.org/10.1007/s12571-015-0427-z>
- Béné, C., Lawton, R., & Allison, E. H. (2010). “Trade Matters in the Fight Against Poverty”: Narratives, Perceptions, and (Lack of) Evidence in the Case of Fish Trade in Africa. *World Development*, 38(7), 933–954. <https://doi.org/10.1016/j.worlddev.2009.12.010>
- Béné, C., Macfadyen, G., Allison, E. H., & Nations, F. and A. O. of the U. (2007). *Increasing the Contribution of Small-scale Fisheries to Poverty Alleviation and Food Security*. Food & Agriculture Org.
- Bennett, E. (2002). *The Challenges of managing small scale fisheries in West Africa*.
- Berkes, F. (2007). Understanding uncertainty and reducing vulnerability: Lessons from resilience thinking. *Natural Hazards*, 41, 283–295.

- Bjorndal, T., Child, A., & Lem, A. (2014). *Value chain dynamics and the small-scale sector: Policy recommendations for small-scale fisheries and aquaculture trade*. FAO.
- Blythe, J. L. (2015). Resilience and social thresholds in small-scale fishing communities. *Sustainability Science*, 10(1), 157–165. <https://doi.org/10.1007/s11625-014-0253-9>
- Bolwig, S., Ponte, S., Du Toit, A., Riisgaard, L., & Halberg, N. (2008). *Integrating poverty, gender and environmental concerns into value chain analysis: A conceptual framework and lessons for action research*. DIIS working paper.
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing*, 25(8), 652–661. <https://doi.org/10.1177/1744987120927206>
- Chambers, R. (1989). Editorial Introduction: Vulnerability, Coping and Policy. *IDS Bulletin*, 20(2), 1–7. <https://doi.org/10.1111/j.1759-5436.1989.mp20002001.x>
- Charles, A., Allison, E. H., Chuenpagdee, R., & Mbatha, P. (2012). *Well-Being and fishery governance*.
- Creswell, & Creswell, D. (2018). *Research Design_ Qualitative Quantitative and Mixed Methods Approaches* (5th ed.). SAGE Publications, Inc.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed). Sage Publications.
- Crona, B. I., Pomeroy, R. S., & Purcell, S. W. (2020). Editorial: Small-Scale and Artisanal Fisheries: Insights and Approaches for Improved Governance and Management in a Globalized Context. *Frontiers in Marine Science*, 7, 455. <https://doi.org/10.3389/fmars.2020.00455>
- Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A., & Sheikh, A. (2011). The case study approach. *BMC Medical Research Methodology*, 11(1), 1–9.

- De Silva, D. A. M. (2011). Faces of women in global fishery value chains: Female involvement, impact and importance in the fisheries of developed and developing countries. *NORAD/FAO Value Chain Project*.
- Denny, E., & Weckesser, A. (2022). How to do qualitative research? *BJOG: An International Journal of Obstetrics & Gynaecology*, 129(7), 1166–1167. <https://doi.org/10.1111/1471-0528.17150>
- Di Cintio, A., Scianna, C., & Prato, G. (2022). Analysis of small-scale fisheries value chain: An interview-based approach in Italian marine protected areas. *Fisheries Research*, 252, 106358. <https://doi.org/10.1016/j.fishres.2022.106358>
- Etongo, D., & Arrisol, L. (2021). Vulnerability of fishery-based livelihoods to climate variability and change in a tropical island: Insights from small-scale fishers in Seychelles. *Discover Sustainability*, 2, 1–28.
- Fabinyi, M., Dressler, W. H., & Pido, M. D. (2018). Moving beyond financial value in seafood commodity chains. *Marine Policy*, 94, 89–92. <https://doi.org/10.1016/j.marpol.2018.04.033>
- FAO. (2020). *The State of World Fisheries and Aquaculture 2020. In brief*. FAO. <https://doi.org/10.4060/ca9231en>
- FAO, 2019. (2018). The State of World Fisheries and Aquaculture 2018—Meeting the sustainable development goals. Rome: Food and Agriculture Organization of the United Nations. *The State of World Fisheries and Aquaculture*, 1–210.
- Folke, C., Hahn, T., Olsson, P., & Norberg, J. (2005). ADAPTIVE GOVERNANCE OF SOCIAL-ECOLOGICAL SYSTEMS. *Annual Review of Environment and Resources*, 30(1), 441–473. <https://doi.org/10.1146/annurev.energy.30.050504.144511>
- Garcia Rodrigues, J., & Villasante, S. (2016). Disentangling seafood value chains: Tourism and the local market driving small-scale fisheries. *Marine Policy*, 74, 33–42. <https://doi.org/10.1016/j.marpol.2016.09.006>

- Garza-Gil, M. D., Pérez-Pérez, M. I., & Fernández-González, R. (2020). Governance in small-scale fisheries of Galicia (NW Spain): Moving toward co-management? *Ocean & Coastal Management*, 184, 105013. <https://doi.org/10.1016/j.ocecoaman.2019.105013>
- Gelcich, S. (2014). Towards polycentric governance of small-scale fisheries: Insights from the new 'Management Plans' policy in Chile: POLYCENTRIC GOVERNANCE AND FISHERIES. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 24(5), 575–581. <https://doi.org/10.1002/aqc.2506>
- Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The Governance of Global Value Chains. *Review of International Political Economy*, 12(1), 78–104. <http://www.jstor.org/stable/25124009>
- Gibbert, M., Ruigrok, W., & Wicki, B. (2008). What Passes as a Rigorous Case Study? *Strategic Management Journal*, 29(13), 1465–1474. <http://www.jstor.org/stable/40060241>
- Islam, M. M., & Chuenpagdee, R. (2022a). Towards a classification of vulnerability of small-scale fisheries. *Environmental Science & Policy*, 134, 1–12.
- Islam, M. M., & Chuenpagdee, R. (2022b). Towards a classification of vulnerability of small-scale fisheries. *Environmental Science & Policy*, 134, 1–12. <https://doi.org/10.1016/j.envsci.2022.03.023>
- Jacinto, E. R. (2004). A research framework on value chain analysis in small scale fisheries. *10th Biennial Conference of the International Association for Study of Common Property, Oaxaca, Mexico*, 27, 9–13.
- Jacinto, E. R., & Pomeroy, R. S. (2011). Developing markets for small-scale fisheries: Utilizing the value chain approach. *Small-Scale Fisheries Management: Frameworks and Approaches for the Developing World*, 160–177.

- Janssen, M. A., & Ostrom, E. (2006). Resilience, vulnerability, and adaptation: A cross-cutting theme of the International Human Dimensions Programme on Global Environmental Change. *Global Environmental Change*, 16(3), 237–239. <https://doi.org/10.1016/j.gloenvcha.2006.04.003>
- Janssen, M. A., Schoon, M. L., Ke, W., & Börner, K. (2006). Scholarly networks on resilience, vulnerability and adaptation within the human dimensions of global environmental change. *Global Environmental Change*, 16(3), 240–252. <https://doi.org/10.1016/j.gloenvcha.2006.04.001>
- Jentoft, S., & Chuenpagdee, R. (Eds.). (2015). *Interactive Governance for Small-Scale Fisheries* (Vol. 13). Springer International Publishing. <https://doi.org/10.1007/978-3-319-17034-3>
- Johnson, D. S., Acott, T. G., Stacey, N., & Urquhart, J. (Eds.). (2018). *Social Wellbeing and the Values of Small-scale Fisheries* (Vol. 17). Springer International Publishing. <https://doi.org/10.1007/978-3-319-60750-4>
- Kaplinsky, R., & Morris, M. (2001). *A Handbook For Value Chain Research*. 114.
- Kimani, P., Wamukota, A., Manyala, J. O., & Mlewa, C. M. (2020). Analysis of constraints and opportunities in marine small-scale fisheries value chain: A multi-criteria decision approach. *Ocean & Coastal Management*, 189, 105151.
- Klein, R. J. (2009). Identifying Countries that are Particularly Vulnerable to the Adverse Effects of Climate Change: An Academic or a Political Challenge? *Carbon & climate law review : CCLR*, 3(3), 08-. <https://doi.org/10.21552/CCLR/2009/3/99>
- Kolding, J., Béné, C., & Bavinck, M. (2014). Small-scale fisheries: Importance, vulnerability and deficient knowledge. In S. M. Garcia, J. Rice, & A. Charles (Eds.), *Governance of Marine Fisheries and Biodiversity Conservation* (pp. 317–331). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781118392607.ch22>

- McGregor, J. A., Camfield, L., & Woodcock, A. (2009). Needs, Wants and Goals: Wellbeing, Quality of Life and Public Policy. *Applied Research in Quality of Life*, 4(2), 135–154.
<https://doi.org/10.1007/s11482-009-9069-7>
- Merriam, S. B. (1988). *Case study research in education: A qualitative approach*. Jossey-Bass.
- Merton, R. K. (1987). The Focussed Interview and Focus Groups: Continuities and Discontinuities. *The Public Opinion Quarterly*, 51(4), 550–566. <https://www.jstor.org/stable/2749327>
- Millán, A. S. (2019). *Vulnerability and Viability of Small-Scale Fisheries in Sisal, Yucatan, Mexico*. 213.
- Moret, W. (2014). *Vulnerability Assessment Methodologies: A Review of the Literature*. 90.
- Nayak, P. K., & Armitage, D. (2018). Social-ecological regime shifts (SERS) in coastal systems. *Ocean & Coastal Management*, 161, 84–95. <https://doi.org/10.1016/j.ocecoaman.2018.04.020>
- Nayak, P. K., & Berkes, F. (2019). Interplay between local and global: Change processes and small-scale fisheries. *Transdisciplinarity for Small-Scale Fisheries Governance: Analysis and Practice*, 203–220.
- Ogunlesi, T., & Esiebo, A. (2016, February 23). Inside Makoko: Danger and ingenuity in the world's biggest floating slum. *The Guardian*.
<https://www.theguardian.com/cities/2016/feb/23/makoko-lagos-danger-ingenuity-floating-slum>
- O'Leary, Z. (2007). *The essential guide to doing research* (repr., (twice)). SAGE.
- Oloko, A., Fakoya, K., Ferse, S., Breckwoldt, A., & Harper, S. (2022). The Challenges and Prospects of Women Fisherfolk in Makoko, Lagos State, Nigeria. *Coastal Management*, 50(2), 124–141.
- Overa, R. (2011). Modernisation Narratives and Small-Scale Fisheries in Ghana and Zambia. *Forum for Development Studies*, 38(3), 321–343. <https://doi.org/10.1080/08039410.2011.596569>
- Owusu, V., Adu-Boahen, K., Kyeremeh, S., Demalie, I., & Eshun, P. (2023a). Factors influencing compliance of closed fishing season: Lessons from small-scale coastal fisheries in the Central

- Region of Ghana. *Humanities & Social Sciences Communications*, 10(1), 20–20.
<https://doi.org/10.1057/s41599-023-01513-4>
- Owusu, V., Adu-Boahen, K., Kyeremeh, S., Demalie, I., & Eshun, P. (2023b). Factors influencing compliance of closed fishing season: Lessons from small-scale coastal fisheries in the Central Region of Ghana. *Humanities and Social Sciences Communications*, 10(1), 1–8.
- Oyinloye, M. A., Olamiju, I. O., & Popoola, O. O. (2017). Urban renewal strategies in developing nations: A focus on Makoko, Lagos State, Nigeria. *Journal of Geography and Regional Planning*, 10(8), 229–241.
- Parke, A. (2014). *Value_chain_approaches_in_fisheries_planning_CRFM_2014.pdf*.
http://www.cftdi.edu.tt/pdf/Value_chain_approaches_in_fisheries_planning_CRFM_2014.pdf
- Paul, S. K. (2014). Vulnerability Concepts and its Application in Various Fields: A Review on Geographical Perspective. *Journal of Life and Earth Science*, 8, 63–81. <https://doi.org/10.3329/jles.v8i0.20150>
- Pomeroy, R. S., & Andrew, N. L. (Eds.). (2011). *Small-scale fisheries management: Frameworks and approaches for the developing world*. CABI. <https://doi.org/10.1079/9781845936075.0000>
- Porter, M. E. (2004). *Competitive advantage: Creating and sustaining superior performance* (1st Free Press export ed.). Free Press.
- Pradhan, S. K., Nayak, P. K., & Armitage, D. (2022). A social-ecological systems perspective on dried fish value chains. *Current Research in Environmental Sustainability*, 4, 100128.
<https://doi.org/10.1016/j.crsust.2022.100128>
- Riise, J., & Adeyemi, K. (2015). Case study: Makoko floating school. *Current Opinion in Environmental Sustainability*, 13, 58–60. <https://doi.org/10.1016/j.cosust.2015.02.002>
- Rosales, R. M., Pomeroy, R., Calabio, I. J., Batong, M., Cedo, K., Escara, N., Facunla, V., Gulayan, A., Narvadez, M., Sarahadil, M., & Sobrevega, M. A. (2017). Value chain analysis and small-scale fisheries management. *Marine Policy*, 83, 11–21. <https://doi.org/10.1016/j.marpol.2017.05.023>

- Silverman, D. (2017). *Doing Qualitative Research* (5th ed.). SAGE Publications, Inc.
- Trimble, M., & Berkes, F. (2015). Towards adaptive co-management of small-scale fisheries in Uruguay and Brazil: Lessons from using Ostrom's design principles. *Maritime Studies*, 14(1), 14.
<https://doi.org/10.1186/s40152-015-0032-y>
- Uddin, M. T., Goswami, A., Rahman, M. S., & Dhar, A. R. (2019). How can governance improve efficiency and effectiveness of value chains? An analysis of pangas and tilapia stakeholders in Bangladesh. *Aquaculture*, 510, 206–215. <https://doi.org/10.1016/j.aquaculture.2019.05.055>
- Udo-Udoma, O. (2014). World Bank Public Participation Policies and Processes in Relation to the Lives of Beneficiaries in Slum Upgrading Projects: Case Study: Makoko, Lagos, Nigeria. *PhD Diss., University of Cape Town, South Africa.*
- Villasante, S., Gianelli, I., Castrejón, M., Nahuelhual, L., Ortega, L., Sumaila, U. R., & Defeo, O. (2022). Social-ecological shifts, traps and collapses in small-scale fisheries: Envisioning a way forward to transformative changes. *Marine Policy*, 136, 104933.
<https://doi.org/10.1016/j.marpol.2021.104933>
- Walters, D., & Lancaster, G. (2000). Implementing value strategy through the value chain. *Management Decision*, 38(3), 160–178. <https://doi.org/10.1108/EUM0000000005344>
- Weeratunge, N., Béné, C., Siriwardane, R., Charles, A., Johnson, D., Allison, E. H., Nayak, P. K., & Badjeck, M.-C. (2014). Small-scale fisheries through the wellbeing lens. *Fish and Fisheries*, 15(2), 255–279.
<https://doi.org/10.1111/faf.12016>
- Wilkinson, S. (1998). Focus group methodology: A review. *International Journal of Social Research Methodology*, 1(3), 181–203. <https://doi.org/10.1080/13645579.1998.10846874>
- Wolf, S., Hinkel, J., Hallier, M., Bisaro, A., Lincke, D., Ionescu, C., & Klein, R. J. T. (2013). Clarifying vulnerability definitions and assessments using formalisation. *International Journal of Climate Change Strategies and Management*, 5(1), 54–70. <https://doi.org/10.1108/17568691311299363>

Appendix A

UNIVERSITY OF WATERLOO

Notification of Ethics Clearance to Conduct Research with Human Participants

Principal Investigator: Prateep Nayak (School of Environment, Enterprise and Development)

Student investigator: Happiness Chukwuemeka (School of Environment,
Enterprise and Development) File #: 44592

Title: VALUE CHAIN AND VULNERABILITIES IN SMALL-SCALE FISHING COMMUNITIES

The Human Research Ethics Board is pleased to inform you this study has been reviewed and given ethics clearance.

Initial Approval Date: 02/15/23 (m/d/y)

University of Waterloo Research Ethics Boards are composed in accordance with, and carry out their functions and operate in a manner consistent with, the institution's guidelines for research with human participants, the Tri-Council Policy Statement for the Ethical Conduct for Research Involving Humans (TCPS, 2nd edition), International Conference

on Harmonization: Good Clinical Practice (ICH-GCP), the Ontario Personal Health Information Protection Act (PHIPA), the applicable laws and regulations of the province of Ontario. Both Boards are registered with the U.S. Department of Health and Human Services under the Federal Wide Assurance, FWA00021410, and IRB registration number IRB00002419 (HREB) and IRB00007409 (CREB).

This study is to be conducted in accordance with the submitted application and the most recently approved versions of all supporting materials.

Expiry Date: 02/16/24 (m/d/y)

Multi-year research must be renewed at least once every 12 months unless a more frequent review has otherwise been specified. Studies will only be renewed if the renewal report is received and approved before the expiry date. Failure to submit renewal reports will result in the investigators being notified ethics clearance has been suspended and Research Finance being notified the ethics clearance is no longer valid.

Level of review: Delegated Review

Signed on behalf of the Human Research Ethics Board

This above-named study is to be conducted in accordance with the submitted application and the most recently approved versions of all supporting materials.

Documents reviewed and received ethics clearance for use in the study and/or received for information: file: Consent Log.docx

file: VERBAL CONSENT AND

WITHDRAWAL OF PARTICIPANT.docx file:

RECRUITMENT SCRIPT.docx

file: Participant Feedback and Appreciation Letter.docx

file: INTERVIEW GUIDE FOR FISHERIES

MANAGEMENT_VERSION 1_26TH JULY 2022.docx file: INTERVIEW

GUIDE FOR FOCUSED GROUP _VERSION 1_26TH JULY 2022.docx

file: INTERVIEW GUIDE FOR HOUSEHOLDS_VERSION 1_ 26TH JULY 2022.docx

file: INTERVIEW GUIDE FOR VALUE CHAIN ACTORS_ VERSION 1_ 26TH JULY 2022.docx

Approved Protocol Version 4 in Research Ethics System

This is an official document. Retain for your files.

You are responsible for obtaining any additional institutional approvals that might be required to complete this study.

Appendix B

INTERVIEW GUIDE FOR VALUE CHAIN ACTORS GROUP

- code:
- Interview location:
- Gender:
- Age:
- Highest level of education completed:
- Family details: {married/unmarried(Y/N),}
- Do you involve only in fishing or in multiple activities (fishing, processing, retailing, wholesaler)
- Length of years in the business:

TO UNDERSTAND THE VALUE CHAIN IN MAKOKO HISTORICALLY AND CURRENT PERSPECTIVE?

- What is your understanding of value chain?
- What constitutes the value chain in this community?
- Historically, considering generations gone by, what was the value chain process like?
- How has this evolved over the years? Has the process changed in any way?
- What are these observed changes or variations?
- What is the current perspective? What is practiced today?
- Do you envisage any changes in the future?
- What form of changes do you perceive will or could come about?
- What factors do you consider that constitute vulnerabilities within the value chain today?
- What enablers do you consider that the value chain may require?
- What value additions has there been at different nodes of the value chain considering generations gone by, how has this evolved and what is practiced today?
- What value additions would you like to see at your nodes of the value chain?
- What do you practice today?
- Can you describe the relationship between actors within the value chain?

To examine how value chain contributes to or impacts vulnerability in Makoko fishing community.

- What do you understand by vulnerability in the Makoko fishing community?
- What are the vulnerabilities in the Makoko fishing community?
- Are there value chain activities that impact the community negatively?
- How has these negative impacts evolved over the years? Were there actions to limit the effect? By whom?
- What health, social, economic, and environmental challenges are prevalent in the community because of the value chain?
- Do you consider that the value chain has made a positive impact on the livelihoods and well-being of the fishing community?
- Have changes occurred involving your material well-being because of the value chain?
- Has vulnerabilities within the community impacted you in any way?

- What is the relationship between actors within the value chain? Do they have associations?

To analyze or Suggest factors that can address the gaps in the value chain to enable it to contribute to viability.

- Are there gaps within the value chain?
- What gaps do you think the value chain is experiencing?
- What factors do you consider that can address gaps within the value chain.
- Has any action been taken by community leaders in the past or present to address gaps within the value chain to enable it to contribute to viability within the community? If YES, what actions?
- Has there been government intervention in the past or present to address gaps within the value chain and vulnerabilities within the community? If YES, what interventions were those?
- Has there been collaborative action by actors within the value chain to address gaps within the value chain? If NO, why? If YES, what was done?
- Has your trade associations in the past and present tried to address gaps within the value chain? If YES, what was done?
- Do you consider it necessary for government and fisheries policies to address value chain vulnerabilities within your community?

Appendix C

INTERVIEW GUIDE FOR FISHERIES MANAGEMENT

Specific questions about Fishing

- code:
- Interview location:
- Gender:
- Highest level of education completed:

FISHERIES GOVERNANCE?

TO UNDERSTAND THE VALUE CHAIN IN MAKOKO HISTORICALLY AND THE CURRENT PERSPECTIVE?

- What is the status of the implementation of the Small-Scale Fisheries guidelines for sustainable fisheries in Nigeria?
- What is the regulatory framework used in fisheries management in Makoko?
- What policies guide quality control, fish handling, and post-harvest losses in Makoko?
- Any health, safety, and sanitary regulations enforcement in place in Makoko?
- What regulations are imposed on fish landing, and fish sale, and are there restrictions on entry or exit within the small-scale fisheries value chain in Makoko?
- How are fishing regulations enforced in the Makoko fishing community?
- What information's are available on the relative income of fishermen and the non-fishing sector and how has this changed over time?
- What are the post-harvest handling, food safety measures, and processing practices, including cold unit availability at the landing sites?
- What proportion of fish landed is consumed locally and what amount is exported?
- Do you have data or information on historical and current fish value addition at different nodes of the value chain?
- What is the structure of fisheries management in Makoko?
- What role do traditional institutions play in fisheries management in Makoko?
- Who oversees the management of the landing site in Makoko?
- What rules or regulations guide activities at the landing site?
- Has there been a technological adaptation to fishing practices in Makoko?
- If yes, what has changed in terms of fish handling practices and value addition within the value chain from the landing site in the last 10 years?

To examine how the value chain contributes to or impacts vulnerability in the Makoko fishing community.

- What do you understand by value chain in the Makoko community?
- What do you understand by vulnerabilities within the Makoko community?
- How has the value chain contributed to vulnerabilities in the community?
- Do you consider that fish processing methods in Makoko could contribute to its health and environmental challenge?
- What are the impacts of imported fish on the Makoko value chain and the fishing community?

To analyze or Suggest factors that can address the gaps in the value chain to enable it to contribute to viability.

- Are there gaps within the value chain?
- What are the gaps within the value chain?
- How can the gaps within the value chain be addressed to make it viable?
- Do you think these gaps can be bridged with the governance mechanisms in place?

Appendix D

INTERVIEW GUIDE FOR FOCUSED GROUP

Specific questions about Fishing

- code:
- Interview location:
- Gender:

- Highest level of education completed:
- Family details: {married/unmarried(Y/N),}

TO UNDERSTAND THE VALUE CHAIN IN MAKOKO HISTORICALLY AND CURRENT PERSPECTIVE?

- What is your understanding of value chain?
- So what constitutes value chain in this community?
- Historically, considering generations gone by, when did fishing activities begin in Makoko?
- Historically, was fishing in Makoko for trade or domestic consumption?
- How did it evolve to be a fishing hub, fish sellers' market and a fishing community?
- Post-independence, what was the value chain of Makoko fishing community like?
- How has the value chain evolved from post-independence till the present day?
- Do you consider that colonialism may have had an impact on the way the value chain has evolved over time?
- What can you say about fish species availability, variation, and catch levels in the last 20 years? Are there variations? If YES, what accounts for these variations?
- How has Makoko evolved in terms of technology into its value chain practices?
- What improvements in terms of value addition have been adopted into the value chain over time?
- Are fishers' incomes better now than in the past?
- Are there community practices historically and currently that impact negatively on the value chain?
- Are there any cultural or religious norms that place restrictions on women in the value chain? If YES, name them.
- Are there fishers who settle here temporarily: During which months do fishers settle here? How many boats with fish are landed here? 20 years ago? How many boats land here now? Are all the fish landed from the Lagos lagoon?
- Is ice widely available here? Is ice used as a mode of preserving fish here? Has this affected the proportion of fish sold fresh vs processed (give detail) Are fishing boats mechanized here now? If yes, how has this affected fish landing?

TO EXAMINE HOW VALUE CHAIN CONTRIBUTES TO OR IMPACTS VULNERABILITY IN MAKOKO FISHING COMMUNITY.

- What do you understand by vulnerability in the Makoko fishing community?
- What are the economic, social, and political impacts of fishers' earnings from the value chain on their household?
- What are the issues that have impacted households because of the vulnerable fishing community?
- What are the environmental impacts of the value chain on the Makoko fishing community?
- ?
- How are the vulnerabilities within the Makoko fishing community represented/understood by the government? Is it considered a problem?
- Was there a time when there were no value chain impacts exacerbating vulnerabilities within the fishing community? YES OR NO, explain.

TO ANALYZE AND SUGGEST FACTORS THAT CAN ADDRESS THE GAPS IN THE VALUE CHAIN TO ENABLE IT TO CONTRIBUTE TO VIABILITY.

- Are there gaps in the value chain?
- What gaps is the value chain experiencing?
- What assistance do you consider necessary to make the value chain profitable and viable?
- What are the ways that actors in the value chain can address gaps inherent in the value chain?
- What can government and institutions do to address gaps in the value chain?
- What can the community do to address value chain vulnerabilities impacting the community?
- What interventions does Makoko require to improve value addition at every node in the value chain?

Appendix E

INTERVIEW GUIDE FOR HOUSEHOLDS

- code:
- Interview location:
- Gender:
- Age:
- Highest level of education completed:
- Family details: {married/unmarried(Y/N),}
- Do you involve in the fishing business or what business do you do?
- Length of years lived in Makoko:

TO UNDERSTAND THE VALUE CHAIN IN MAKOKO HISTORICALLY AND CURRENT PERSPECTIVE?

- What is your understanding of value chain in this community?
- What constitutes a fisher household in this community?
- Historically, considering generations gone by, what was the fisher household like?
- How have these households evolved over the years? Has fishing households changed in any way?
- What are these observed changes or variations?
- What is the current perspective? What is practiced today in households? Are you all engaged in the value chain?
- Do you envisage any changes in the future of household engagement in the value chain?
- What form of changes do you perceive will or could come about?
- What are the issues within this value chain that you feel needs attention?
- What can you say about the profitability of fishing households from the value chain in the past and present day?
- What value additions would you like to see at different nodes of the value chain?

To examine how value chain contributes to or impacts vulnerability in Makoko fishing community.

- What do you understand by vulnerability in the Makoko fishing community?
- What issues affect you most as a fisher household in Makoko fishing community?
- Are there issues of marginalization for being a fisher household in Makoko?
- Has the value chain improved your social and economic fortune overtime?
- What health, social and environmental challenges are prevalent in the community because of the value chain impact?
- Do you consider that the value chain has made positive impact on livelihoods and wellbeing of the fishing community?
- Have changes occurred involving your material wellbeing because of the value chain?

- Has vulnerabilities within the community affected you in any way?
- How has the value chain impacted youths in your community?
- Would you advise your kids to embrace the fishing profession in the future?
- Are there social vices that exist here in the community because of value chain impact?
- Do you imagine that the Makoko community is at risk because of the value chain?
- How has the value chain impacted households in the community?

To analyze or Suggest factors that can address the gaps in the value chain to enable it to contribute to viability.

- Are there gaps in the value chain?
- What gaps do you think the value chain experiences?
- Can these gaps be bridged?
- How do you think these gaps may be bridged?
- What enablers do you consider that the value chain may require?
- Are the small-scale fishing community involved in any organization to help address issues within their environment?
- What measures do you think are necessary to manage or prevent vulnerabilities within the fishing community?
- Do you think that fisheries policies would be beneficial to help address different scales of vulnerability within the value chain impacting the community?
- How has households reacted positively to reduce value chain impacts?